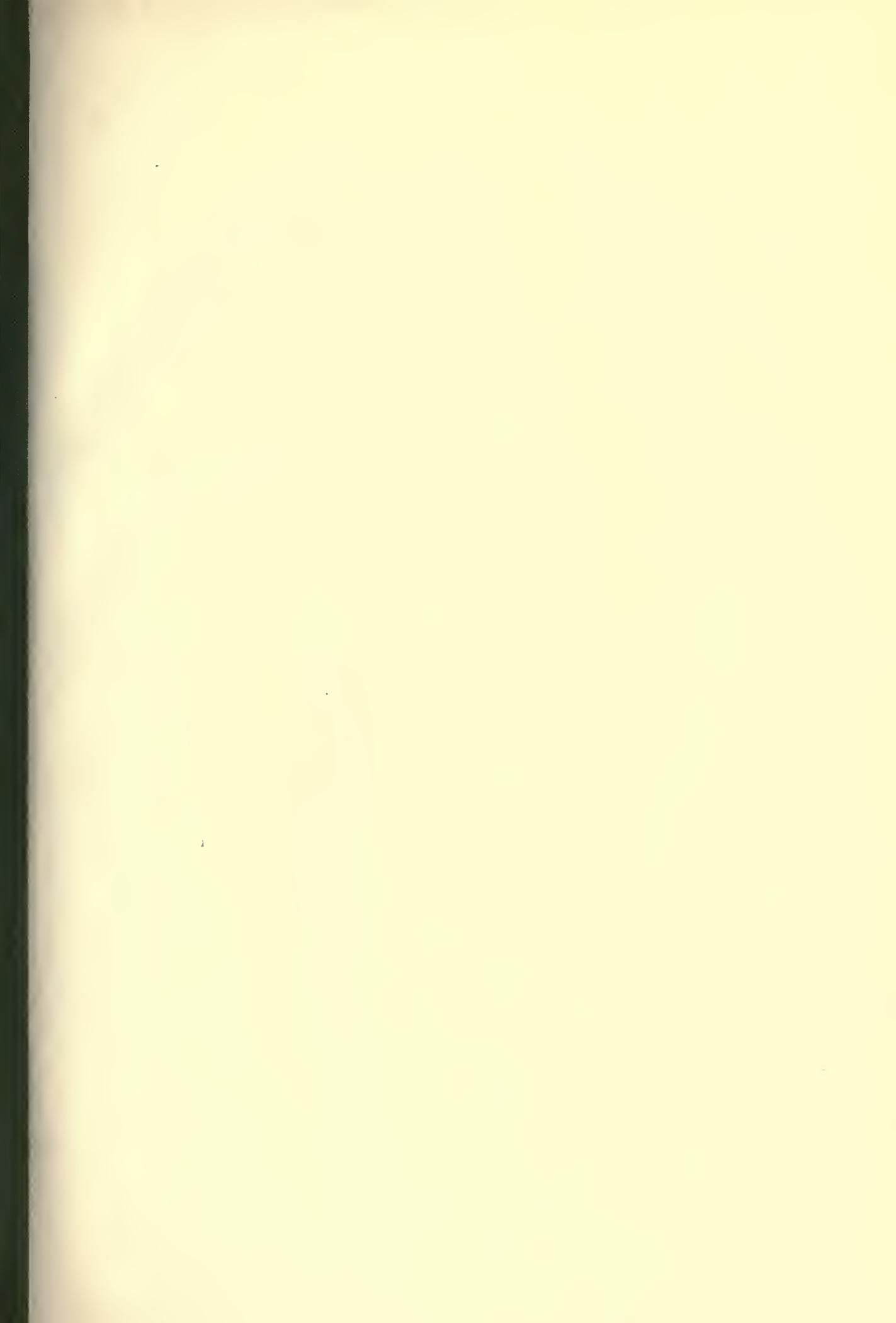


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BY

JOHN B. HAMILTON, M. D., LL. D.

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CHICAGO, JULY 7, 1894.

No. 1.

ORIGINAL ARTICLES.

EARLY SYMPTOMS AND DIAGNOSIS OF TUBERCULAR JOINT DISEASE.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY EMMET RIXFORD, M.D.

SAN FRANCISCO, CAL.

In view of the fact that there are to read two papers, besides the present, on the symptoms and diagnosis of tubercular joint disease, it has seemed best to me to confine my remarks to a limited portion of the subject rather than to attempt to cover a larger field. I have chosen as a fitting introduction to the study of tubercular joint disease to say a few words on the value of early diagnosis in these conditions, and the relations between diagnosis and the therapeutic measures at our command.

In most medical matters it is best on general principles to make the diagnosis when the case is first seen, but this means that it is best largely as a matter of convenience and to enable the attendant through early prognosis the better to control his patient, for a little delay in instituting treatment would make almost no difference with the patient's welfare. The cases are few where therapeutics are so perfected as to permit of the disease being aborted, or much modified by treatment, even if seen in the very beginning.

In tubercular joint diseases, however, it is quite otherwise. Here we are dealing with a disease which begins insidiously and progresses so slowly as to require observation for a considerable period of time to make that progress evident. Changes in symptoms are to be noted not day by day, but week by week, or perhaps only month by month. The time element here holds a prominent place.

When we consider that the chief factor in the extension of the disease is traumatism more or less frequently repeated, we at once see the value of an early diagnosis, for orthopedic surgeons taking the hint have worked out the mechanical problem of how to avoid such traumatism. By this, the so-called conservative method of treatment, the real cure is left to the innate resistant and reparative forces of the organism, stimulated by intelligent support of the general system. If such treatment can be instituted at a time when the disease is limited to a small collection of granulation tissue, say in the articular extremity of a bone, the joint can be put in the best possible condition as regards probable cure.

Experience has abundantly shown that this method of treatment when begun early gives excellent results, but it requires the constant attention of the surgeon for from two to six years, a hardship on the medical attendant, and on the parents, and most of all on the child. To initiate such a course of treat-

ment in a delicate sensitive child is like passing sentence of imprisonment for a like period of time—it would be justified only by the extreme conditions of the case. It were almost criminal to pass such sentence on circumstantial evidence or in fact on anything short of almost absolute certainty in diagnosis.

Then again these children are mostly offspring of the poor who can not have the means to procure properly healthful surroundings and who all too often, their patience exhausted in the long siege, willfully or ignorantly neglect those measures within their reach.

Were some more direct method of treatment shown to give equally good results in regard to function it would be more than welcome. Of such methods there are a number which, though still in the experimental stage, bid fair to be of value.

Early excision of tuberculous foci at a time when the disease is confined to small areas outside the joint proper has been long practiced and is theoretically, where it can safely and thoroughly be carried out, an ideal treatment. To drill out the neck of the femur through the trochanter in coxitis, enucleating the tubercular foci in the head of the bone may be a rational procedure under certain conditions and may be carried out by those who have the requisite skill, but to be justified it must be done early and at a time when the diagnosis is most difficult. Not only must the diagnosis of tubercular coxitis be certain but the lesion must be accurately located in the head of the femur. The procedure is by no means an innocent one nor is it certain that in a given case there might not be left a portion of the diseased tissue. Further, there may be more than one focus of disease, and of this we have no means whatever of determining the existence. After all, granting that the technique of the operation can be perfected the whole matter hinges on the diagnosis. Senn says that with the exception of circumscribed points of tenderness outside of the joint, that indicate the existence of primary osteo-tuberculosis during its early stages, we have no symptoms which enable us to make a positive differential diagnosis between a primary osseous and a primary synovial tuberculosis of a joint. In the superficial joints such points of tenderness can be located, but that is quite out of the question when the focus of disease is in the hip or in the deeper parts of the other large joints. However, those cases in which the muscular atrophy is rapidly progressive are quite certainly of osseous origin, or at least involve the bone.

Another method of treatment and one which bids fair to be more generally applicable than early excision is puncture and injection of iodoform directly into the foci of disease. This requires, with the latter, the most perfect aseptic technique, fairly accurate localization, though there is little or no harm done by injecting sterile iodoform emulsion into the

tissues about a joint and if the emulsion is not known to be sterile it should not be used at all.

A number of other methods have been suggested, some of more or less value, the latest of which is that advocated by Bier in the Twenty-first German Surgical Congress. In a second paper in 1893 he reported forty-three cases of surgical tuberculosis treated by this method, which consists in causing a continuous hyperemia of the extremity for a number of weeks. Many of the cases were cured within three months. The method has been taken up by Mikulicz who has seen from it sufficiently good results to think it of considerable value. If this simple procedure proves to justify the hopes of its originator it can be tried as soon as the diagnosis is made and as it is thoroughly innocent the diagnosis need not be absolute.

The study of diagnosis and treatment should go hand in hand. Important as it is to make the diagnosis in tubercular joint disease at the earliest possible time, the diagnosis should be made certain before such severe measures as long continued immobilization or operative procedures are instituted. In most cases, if immobilizing apparatus be applied early, the symptoms of muscular spasm, pain and even tenderness will soon subside and unless the diagnosis is certain in the beginning, there will be a lurking suspicion that an error has been committed and the child is being badly punished. In other departments of medicine in case of doubt it is generally advisable to settle upon the more severe of the diagnostic possibilities, but here a little delay sufficient to clear up the doubt is the lesser of the two evils as long as there remain to be devised methods of treatment entailing less hardship on the patient. Unfortunately, too, there is no symptom or group of symptoms which determines with certainty when a tubercular joint is permanently cured. The case is not unlike that of syphilis. In many instances it is impossible to make the diagnosis, no matter what the probabilities, before the appearance of secondary symptoms and it is a very severe thing to initiate a long course of mercury and iodid of potash in a case of doubt. So in tuberculosis of the joints, the diagnosis is not to be made in the very beginning of the disease; we must wait for certain symptoms and sometimes, be it said, characteristic symptoms are late in making their appearance.

I do not wish to be understood as really advocating delay, but rather as emphasizing the necessity of making the diagnosis certain beyond reasonable doubt and then the earlier the better.

We have still too many cases of rheumatism developing into hip joint disease and too many cases of hip joint disease with cautery marks and blister stains about the knee joint.

In view of the previous considerations let us consider at what stage of the disease the diagnosis is to be made with certainty. Taking tubercular coxitis as the type, in general the first symptom to be noted is almost invariably the limp, an evidence of more or less conscious pain. There is nothing characteristic about this limp—it may be simulated by a number of other conditions. Its real value is to direct the attention of the physician to the child's hip, that he may the more carefully observe the case and watch for more definite symptoms. Actual pain about the hip, or pain reflected to the knee, makes the diagnosis of coxitis probable, but in many

cases pain severe enough to attract attention is entirely wanting. It seems to bear no definite relation to the extent or character of the lesion. Of most value in making the diagnosis are symptoms ascribable to inflammatory irritation, chief of which is spasm of the muscles controlling motion of the joint. No single symptom is characteristic of tubercular joint disease but the nearest approach to it is this muscular spasm, especially if it varies in intensity and intermits. A case in point deserves mention:

A boy of 5 years in whose family there was a case of pulmonary tuberculosis was noticed to limp for several days. The right leg was held somewhat everted, slightly flexed and abducted, though the boy would stand perfectly straight when his attention was directed to his position. Considerable joint pressure made in various directions failed to elicit pain; movements of the leg were normal in extent and painless, save adduction which was slightly limited, as was also rotation of the thigh in the flexed position. The child was kept under observation without treatment and the limp entirely subsided in a week or two. He was seen from time to time for several months but no further evidence of hip joint disease appeared.

Another case in a boy of 14 whose brother came to me nearly a year ago in the so-called third stage of hip joint disease with a large abscess, has had a hip-joint limp for many months. It varies in degree, subsiding almost entirely at times. He has occasionally had a little pain in the region of the joint. The leg is habitually held in slight flexion but abduction is more marked. Adduction is somewhat limited. There is no shortening. There is a slight fullness to be made out about the hip. Vigorous movement up to the limits of range failed to bring out expression of pain as did also severe joint pressure in various directions. It was thought to be a low grade of inflammation in a bursa in the region of the lesser trochanter. The boy is kept under observation and without treatment the condition has materially improved though there is still a considerable limp at times. His general health is excellent and he is a lively growing boy.

EARLY SYMPTOMS AND DIAGNOSIS OF TUBERCULAR JOINT DISEASES.

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY A. B. JUDSON, M.D.
NEW YORK.

In writing on the subject proposed by our honored chairman I have limited my paper to the consideration of Pott's disease of the spine and hip disease. These affections present many difficulties, especially in the early diagnosis. In diseases of the other joints the same principles and methods of examination hold good and diagnosis is easier because the bones lie nearer the surface.

POTT'S DISEASE OF THE SPINE.

The most important symptom of Pott's disease of the spine is pain in the stomach. Two lines which should find a place in the *vade mecum* of every physician are: "The pain of spine disease is in the stomach," and "the pain of hip disease is in the knee." No prescription for recurring colic should be written, unless it is preceded or presently followed by a careful questioning of the health of the spinal column. The inspection thus prompted may reveal a projection in the median line which should be located by counting the spinous processes downward from the vertebra prominens (seventh cervical), or upward from the fifth lumbar, which is in the line connecting the posterior superior spinous processes, or the result of one method may be verified by the other. The rounded back of rickets or spastic con-

traction should not be mistaken for the deformity caused by vertebral caries. In the lower dorsal region, from the sixth to the ninth inclusive, it is also well to avoid a peculiar source of error. The spinous processes of these vertebræ have a great inclination downward, overlapping like the shingles on a roof, and when a thin patient stoops they approach the horizontal, and pushing against the skin make a projection which has often led to error or unnecessary apprehension. This mistake may be avoided by noticing whether the projection is angular or not.

The expression, *angular curvature*, has been criticised because an angle and a curve are essentially different. But in practice the term is admissible and convenient, because the long natural curve of the spine is broken in Pott's disease into two short curves which are united and make an angle at the point of union, as shown in the figure. This point may not make a marked projection, but if it marks the union of two curves even in the slightest degree, as shown in the figure, it means that caries is present and has proceeded to very serious destruction of the bone. A moderate lateral curvature is also sometimes present. An angular curvature then is usually an absolute demonstration of the presence of Pott's disease.



Stephen K., 4 years old. Pott's disease. Duration of symptoms, four months. Normal curve broken into two curves united at an angle.

But it is sometimes desirable to make or approximate a positive diagnosis before angular curvature occurs, and to do this several things are to be borne in mind. The first and most important has already been mentioned; the pain in the stomach, or gastralgia. Next in importance is the peculiar gait. The child in walking avoids stamping with his heels and puts more of his weight on the toes than is customary; or he walks as if he were stepping on a surface which he fears will break if he is not careful; or the line made by the top of his head as he moves across the room is noticed to be rather a straight line than the undulating line made by the rising and falling of the head in the buoyant gait of a well child. And then the deportment of the patient is to be considered. He will play quietly by himself perhaps, or, easily tired, he will frequently lean across the mother's lap, or, if the caries is at a high level he will often support his head with his hand, the elbow resting on a chair or table. He is disturbed by the jolting of a carriage or street-car. He will sometimes be stopped in the course of a rough game by a seizure of pain in the stomach, the laughter ending in cry-

ing. A common sign is a frequent or habitual grunt accompanying each expiration. By following these lines of observation a conjectural or rational, and sometimes a positive diagnosis may be made before angular curvature appears.

In making a diagnosis but little attention may be paid to the general condition. Many cases are seen in which the health remains good in the early stage, as is shown by the normal appetite and digestion, abundant fat, and good facial color and expression. While these signs of health are present and persistent the disease in question may be in quiet pursuit, and this insidious quality should not be forgotten.

In two points, thus far, we have seen that the unexpected has claimed our attention. The pain is in the stomach and not in the back, and the general health shows, as a rule, no reaction. But there is another surprising thing to be noticed in the fact that, although the patient's back is virtually broken, local disability, which is usually found in parts which have lost their bony integrity, is almost entirely absent. So true is this that when we hear of spinal pain and disability we at once think that there is no Pott's disease. If these alarming symptoms are present, together with a comparatively frank onset, it is necessary to think of cancerous disease of the vertebræ, or paraplegia dolorosa. I have seen two or three verified cases of this disease which were believed at first to be Pott's disease and other cases are in my memory which, with a fatal termination unexplained in the absence of autopsies, may have been instances of the rarer and more intractable affection

HIP DISEASE.

Two precepts which should be deeply inscribed in the memory are: "The pain of hip disease is in the knee," and "the pain of spine disease is in the stomach." Recurring pain in the knee, in the absence of physical evidence of disease in this joint, should call early attention to the condition of the hip. But the pain of hip disease, except as an alarm, is not often an important element in diagnosis. It belongs to the group of subjective symptoms and may be almost disregarded in favor of objective signs in an affection which displays so many physical evidences of its presence. Among the first signs is lameness which, in the early stage, may disappear entirely to return after an interval of days or weeks; it is present sometimes in the morning when the patient leaves his bed, and "wears off" after a brief period of activity; it breaks up the natural rhythm of walking, in which equal time is given to the two feet, leaving the well foot on the ground longer than the affected foot and leading the former to give a more accented stroke as it hastens to relieve the latter from the weight of the body. Akin to lameness is the attitude "at rest" in which the patient stands favoring the affected limb, which is abducted and advanced while the weight of the body is principally thrown on the well limb.

Next to lameness in the order of obviousness is the muscular atrophy, seen in the flattening of the nates, as the patient stands with his clothes removed, and in the characteristics of the gluteal fold, which is shorter and more shallow than that of the unaffected side, and recognized by the tape measure which shows that the thigh and leg are less in circumference than those of the well side.

Then comes the most valuable, and yet most fre-

quently neglected, sign of the early stage, the checking of passive motion by reflex muscular action. This is found earliest perhaps in rotation. Let the patient sit on a table with the legs hanging over the edge and then impart a lateral pendulum like motion to the foot and leg and note whether the arc of motion is less on the suspected side. Or let the patient lie supine on a hard bed or table and impel the limbs, giving them a rolling motion in inward and outward rotation. On the well side the inner and outer borders of the foot will in turn strike the table, or nearly so, while on the suspected side rotation may be obviously limited. Limited abduction, adduction and flexion may be sought manually by testing the passive motion of the two sides alternately. The patient may be induced to give himself a test for limited passive flexion by grasping the shin and kissing the knee. On the suspected side he may not be able to bring the knee to the mouth. These examinations should be made with deliberation and the utmost gentleness, for our object is to detect very slight differences in muscular action or even to recognize the reluctance of the muscles to relax in certain directions, although they may not yet by their spasmodic action prevent wide motion.

Aside from this reflex interference with passive motion, it is instructive to note the deportment of the adductor muscles as revealed by the hand placed on them. They may be entirely relaxed, but when passive motion is begun they may suddenly contract and remain in spasm till the attempt at passive motion ceases and the limb is allowed to remain quiet. Or the abdominal muscles, as well as the adductors, may make a single reflex spasm the moment passive motion is begun.

In this, the early stage, all these reflex signs should be sought for in both limbs for the sake of comparison. By comparison, too, the inguinal fold (as well as the gluteal) may be seen to be short and shallow, or the surface over the capsule of the joint may be slightly elevated, or the soft parts about the trochanter may, from being infiltrated, have a brawny feeling which makes it difficult to include a small portion of the skin and cellular tissue in a pinch between the thumb and finger.

When a later stage is reached some of these points may be dismissed from consideration because overshadowed by three unmistakable and easily read signs, and a comparison may not be strictly necessary between the two sides, although a careful comparison is useful at any stage as throwing light on the progress or severity of the case. 1, the patient's lameness is then constant; 2, the muscular disparity is marked, being due in part to over-work on one side and disuse on the other; and 3, there is no motion or almost no motion in the joint. These three features combined make a picture of hip disease which is not easily mistaken for anything else. In regard to the first and second, nothing need be said, but the absence of motion in the joint may readily escape detection. The amount of motion, or its absence, can be recognized only by noticing the deportment of the pelvis while attempts at passive motion are made. To test for lateral motion, arrange the pelvis so that the line of the two iliac spinous processes is at right angles with the edge of the table or the wall of the room, then if there is no motion in the joint the slightest attempt at passive motion in abduction

or adduction, will be accompanied by a disturbance of this line and, if there is some motion, its extent may be observed by noting the point at which the line is disturbed by either abduction or adduction. To test for antero-posterior motion arrange the pelvis by raising the limb till the lumbar spines rest on the table and then as flexion or extension is attempted, in passive motion, the disturbance of the pre-arranged relation between the lumbar spines and the table will indicate the absence or the extent of antero-posterior motion in the joint.

THE EARLY SYMPTOMS AND DIAGNOSIS OF TUBERCULAR JOINT DISEASE.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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No more important division of our subject could have been given me for consideration than this; for while the aim of our calling is to cure disease, yet preceding the therapeutics comes the definite recognition—the diagnosis. And it is just here the physician most frequently errs. Four-fifths of the cases of joint and spinal disease that come under my observation have previously been wrongly diagnosed by medical men. It is in the matter of diagnosis that we need to more thoroughly enlighten the profession—how to early and unerringly recognize these joint troubles. To those of us who have given years of study to this subject, it seems simple and trite, and so while to some I may be amenable to the charge of being commonplace, yet in accordance with the duty assigned me, I will briefly outline the symptoms of the tubercular joint affections.

The earliest symptom, and one ever present, is limitation of the normal motions of the joint. It may be semi-voluntary from apprehension of pain, but as a rule it is caused by the reflex contraction of the muscles controlling the joint. We assume it granted that there is an inflammation in some or all of the tissues composing the joint, and as the nerves supplying these tissues also have filaments from their main root distributed to the muscles, so reflexly the latter contract when the former are irritated. Within a limited radius motion is permissible—beyond that, both in flexion and extension, hindrance is met. A stiffness more or less pronounced is had, observable not only in the freely movable joints, but even in the spine, as is so pronouncedly observed in Potts' disease. This muscular contraction with limitation of motion continues so long as joint irritation or inflammation exists. If it is a joint of the inferior extremity that is affected, limping or lameness is produced and is the symptom first observed, and which calls attention to the afflicted child.

The position in which the limb finds itself as a result of the joint inflammation next deserves attention. Ordinarily, yes, universally, it is flexion. The position of the foot in ankle joint disease would seem to be an exception, as it is always carried downward—but what is that but palmar flexion? Is this flexion of the diseased joint due to the patient voluntarily placing it in the position of greatest ease? Is it because the flexor muscles are more powerful than the extensors, and as all are goaded to contraction they overcome their antagonists and thus

flex the joint? Or is it because that portion or tissue of the joint which is diseased is supplied with the same nerve or nerves which are distributed to the flexor muscles, and thus the latter by reflex irritation contract? Or rather may it not be that the joint in its dilemma simply assumes the position which is most natural to it; that is if it is a question simply of flexion and extension? We always find the fetus with marked and the young child with decided joint flexion.

Scarcely a case will go through its course without pain, most marked when the initial lesion is in the bone, and too, when the progress of the case is acute; usually confined to the joint, occasionally, as in coxitis, remote. The night cry is characteristic of these affections, being most marked during the early hours of slumber.

Swelling of the joint is a decided symptom, more especially so as the case progresses, exceptionally so, however, in *caries sicca*. The joint enlargement is more pronounced when the synovial membrane is the seat of the inflammation than when the initial lesion is in the bone. The superficial joints evidence the swelling more promptly than the deep-seated articulations, such as the hip. The thickening of the capsule and of the periarticular structures, with exudation in the latter, and also effusion within the capsule cause the swelling.

Nineteen-twentieths of the cases occur in children; the growing epiphysis being especially vulnerable to the bacillus. In the adult the synovial membrane is more prone to be the seat of the disease.

Dislocations and marked deformities occurring during the progress of the disease do not concern us here, as we are speaking only of the early symptoms.

The tubercular troubles need not be confounded with other articular affections when we consider their frequency, their proneness to attack children, their insidiousness and their slight influence on the general health in the early stage. Ordinarily unarticular, *i. e.*, two or more joints, being rarely or never attacked at the same time. A tubercular history, inherited or acquired, would assist in the diagnosis. A suspicion of syphilitic joint disease could be cleared up by a course of specific treatment. Abscesses do not occur early, but a rheumatic or gonorrhoeal synovitis would be attended with more pain and more acute symptoms than a tubercular abscess. Doubt as to whether there was fluid in the joint and also as regards its character could be determined by the tapping needle. Rheumatism may attack children but likely as a polyarticular affection and with fever. The spine and joint affections following typhoid fever are ephemeral and quite amenable to treatment by rest, and thus the differential diagnosis of tubercular joint troubles is readily made out.

THE CONSERVATIVE TREATMENT OF TUBERCULAR JOINTS.

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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The chairman of this Section has asked me to prepare a paper on the conservative treatment of tubercular joints, and this brings us to the question of what is conservatism. According to the views held a few years ago in Europe and even now

upheld by some, conservatism consisted in the immediate eradication of all foci of tuberculosis as soon as detected, on the ground that each focus was so dangerous a menace to life that it should be treated with the same kind of conservatism we would use in dealing with carcinoma. According to the observation of many men of vast experience in this country, however, this view is entirely too radical and the etiology of tubercle, both in joints and in other parts of the body, shows us that better results are to be obtained by less radical modes of procedure. For instance, let us suppose we have a bone infected with tuberculosis in the neighborhood of a joint, for it has been shown that tuberculosis of joints in the great majority of cases commences in the bone although, in a certain number of instances, it may primarily affect the synovial membrane; let us suppose, I say, that we have a tubercular focus; in order that this tubercular disease shall spread, it not only must have its germ, but it must have the proper soil in which the germ can grow and the proper conditions favoring its development, and conservative treatment in my opinion consists in so regulating the conditions of life of the patient, and the conditions of the affected joint that they are not favorable to the growth and development of disease, and if we can so regulate the conditions which surround a patient's life, that the elements necessary for the growth of tubercular bacilli are not present, the patient will recover. We see numberless instances of patients who have been practically left to nature, and who have gotten well; gotten well, however, as a usual result with deformity and disability. But if the vitality of the patient was sufficient to enable him unaided to recover with deformity, properly applied surgery should have enabled him to recover without deformity in most instances, if his vitality was sufficient to enable him to recover at all.

What are the elements necessary to the preservation of a joint that has become the seat of tuberculosis?

1. The prompt recognition of the disease in its earliest stages. This is the most important consideration in securing a good result, and one which can not be under-estimated.
2. To give the joint physiologic rest as soon as the slightest symptom of disease is detected.
3. The protection of the joint from traumatism.
4. The continuance of this protection for many months until all symptoms of disease shall have passed.
5. Building up the general health of the patient to the highest possible degree.

These general principles would, I presume, be accepted by most of us, although there might be some differences of opinion in the practical application of methods to secure these results.

The first thing that should be done when a patient comes under observation with a tubercular joint is to put that joint, as nearly as possible, in a condition of physiologic rest and to do this at once. A slight delay at the onset of treatment may mean months and years of subsequent suffering to the patient, which might have been avoided by the prompt application of measures cutting short the inflammation at the start. It is not sufficient, as a rule, to tell a patient with an inflamed joint to go to bed and keep quiet. If it is a child, it will not have intelligence enough to keep quiet, and even if it had

the intelligence, if the joint should be badly inflamed there will be sufficient reflex muscular spasm present to injure the joint in spite of the patient's will, and therefore the joint must be kept quiet by mechanical means.

The first thing to do is to adopt some way of keeping this joint free from motion, and that is the best thing to use in these cases which is most easily to be procured, and later on this can be modified as occasion may direct. If, for instance, you are called to attend a case of knee-joint disease, which requires for its proper treatment, apparatus made by an instrument-maker, do not leave the case at the mercy of the patient's will while the instrument is being made, but protect the joint as well as possible for the time being with some kind of a splint,—with a wooden or pasteboard posterior splint bandaged to the leg, or by encasing the limb in plaster-of-paris from the toes up to the hip, and if there is so much muscular spasm present that the simple application of a retentive splint does not ease the pain in the joint, apply traction by means of a weight and pulley fastened to the foot.

One of the most important causes of trauma is the weight of the body and the concussion of walking, and one of the vital elements of success is the removal of this cause. If the disease is in a lower extremity, never allow your patient to put the weight of the body on it from the time you first see the case until you think it is well and, if possible, so adjust your apparatus that the patient is *obliged* to keep his weight off of the diseased member and do not allow this to be left to his discretion.

In order to secure physiologic rest in an inflamed joint, several things are necessary,—the avoidance of traumatism in movement of the body, and the avoidance of traumatism produced by involuntary muscular spasm and in order to secure the latter, in the vast majority of instances, it is necessary to employ not only a simple retentive apparatus, but one which shall make slight traction upon the joint. The question whether or not traction is of any use in diseases of various joints has been discussed at great length, and different opinions have been held by different observers, but in my personal experience I have found that a large number of cases do not get freedom from pain until traction is applied and *properly* applied. I am accustomed to judge of the success of my methods in protecting the joint by the amount of relief which they give the patient, and I am sure that if I fail to make the patient comfortable by my treatment, I have failed to give the joint the protection which it ought to have in order to arrest the progress of disease. The mere application of a plaster-of-paris splint to the diseased ankle, knee or hip is very good, as far as it goes, and is a very great aid to the joint, but freedom from pain in many instances can not be secured in this way, and traction must be employed in order to make the patient comfortable.

It is not always necessary to employ a cumbersome apparatus to use traction. I remember a case of inflamed ankle joint, which was sent to me a couple of years ago from Texas, the doctor having employed plaster-of-paris boots for nearly a year to secure rest of the joint, without giving the patient relief from pain. She was a hospital patient, and while she was making arrangements to buy an apparatus for the protection of her ankle, I put on a

plaster-of-paris boot to protect her joint temporarily, with the result of giving her partial relief, as had been done in Texas, but not complete freedom from pain. I, therefore removed this dressing, and applied adhesive plaster strips, running from the ankle towards the knee, and long enough to be reversed back to the ankle again, and bandaged these firmly to the leg. I then applied another plaster-of-paris boot from the toes to the knee, and when it had become hard, reversed the adhesive plaster over the top of the boot and bandage and held them firmly in position by a roller bandage thus making traction on the ankle joint by the grip which the plaster-of-paris boot had on the foot, while the adhesive plaster exerted counter-traction on the leg. As soon as traction was applied in this way the patient was free from discomfort and continued to wear this apparatus, it being changed at intervals for a number of months, and eventually recovered without the necessity of resorting to the more expensive appliances constructed by the instrument-maker. In the same way, in treatment of inflammation of the wrist, traction can be applied in a very simple manner by covering a palmar splint, properly adapted to the contour of the hand and forearm, with adhesive plaster, the sticky side being outwards. This should be first bandaged to the hand and then traction should be made upon the hand by an assistant until the patient is comfortable, and the splint fastened to the patient's forearm in this position, the adhesive plaster preventing it from sliding up, thus securing such traction as is requisite to give the joint rest.

You will find that some patients are made comfortable by splints applied in this way, who are not comfortable after the simple application of antero-posterior splint bandaged to the arm and forearm before traction has been made upon the wrist.

Counter-irritation, in many instances, is a most useful addition to rest and traction, and in many cases severe pain does not subside until after the application of blisters or the actual cautery over the point of disease, and in those cases that get almost well and still have a tender spot which persists for months and months, in spite of the careful application of apparatus and sedulous protection of the joint, I have found great benefit from running the fine point of Paquelin's cautery deep into the bone. This can be done with cocain as a local anesthetic, but if the patient is nervous, care should be taken that an assistant holds the joint with great steadiness while you apply the cautery, in order that the application may be made where you desire it.

Now the question arises, How long are we to continue protection to this joint? and I would answer that there is very little danger of your protecting the joint too carefully or too long. I have seen many cases which relapsed on account of over-anxiety on the part of parents or physician to arrive at the end of treatment, but I have seen very few that had been encumbered with apparatus longer than was necessary. I think it is safe to say that as long as any symptoms are present which would suggest to you the use of protection if you were seeing the case for the first time, just so long is it necessary for you to continue protection, irrespective of the number of months or years which the case has been under treatment.

I think the length of time, which is usually laid down as the average duration for tubercular disease

is too short, and I believe that if instead of two years the patient were told in the beginning to expect three years of treatment, it would be nearer the truth. There are cases of tubercular joint disease which get well inside of a twelvemonth, but they are largely in the minority, and so exceptional that the patient should not be led to expect anything of the kind when an opinion is asked as to the length of time during which treatment will be necessary. I think that the severity of pain in the beginning or the rapidity of the onset of the disease can be used as a very accurate guide in estimating the duration of the process, for those cases which seem the simplest when they first come under observation very often are the most tedious to manage.

The question of effusion into joints is a very important one, and the wonderful benefit to be derived from rest and compression is something very surprising to those who witness it for the first time. In cases of acute synovitis, aspiration is often indicated, but in the chronic tubercular joint, compression, with a large compress sponge wrung out in cold water, and bandaged very snugly with a cheese-cloth bandage, is to be preferred.

The question of abscesses is one which comes within the scope of one of the other papers, but I would say that there is also a conservative side to the treatment of abscesses. If the abscess is simply a collection of tubercular material, I believe that it is safer to let it alone and treat it by compression, unless it is in a position where the focus of inflamed bone which gave rise to the abscess can be removed with safety without sacrificing too much healthy bone in the operation. If, however, the tubercular mass becomes infected with pyogenic organisms, the case is altogether different and demands prompt surgical interference.

The time limit which has been set by your chairman is so short that it will be impossible for me to enter into details in regard to the practical application of the principles I have just mentioned, in their relation to the different joints of the body except in the most cursory way, but I will crave your indulgence for a few moments while I rapidly mention a few points which have seemed to me to have been overlooked quite frequently by the general practitioner.

In treatment of the spine, for instance, in the case of children under 3 years of age, as a rule it is impossible to apply any apparatus which will allow the child to run about, and secure for its inflamed spine the rest which scientific treatment demands, and yet I have frequently seen children between 1 and 2 years of age to whom plaster jackets and various other kinds of apparatus had been applied while the child was allowed to run about. These children should always be treated in the recumbent position, the weight of that part of the body which lies above the point of disease being in this way removed and at the same time gentle traction should be made upon the head, while counter-traction is made upon the feet or pelvis, for the purpose of counteracting the reflex muscular spasm which is always present in inflammation of any joint. These principles can be carried out if the child is placed upon a hard bed and securely bandaged to it. But it is extremely difficult to keep the child in a proper condition of quiet on a bed of this kind, and it also has the great disadvantage that the child can not be carried up

and down stairs, and given the benefit of fresh air and outdoor life without being removed from its bed, which proceeding is necessarily attended by more or less traumatism, and I therefore prefer to put the child in a wire cuirass or fasten it to a board, like an Indian pappoose, if it is too poor to buy anything better. In fact, you practically have a portable bed made but a little larger than the child and the child and bed can be carried downstairs, placed in a rubber-wheeled baby carriage and transported wherever its health demands. In many cases of older persons this recumbent position is far better treatment for the spine than any other, but it is so difficult to carry a child about when it is 5 or 6 years of age, that it is almost always treated with some kind of an appliance which allows it to run about. In the vast majority of cases I think that the best appliance for children of this kind is the plaster-of-paris jacket combined with the jury-mast, but it is not the simply wrapping a plaster bandage around a child which does it good, but the correct application of the principle which I have sketched and having a child's spine at rest, whether it be by a plaster bandage or an iron splint, or any other material that the surgeon chooses to adopt which benefits the patient; and to simply envelope it in a loose plaster bandage which slides up and down and does not protect its spine, but is merely an additional weight, hanging upon its already enfeebled form (in some cases actually held up by shoulder straps instead of resting on the ilia) this is the treatment which I wish most strongly to condemn. In order to support the spine a plaster jacket must have a basis of support; it can not be applied to small children with undeveloped hips, and in applying it the child must first be stretched to the point at which it feels comfortable, and plaster bandages fitted so accurately that the child is retained in that position twenty-four hours a day, the jury-mast being added if the disease is above the tenth dorsal vertebra, in order to effect this object. As long as a child has a grunting respiration, a tender careful gait, and desire to support itself against any object which comes within its reach, just so long is its back imperfectly guarded by the apparatus which it carries, and those children should be taken off their feet, put to bed, and absolute rest of the inflamed bones maintained for a long period of time.

In the hip joint also, I frequently see efforts at treatment of no avail, because the gentleman who has had charge of the case has thought that the application of this, that, or the other splint was all that was needful to effect a cure, whereas it is the proper application of the principle of rest of the inflamed joint which is essential, let the principle be carried out in whatever way best suits the surgeon.

I have seen traction applied to inflamed hips, flexed, and strongly adducted, with the result of causing intense pain to the patient, simply because the traction was not applied in the proper direction, and because the patient's body was not held firmly fixed in bed, in order that the traction might have some point from which to pull. I have seen splints put on patients' limbs in this crooked position, which were only meant to be applied to the body when the legs were straight and parallel, and which under these circumstances produced great pain and suffering.

In these distorted and inflamed joints, the first thing to do is to immobilize the body and sound leg in the straight position, and allow the diseased limb

to assume such attitude as it will while the spine is flat, and a line joining the anterior superior spines of the ilia is at right angles to a line passing from the center of the sternum to the symphysis pubis. Now, make slight traction on the diseased limb, in the direction which it assumes while the trunk retains the position I have just mentioned, and make the traction just sufficiently strong to give ease and comfort, the leg being placed meantime on an inclined plane to give it support. If you have fastened the patient securely in bed, and applied traction as I have indicated, you will make him comfortable and can gradually change the direction of this traction little by little, day by day, until both legs are flat in the bed and parallel, without tilting of the pelvis or arching of the lumbar spine. If you find that traction in the line of the deformity does not give the patient absolute comfort, pass a bandage around the thigh, and make a slight lateral traction outwards. In some cases this will give ease to the joint which the longitudinal traction fails to give, but is not necessary in all cases. When the legs are parallel apply your hip splint, and not before, the object being to again allow the patient to take outdoor exercise while the inflamed joint is kept at rest, but if you find that the patient begins to have pains in his joint when you allow him to get up on his splint, or splint and crutches, it shows that you have not applied the splint in such a manner as to protect the joint from the traumatism of locomotion, and if you can not succeed in so adjusting it that the child can go in the open air without increase of tenderness in its joint and without being disturbed by cries at night, put it back in bed, and have it trundled out in the air in a baby carriage until you are capable of so applying the splint as to protect the inflamed joint and, at the same time, leave the rest of the body free for locomotion.

In passing to the knee I would draw attention to the fact that the knee is not simply a hinge-joint, and that efforts to straighten a knee which has taken on the characteristic deformity of chronic tubercular inflammation of the knee-joint, by simply pulling on the leg are apt to increase the pain, because the front of the knee-joint is strongly compressed by force applied in this manner. There is always a sliding backward of the head of the tibia upon the condyles of the femur in cases of chronic knee-joint disease, and to counteract this posterior displacement of the tibia, pressure must be exerted on the head of the tibia from behind forward, at the same time that traction is made in the long axis of the shaft of the tibia, if we wish to relieve the spasm of the joint, and correct the deformity of the knee. The tight ham-string muscles, brought into fierce spasms as they are by irritation within the joint, form a fulcrum, and when the knee is straightened as if it were a simple hinge the joint surfaces are pressed together with a lever of enormous strength acting upon these firm ham-string muscles as a fulcrum, which increased with articular pressure results in pain and damage to the joint. On the contrary, by applying traction for the purpose of reducing the deformity along the line of the articular surface of the condyles of the femur, the deformity is corrected gradually, almost imperceptibly, and the joint can then be put up in a splint which embodies the same principles of treatment—traction in the long axis of the tibia, and pressure from behind forward against the head of the tibia, while at the same time the patient is prevented

from bearing weight upon the inflamed joint, and able to get the benefits of fresh air and outdoor life during the months or years of treatment which will be necessary before the joint is well.

Your chairman has warned me that ten minutes is to be the limit of our papers, so all that I can hope to do is to draw your attention to the principles of treatment and leave the practical application of them to some future occasion.

THE CONSERVATIVE TREATMENT OF TUBERCULAR JOINT DISEASE,

OR, MORE EXPLICITLY, THE PURELY CONSERVATIVE TREATMENT OF TUBERCULOSIS OF THE JOINT STRUCTURES.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY HARRY M. SHERMAN, M.D.

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For the purpose of the present paper it does not especially concern us which or how many of the different tissues which together constitute a joint are affected, and I shall not attempt to discuss methods of treatment based on anatomic differentiation of the location of the lesion. It may, however, be stated that in the great majority of cases the initial lesion, so far as the joint is concerned, is in the bone; but in the purely conservative treatment the management of these cases differs hardly any from that of those which are primarily synovial.

Underlying the treatment of all forms of chronic tuberculosis, of whatever tissue or wherever situated, is the gospel of rest and food. This is founded upon the fact, learned in the first place by experience, and confirmed later by the results of biologic investigations, that there is in living tissues an inherent antagonism to all forms of infection, and that this antagonism is best exerted by tissues that are not functioning and are at the same time well nourished. In the infection of no tissue has this been better shown than in the infection of bone. This is due, in part, to the very chronic course these cases follow, which permits careful and extended study of them, and in part to their large number—for tuberculosis of the joints or bones constitutes more than 80 per cent. of all cases of tuberculosis in patients under 17 years of age; and I have calculated on reliable data that in San Francisco, for instance one child out of every 286 of the child population has tuberculosis.

Work, for a bone, is resistance to pressure and strain,—pressure being produced by the weight of carried structures, and strain caused by the use of the bone as a lever. As bone is a living tissue, work must physiologically be followed by a loss of energy and the need of rest. Rest for a sound bone necessitates that it shall be subjected to neither pressure nor strain beyond that which properly exists between the different parts of the skeleton with the individual quiet. Perfect rest for a diseased bone contemplates that it shall be subjected to absolutely no pressure or strain, whether that be developed in the doing of work, or be the natural result of its position in the skeleton. Practically, it is impossible to wholly eliminate the latter factor, and the aim of treatment on conservative lines is to secure, in the first place, the complete cessation of active work and

then to lessen, as much as possible, the physiologic and unavoidable pressure between bones so that a rest of therapeutic value may be had. During the period of this rest careful attention is given to the general health of the patient, and every effort is made to secure a gain in body weight. This is a brief statement of the principles of conservative treatment.

There are two major plans, in accordance with one of which these principles are applied: One aims to secure rest by fixation alone of the joint, claiming that with fixation is absence of inter-osseous friction and of pressure. This is considered to be true, no matter what may be the relative position of the bones, but the plan arranges first for the gradual correction of any faulty position and then fixation in the proper position. So long as a pathologic process is present the fixation must be maintained, and never must the joint be released until the reparative process is complete. In this method no account is taken of pressure developed by the muscular spasm which is the most common and prominent accompaniment of joint lesions.

The other plan endeavors to secure rest by traction below and counter-traction above the diseased joint, thus addressing itself primarily to the spasmodically counteracted muscles, by antagonizing their spasm, relieving the pressure on the bone and consequently the cause of the spasm itself; the rest from the spasm and the spasm-pressure removes the tendency to early deformity, and the immobilization is then an easy matter,—for in a diseased joint there is no tendency to ordinary motion, but rather the avoidance of it. In regard to arranging for the gradual correction of any faulty position and to the continuance of treatment until the disease has ceased and repair is accomplished, this second plan does not differ from the first.

Of these two distinct methods of attaining the same end, the latter apparently complies more nearly with the requirements of the proposition.

Under conservative treatment, cases of joint disease follow one of three courses: Either they entirely and wholly recover, with a joint so little damaged that its function is in no ways impaired, and its disability must be looked for to be found; or they recover after a certain amount of permanent damage has been inflicted, are functionally more or less incompetent, and their disability is evident; or they do not recover but go on for long periods of time, their condition constantly bad or going from bad to worse; they can perform no function; their disability is complete.

In its results, then, tuberculosis of the joint structures differs in no particular from tubercular or other forms of not necessarily fatal infection of any other part of the organism. That is, the conservative treatment is a method of treatment but it is not a means of cure.

It is important, for its proper use, to know in what cases it will succeed and in what cases fail.

At the Twenty-third Congress of the German Chirurgical Society held in Berlin on April 18 of this year Bruns, of Tübingen, reported 600 cases of tuberculosis of the hip joint; of these but 200 were available for statistical use. They covered a long period of years, had been treated by various methods all conservative, as by revulsives, vesications, cauterizations, immobilization, traction and iodoform. On

their results he declared himself, with very slight qualification, in favor of conservative treatment. He summed up practically, as follows:

1. Of all cases, 48 per cent. begin in the first ten years of life, 37 per cent. in the second ten years, and but 6 per cent. in the third ten years.

2. In 66 per cent. of all cases there is suppuration, abscess and fistula.

3. Recovery is attained by conservative methods in 55 per cent. of all cases, and in an average time of four years.

4. Death occurs usually of a visceral tuberculosis, or amyloid degeneration, or sepsis, in 40 per cent. of all cases; and in an average time of three years.

5. Prognosis depends chiefly, in each particular case, on the presence or absence of suppuration—of non-suppurative cases 77 per cent. recover; of suppurative cases 42 per cent. only.

6. Prognosis in general depends on the age of the patient when attacked. In the first ten years of life the recoveries are 65 per cent.; in the second ten years, 56 per cent.; in the second twenty years of life, 28 per cent. only. No case recovers which is over 40 years old when attacked. Suppurative cases are especially serious in patients over 20 years.

7. Most of the recovered cases die later of tuberculosis of other organs. Of those who recover in the first ten years of life, 6 per cent. die later of tuberculosis of the lungs; in the second ten years, 9 per cent.; of those who have passed 20 years, 7 per cent.

The functional results, in spite of atrophy, shortening, ankylosis, and vicious position, he considered good. In all cases motion was limited. Ankylosis was a frequent result of suppuration. In every case the limb was in a vicious position of flexion, and usually adduction, rarely abduction—the flexion sometimes being 90 per cent. Flexion, rather than shortening, was the cause of the functional disability. The shortening was due to three factors. Atrophy of disuse, absorption of the femoral head, and extension of the acetabulum in an upward and backward direction due to absorption of bone. Without giving any statistics of resection cases he claims that their results, in view of life and limb, are no better than these. His qualification to his advocacy of conservatism was his desire to await modern methods of wound treatment in resection cases. At the same time, Schede, of Hamburg, Helferich of Griefswald, Gussenbauer, of Prague, and von Bergmann, of Berlin, advocated conservatism as against operation.

There are several points in these statistics which would bear careful discussion, but I must not, in my allotted time, attempt more than a brief mention of one or two. His total percentage of deaths, 40 per cent. is a higher mortality than is usually credited this particular form of joint tuberculosis; but this is explainable, partly, on the fact that many of his cases occurred in the time before systematic treatment by traction and immobilization was instituted. The mortality of the suppurative cases, 58 per cent., is of the whole report the part that most holds attention. According to it the chances of a given case's dying are more than doubled by the occurrence of abscess. There can be no doubt in this world but that it is proper to persevere in conservative treatment in cases where there is no abscess for the ultimate chances of recovery with a useful limb are good. But if abscess comes it is a symptom that the organism is not able to absorb and eliminate the

detritus of the infected tissue—tissue that is potentially or actually dead and must be removed; the disease is gaining on the patient; conservative treatment is not conserving. At this point of any particular case what sign or symptom will tell us the patient's chances: whether he will, after being more or less ill, ultimately recover or whether he will die. We know he has forty-two chances of recovering to fifty-eight of dying, but what is this particular patient going to do? How long should conservative treatment be persevered in under these circumstances? That is, how long should the patient be left to the surgical efforts of the staphylococcus to rid him of his diseased bone when the original infection, the bacillus of tuberculosis, may be extending its operations on the bone *pari passu*, or migrating to and attacking other organs?

These statistics are the latest I know of that cover any considerable number of cases. They have been compiled under strict stipulations as to what cases were proper ones to be included. In spite of the consensus of opinions in favor of conservatism, I can not see but that the statistics themselves force us to ask these questions, questions which Bruns himself suggested when he stated that he waited to know the results of later methods of wound treatment before finally committing himself. It is not my duty, in the present instance, to attempt to formulate the answer.

CONSERVATISM IN THE TREATMENT OF TUBERCULAR JOINT DISEASE.

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1904.

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The days of conservatism, to judge from a perusal of our medical journals, seem almost to have passed; for no sooner does a student gain the magical cognomen of M.D. than he seeks fields and pastures new where he may acquire local if not world-wide fame. He seeks this, not in the direction of honest, hard, painstaking clinical work but only too often sees his chance in some major operation, requiring not alone judgment in its planning but experience in perceiving its necessity. Too often in his endeavors to count his majors by the tens or hundreds he loses sight of the main object of his art, which is to save nature's organs intact as far as is compatible with health and life, and errs in his enthusiasm wilfully if not criminally in producing mutilations that cause older and more conservative surgeons to shudder in dismay. Thus it is that our journals are flooded with records of hip-joint amputations, heroic operations on the spine and such like, to the exclusion of records, which happily are being collected, where the limb still remains as a monument of the patient efforts of some obstinately conscientious practitioner, who, following nature's dictates and methods succeeds in saving life and limb in spite of the sneers and innuendoes of his fellow practitioners. However, it is possible for us in our admiration of conservatism to let the pendulum swing too far and to lose sight of the fact that mutilation is not naturally the antithesis of conservatism, but, that between the two there lies a field where bold, active surgical

measures may be of paramount benefit to the patient and absolutely indicated in the various stages of the disease. It is this boundary line between conservatism and active treatment of a tubercular joint that I wish to discuss in some detail, and to make as far as possible a clear distinction between cases that require operation and those which will be decidedly the better for absolute unhindered rest.

There are so many considerations that enter into a calculation of this nature and which influence one's opinion in coming to a just conclusion that it is impossible to lay down definite rules which will hold in every case. Diathesis, present health, social condition particularly the power to gratify certain requirements, such as climate, food, apparatus, etc., influence so materially the conduct of cases, that each patient must be judged on his or her own special condition and environments.

Given a patient in the first stages of hip-disease, a patient whose social condition is such that every luxury can be obtained, that change of climate, fresh air, conveyances, the best of food cooked in the best way, are all procurable; a patient whose common sense or the moral control of whose friends would help in carrying out instructions as to rest in bed, the use of apparatus and the like, I should have little hesitation in giving a very favorable prognosis. In the great majority of such cases cure would follow and, with care in after treatment, the cure would be permanent.

On the other hand, a case of this sort denied all care, all necessities and all luxuries, and, especially denied intelligent supervision and nursing would sooner or later progress from bad to worse and would end, as most of these unfortunate cases do end, in total destruction of the joint and perhaps in death from exhaustion. This is the course with only too many patients seen in our crowded cities; everything is ordered but nothing procured, with disaster as the result. In the face of this, can one wonder at the surgeons in crowded manufacturing centers advocating and carrying out excisions at the very earliest period, even before the joint cavity is involved, under the perfectly legitimate idea that it will only be a question of a short time before the process will go on apace and destroy the articulation?

These advocates of early excision undoubtedly go too far in their views, and often a joint which could be saved with the limited means at their disposal is sacrificed ruthlessly as a holocaust on the altar of their faith. I have among my collection of hip joints one which was removed by one of my old teachers which shows two caseous foci close to the epiphysial line, the joint otherwise being healthy. Knowing as I do both the operator and the squalid surroundings of most of his patients, I am fully prepared to accept this specimen as an evidence of skilled diagnosis and appropriate treatment. However, I think that if the social conditions had been otherwise that it is just in such cases, viz., those where the disease commences primarily in bone that conservative treatment will show the most brilliant results.

Diagnosis is everything and an error committed in the early stages may result in a disaster to the patient. It has been my luck to see cases of commencing hip disease in children diagnosed as intracapsular fracture of the femur and subjected to rough passive movements under chloroform. Most of these

cases ended in excision, and in one a subacute osteomyelitis set in, which necessitated removal of two or three inches of the shaft and scraping out the medullary cavity. So then, I would lay it down as a dictum, that where the disease can be diagnosed as confined to bone, conservative treatment should be relied on as giving the best results.

This is seen to a remarkable degree in tuberculosis of the vertebræ where perforce, in the majority of cases, conservatism is the only available treatment. One sees daily, numerous living examples of healed spinal caries where we have deformity but no other trouble. Here the disease is primarily in bone and is surprisingly curable when allowed to have a chance. Sometimes, in spite of maltreatment, it will clear up in a marvelous manner.

The relation between symptomatology and conservatism is a close one, as it is only in cases where the diagnosis is made early before the joint is extensively involved, that we can hope for a good result. Everything, then, hinges on an early recognition of the joint disease and this, in skilled hands, is usually an easy matter, although cases occasionally occur which for a time defy a positive opinion. I would here be dogmatic and lay it down as an absolute rule, that, in cases of doubt, the patient should be treated as if the suspected joint were the seat of a veritable tuberculosis.

The slightest stiffness of or unwillingness to move the joint in a patient of a tubercular diathesis should be viewed with suspicion, and these symptoms accompanied by pain should at once be a signal for absolute enforced rest. We should be just as much on the alert to diagnose our joint cases at their curable stage as we are to diagnose malignant disease when it is essentially local and amenable to treatment. One could cite cases innumerable where patients who had suffered from the early stages of hip disease during infancy had by careful treatment recovered full movement of the limb, and were in adult life to all appearance free from tubercular foci. It is impossible to say whether the bacilli or their spores are merely latent and awaiting a suitable opportunity to blossom into life; and knowing as we do the tendency of a once actively tuberculous focus to awaken, we are very careful to advise moderation in using a joint once diseased.

The cases that are the most troublesome are those where it is difficult to come to a decision as to the employment of operative procedures. In other words, when should we advise rest and when operation?

The answer to this depends mainly on two considerations: 1, on the joint affected; 2, on the situation and extent of the disease in the particular joint. 1, considering all things the joints of the upper extremity are more amenable to conservative treatment than those of the lower, because they can be more easily rendered immovable and are less liable to be injured during locomotion; added to which the patient can obtain exercise and fresh air without risk. The joints of the spine occupy a peculiar position in being almost beyond the reach of accurate surgical treatment, in the early stages at least.

2. In considering this section, with due regard to what I have previously said as to the views of the advocates of early excision, I should be very much inclined to doubt the efficacy of rest and conservative measures generally in joints where the symptoms pointed to the destruction of the articular surfaces

and pus formation. In these cases I should feel it my duty to advise something more than the expectant treatment.

The particular joint affected and the anatomic region involved would also modify my attitude towards conservatism in any given case; thus in cases of tuberculosis affecting, and appearing to be confined to, the synovial membrane of the knee joint, while recognizing the fact that here rest is a powerful aid towards cure, I should have less compunction than formerly in the face of brilliant results, such as I have seen from arthrectomy, in advising this procedure. It is in these cases, however, that treatment by rest associated with pressure or passive congestion (Bier's treatment) has shown its best results; and consequently the greater one's experience the less dogmatic would one become in favor of or in opposition to any particular method. Occasionally one may be shaken somewhat in one's power of judging as to whether operation is necessary or not. A colored girl aged 7 was under my care some two years ago suffering from spinal caries affecting the fourth, fifth and sixth dorsal vertebræ associated with absolute paralysis of the lower limbs; no anesthesia and no implication of the bladder and rectum. There was marked angular deformity but no evidence of pus formation. The temperature varied and occasionally rose as high as 101 degrees F. in the evening. Absolute rest was enjoined and during six months the child was encased in a well fitting Sayre's plaster jacket, but with no effect. In despair, I had made up my mind to operate and the jacket was removed for that purpose, but for some reason the operation was postponed for two weeks, during which time the child was allowed to roll about the ward floor. To my surprise, I found she was regaining the use of her limbs, and I postponed the operation indefinitely and had the satisfaction of seeing her recover the use of the lower members entirely. Had I operated, I should have attributed the improvement to the operation and not to nature's own processes.

Having made up our minds to put any particular joint at rest, the method of carrying out our plans deserves some description. The forms of apparatus for each joint are legion and most are good. However, as a rule it is not the particular apparatus which is going to cure our case, but the individual care expended on it by the surgeon and his assistants. Wherever practicable the joint should be fixed immovably and shielded from traumatism; and usually plaster-of-paris is the best material to use. In the case of children afflicted with hip disease, the limb is fixed firmly in a plaster case from foot to pelvis, and the same bandage is carried over the sound joint as far as the lower part of the thigh. I have, however, found it impracticable to use plaster-of-paris during the hot weather of our summer and have been forced to be content with rest in bed with extension, using sand bags to steady the body and limbs. The enforced rest is absolute and is kept up for one year, the patients not even being allowed to sit upright during the early part of this time. Each day the patients are wheeled out on the gallery and allowed to bask in the sun, as I find a remarkably good effect from sunlight and fresh air.

Is it possible that a limb can deteriorate by rest too prolonged? The answer to this reveals some curious facts by a perusal of the rather scanty literature of the subject.

Teissier¹ showed by dissection that long continued immobility in a joint might produce a series of important changes including synovial effusion, permanent shortening and thickening of the ligaments, swelling, softening and erosions of cartilage, and even true fibrous ankylosis.

Volkman² reported a number of cases of transient effusion which appeared in joints which had been immobilized in the treatment of fractures and other diseases.

Menzel³ experimented on animals by confining their limbs in plaster-of-paris and found well marked degenerative changes at the points subjected to the greatest pressure. Further information and researches will be found in papers published by Reyher,⁴ Paget⁵ and Butlin,⁶ and all go to prove that certain changes may and do occur in healthy joints kept at rest for any appreciable length of time. Notwithstanding this, the good effects of rest on diseased joints are too well recognized to lessen the value of this procedure.

In many cases, especially those where starting pains at night form a prominent symptom, it may be advisable to put extension on the limb, the object of which is to separate the joint surface and to prevent destruction by pressure. The method of application deserves some care, as it may be possible in some cases to increase the symptoms which it is intended to allay. Thus, in some instances of extreme flexion of the hip associated with shortening of the psoas muscle, if extension be put on and the line of force be perfectly horizontal, the head of the femur is forced deeper into the acetabulum and more pressure is brought to bear on the articulating surfaces; the mechanism being a lever of first kind, the power being applied at the lower end of the femur, the fulcrum at the psoas insertion. Therefore extension should at first always be applied in a direction parallel to the shaft of the displaced bone; in cases of hip disease parallel to the flexed femur, in knee joint disease parallel to the flexed leg. Otherwise extension not only increases the suffering of the patient, but is positively harmful. Later on, when one has overcome the resistance of the contracted structures, it is possible to change the direction of the extension and gradually to bring the limb into the desired position.

The value of extension depends on the power of separating the diseased surfaces from one another and so preventing undue injury by friction. The relief that a patient experiences from starting pains at night is too marked to doubt the efficacy of this procedure.

When we ask ourselves what are the limits of the treatment by rest, we are unable to fix any arbitrary boundary line. As long as there is any evidence of inflammation present, such as pain and tenderness, and especially if there be suppuration, rest must be continued. It is advisable in all cases of early tuberculosis to err on the side of too prolonged rest rather than to allow movements in a joint where there is the least chance of the disease being active. But the question naturally forces itself on us, Are we to use passive motion in a previously diseased joint when, from the absence of pain and tenderness, we have reason to believe that the tubercular process is in

abeyance? This is always a very difficult question to answer. At times, especially where the tubercular disease is confined to the synovial membrane, massage combined with moderate passive motion may be of benefit; but I am not inclined to view this procedure with approval. Yet when one compares the treatment which is advised in pulmonary tuberculosis with that usually followed out in joints, it seems at least curious that in the lungs exercise should be found beneficial and, in fact, in moderation absolutely necessary for a favorable termination, whereas, in joints one condemns exercise as deleterious. Is it possible that full inflation of the lungs increases the vascular supply and helps the connective tissue cells to fight the bacilli without deleterious consequences to the intrinsic lung tissue, whereas movement in joint surfaces injures the intrinsic tissues without in any way bettering their nutrition and placing them in a more resistant attitude? I am not prepared to believe this difference, but am rather inclined to think that the processes are identical and that, if we could only interpret aright the conditions favorable to passive motion, there are many joints that would be decidedly benefited. But the difficulties in the way of a correct knowledge of the pathologic condition of a joint are so great that any attempt to move a joint is attended with more risk than is justifiable.

As adjuncts to rest we have such means as compression, counter-irritations and massage. All these means have a limited application and considered alone a very doubtful value. Compression is particularly useful in cases of tubercle confined to the synovial membrane and where we have no evidence of a central tubercular osteitis. It may be applied with a rubber bandage or by strips of adhesive plaster over a cushion of cotton.

Cold may be applied during the non-inflammatory stage by means of an ice bag or a Leiter's coil. One should, however, guard carefully against its abuse as it may interfere with the proper circulation of the part.

Heat has a more extended field of application. It is best used in the form of antiseptic fomentations, medicated if thought necessary with iodine, corrosive sublimate or boric acid. We may also surround the joint with a Leiter's coil and keep up a continuous stream of hot water running through the tubes.

Blisters, actual cautery, setons, moxas have no place in the modern treatment of the disease. They only incommode the patient and have no beneficial effect on the diseased joint.

Bier,⁷ of Kiel, has advocated the treatment of tubercular joints by a method which he calls "*passive congestion*." The procedure, which is simple, consists in placing a broad elastic band around the limb a few inches above the diseased joint, firm enough to produce congestion but no edema, and loose enough to run no chance of rendering the limb anemic. This congestion is kept up continuously and the movements of the part encouraged, the elastic band being changed occasionally to prevent chafing and abrasion. The congestion is confined to the immediate neighborhood of the joint by carefully bandaging the distal portion of the limb.

The idea was suggested to him by an old dictum of Rokitsky's, that all cyanosis is incompatible with tuberculosis, a remark which however true in its

¹ Gazette Médicale, Sept. 25, Oct. 2, 1841.

² Berlin. Klin. Wochenschrift, Nos. 30, 31, 1870.

³ Arch. für Klin. Chir., Bd. xlii.

⁴ Zeit. für Chirurg., Bd. lli.

⁵ Clinical Lectures, p. 97.

⁶ Transac. Patholog. Society, Vol. xxv, p. 212.

⁷ Centralblatt für Chirurgie, No. 32, s-57, 1892; also Behandlung Juberck der Gliedmassen mit staunungshyperämie, 1893.

main features is not absolute, for one occasionally sees phthisis associated with congenital heart disease.

I have had no experience in this method, but will quote the conclusions arrived at by Miller⁸ who has put this method to a fair test. He says that his experience has not equalled that of Bier, as most of his cases were afterwards treated by other means and could not under the rules of the hospital be allowed to remain a sufficient length of time in the wards. In summing up he comes to the conclusion that the new method can not in the majority of cases take the place of amputation, excision, scraping nor of immobilization, but that combined with immobilization it is undoubtedly an aid in the treatment of these affections.

A limb with a tubercular joint has smaller arteries and is in consequence inadequately supplied with nutriment. May it not be that the diseased part is on account of its malnutrition unfavorably situated as regards its contest with the tubercle bacilli, and that the congestion of the neighborhood assists in the destruction of the bacilli and the throwing off of the disease by bringing more blood and serum (pabulum) to the fighting tissue?

⁸ Edinb. Medical Journal, February, 1894, p. 702.

THE OPERATIVE TREATMENT OF TUBERCULOSIS OF JOINTS—(EXCISION).

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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The question of the operative treatment of joint disease should involve the discussion of several procedures; excision, arthroctomy, incision and ignipuncture. The limits of this paper, however, compel the writer to confine his attention to the consideration of the place of excision in the treatment of tuberculous joint disease. On this subject there is a wide range of opinion in the surgical world. Some surgeons advocate early excision as a routine treatment in tuberculous joint disease; others would never excise at all, because they consider the operation as rarely necessary, and as dangerous; and a third faction believes that excision is to be kept in the background until conservative measures (*i. e.*, mechanical treatment) have had a faithful trial.

Mechanical treatment is a term which has been often applied to the loosest and most incomplete imitations of proper conservative measures. Consequently, when one attempts to define the sphere of operative measures, contrasted with mechanical ones in joint tuberculosis, it must be understood that by mechanical treatment is meant here the intelligent and systematic application of suitable apparatus by surgeons of special training; not the reference of a patient to an instrument-maker with the order for a "hip splint." This is not the mechanical treatment which yields good functional results.

There are two dangers from excision of joints: 1, loss of life; 2, generalization of the tuberculosis.

1. Excision of even the larger joints is not an operation which is accredited with a high death rate. Of late years the mortality has become much less, but the immediate mortality is of little significance compared with the remote, of which we know very

little; for few figures deal with the latter. Immediate results in these cases show very little, because relapse and generalization of tuberculosis occur later, and are the really significant factors. Just as any statistics of operation for cancer of the breast, which only dealt with the three months after operation, would be of little or no value in determining the value of the operation as a cure of cancer. As an example of the very favorable aspect of operative treatment considered (as usually is the case) in the light of immediate results, the following figures are of interest, taking a group of the latest results in excision of the knee for instance:

Lücke¹ reports 101 excisions of the knee with 85 per cent. of good results; Lucas-Championniere² 44 excisions without a death; Thompson³ reports 50 knee excisions without a death; in 287 cases in adults, reported by Schüller⁴ 12.5 per cent. died, and in 274 cases under 20, 10.9 per cent. died. In 129 excisions, reported by Bothe, there was no death⁵; Zeuge-Mauteuffell⁶ had 11 per cent. of deaths in 55 cases done at the Dorpat clinic.

In Lücke's cases there were 60 per cent. of cures; in a series of 48 excisions in children, reported by Angerer⁷, below the age of puberty, there were 70 per cent. of total recovery; in the series of 561 cases, reported by Schüller, which have been already alluded to, 63.8 per cent. were cured. In the last 61 operations, of the 131 reported by Boeckel⁸, union without fistulæ occurred in 82 per cent. In the fifty-five cases operated on at the Dorpat clinic, union by first intention occurred in 71 per cent. As was said by Verneuil, at the Congress for Tuberculosis: "We have reason to be optimistic when it concerns immediate results."

Turning to remote results there are fewer figures. Korff⁹ reports the final results in 104 cases of general resections, with a mortality of 37.5 per cent.; Boeckel relates 127 resections of joints in general. There were sixteen deaths soon after operation (nine from tuberculosis), and fourteen late deaths (eleven from tuberculosis); a mortality of 24 per cent. at least.

The class of cases from which these statistics are drawn is not one from which the remote results can be well estimated, so easily do they escape from observation. In the more inaccessible joints, such as the hip, the results are not as favorable as to recovery rates. In 2,461 cases of hip excision, collected by G. A. Wright¹⁰, the mortality was 34 per cent.

2. Generalization of tuberculosis. This danger demands serious consideration, because it is a danger which the improvement of antiseptics has not tended to diminish. Wartmann¹¹ analyzed 837 resections and found that 10 per cent. of all deaths were the result of rapid miliary tuberculosis. And Mr. Barker, a radical advocate of excision, stated in a lecture before the Royal College of Surgeons in 1888, that in 10 per cent. of all deaths following excision, "rapid miliary tuberculosis came on in such a way as to suggest strongly, if not to prove, that the surgical interference was the cause of the generalization

¹ Deutsch z. für Chir., xxix, H. 4.

² La Semaine Medicale, Aug. 6, 1891.

³ Dublin Journal Med. Science, December, 1889.

⁴ Deutsch z. für Chir., xxx, p. 285.

⁵ Schmidt's Jahrbuch, June, 1891.

⁶ Deutsch z. für Chir., xxix, p. 113.

⁷ Wein Med. Wochenschr., June 21, 1891.

⁸ La Semaine Medicale, April 12, 1892.

⁹ Deutsch z. für Chir., xxii, p. 149.

¹⁰ Hip Disease in Childhood, London, 1887.

¹¹ Deutsch z. für Chir., xxiv, 435.

of the disease." In thirty deaths occurring in 151 resections, reported by Boeckel, 20 were from generalized tuberculosis. In 39 deaths occurring in 104 resections, reported by Korff, 34 were from tuberculosis. Sherman¹² reported 106 cases of hip disease, of which 42 were treated conservatively, and 64 were excised. Of the sixty-four cases excised, the present condition is known in fifty-six, thirteen died—ten of tuberculosis, a mortality of 23 per cent.

In a series of cases of hip disease at the Alexandra Hospital¹³ in London (occurring from 1867-1879), which were treated conservatively, there were 384 cases of hip disease treated, and only 23 deaths (6 per cent.) from tubercular meningitis. König¹⁴ reported that of twenty-one hip excisions, 47.6 per cent. died of tuberculosis inside of four years.¹⁵ Caumont treated twenty-six cases of bad hip disease by conservative measures, and found that 20 per cent. died of tuberculosis, while in twenty-two similar cases which were resected, 33 per cent. died of generalized tuberculosis. These are only some of the writers who believe that operative measures in tuberculous joint disease cause tubercular generalization. This question was discussed at the Société de Chirurgie as early as 1883 by Verneuil, Trelat, Berger and others, who agreed that tubercular meningitis could develop after the slightest intervention in the treatment of these affections. Metaxas and Vêrchère¹⁶ claim that more than one-half of the cases of tubercular meningitis are caused by operation for tubercular bone disease.

FUNCTIONAL RESULTS.

The successful results after resection of the joints must needs be inferior, in most instances, to the successful ones brought about by mechanical treatment in a similar grade of cases. Resection implies some destruction of sound tissue. No surgeon attempts to remove only diseased bone; he must go further and remove a layer of sound tissue with it. Nature cures by the absorption or elimination of the diseased products alone. On general principles a joint mutilated by surgical interference is not likely to be as useful as a joint cured by assisting nature. In the hip, resection means the removal of the head of the bone, and often the neck and trochanter major, perhaps part of the shaft also. Shortening is a necessity; important muscular connections are severed, and an unstable and flail-like joint may result. Wright reported 100 cases of excision of the hip. There were,

| | |
|----------------------------|-----|
| Soundly healed | 17 |
| Unhealed | 57 |
| Dead or dying | 18 |
| In bad condition | 3 |
| Amputated | 4 |
| Recent case | 1 |
| | — |
| | 100 |

In short, about 20 per cent. were satisfactory cases, and of the whole 100, in 30 the excision was done within nine months of the beginning of the disease, representing the most favorable condition for its performance. In Sherman's very favorable group of thirty-four recoveries out of sixty-four excisions, sixteen were reported in two years or less after operation,

so that they are hardly remote results. Of the twelve cases where three years or more had elapsed since operation, two walked with a crutch five and seven years after operation; in two more, Dr. Sherman noted the limp as bad; in two as medium and in five as slight. Yet these are, so far as the writer knows, the best statistics yet presented in favor of hip excision.

Excision of the knee leaves a stiff joint, no matter how successful the case. After mechanical treatment successful cases have motion. A foot which has successfully recovered from ankle joint disease without operation is manifestly a better one than when bone has been removed.

No attempt will be made here to define or defend mechanical treatment. Considering briefly what is expected from mechanical treatment in its best aspect, the group of results in hip disease referred to¹⁷ are a sufficient warrant for the statement that in skilful hands, modern conservative treatment yields, as a rule, good results in the case of children before puberty. All surgeons agree that unnecessary operating is to be avoided; all surgeons would agree that, other things being equal, non-operative measures should precede operative ones where there was a chance of their success. Here comes the struggle, however, that advocates of excision decry persistence in conservative measures as useless.

In this connection the experience of the Children's Hospital, Boston, may be of interest in the matter of hip disease. From 1878 to 1892, inclusive, there have been some seven hundred and fifty admissions to the wards for hip disease, many of the cases having been admitted twice, so that the number of patients is not quite so large. Of these cases only thirty-seven have been excised. It may be added that the surgeons of the Hospital have not been specialists, but general surgeons, holding appointments in general hospitals. To show more accurately the number of cases under treatment it may be stated that in the last nine years of this period (from 1884 to 1892 inclusive) 718 new cases of hip disease have applied at the out-patient department for treatment. Some of these were admitted afterward to the wards, while others were treated as out-patients. All were treated by conservative measures except in very severe cases. Briefly, in several hundred hip cases, many of which were severe at the time of application, only thirty-seven have required excision.

These figures will serve to show the practice of those surgeons who believe in mechanical treatment, namely that excision should be regarded in children as a measure to be reserved until mechanical treatment has failed. This is done on the ground that operation is in most cases unnecessary; that it is attended by certain risks which have been pointed out, and lastly that it yields, on the whole, inferior results to conservative measures. Excision is therefore necessary in children when efficient mechanical treatment is not obtainable, and when mechanical treatment has failed.

The evidences of the failure of mechanical treat-

¹² Sherman, Trans. Am. Orthopedic Ass'n, Vol. vi.
¹³ British Med. Journal, Aug. 3, 1889.
¹⁴ Archiv. für Klin. Chir., xxvi, 822.
¹⁵ Deutsch z. für Chir., xx, 344; also Elben, Cent. für Clin., ii, 77.
¹⁶ Grosch, 1882, 14, p. 229.
¹⁷ Etude, sur la Tuberc. p. 520.

¹⁷ C. F. Taylor, Boston Medical & Surgical Journal, March 6, 1879.
 V. P. Gibney, N. Y. Med. Record, March 2, 1878.
 Cazin, Statistique de Coxalgie suppurés, Bull. de la Soc de Chir. Cazin, Medical Times & Gazette, May 20, 1876.
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 H. L. Taylor, Philadelphia Medical News, March 23, 1881.
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ment are these: When in spite of good care, joint swelling increases, dense induration comes on with discharging sinuses, the granulations become flabby and inactive, and when, most important of all, the general condition of the child has begun to fail, the time for operation has manifestly come. Certain painful cases, which are rare, demand excision as soon as it has been demonstrated that mechanical measures have failed to control the pain.

The chief index, however, in the care of children is failure of the general condition along with a bad condition of the joint. Either alone is incomplete. This states only the view of those surgeons who are familiar with and believe in mechanical treatment. The loud advocates of operation are, as a rule, those surgeons at home and abroad who know little or nothing of the best conservative measures. In adults, tuberculous joint disease is from the beginning a more serious matter than in children. The process is more acute; it is not so amenable to mechanical measures; the systemic infection is more, and in cases of even moderate severity, excision is, as a rule, the best treatment. The results of mechanical treatment are not satisfactory except in mild cases, nor should mechanical treatment be persisted in for more than a brief time if progress is unfavorable. Nor are the results of excision so successful as in children, although the perfection of operative methods have tended to improve the death rate and the results.

The writer has avoided burdening this paper with masses of comparative statistics bearing upon the results to be obtained by mechanical and operative measures. A list of recent and important references is appended.

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SECTION ON SURGERY AND ANATOMY.

SECOND DAY, JUNE 6.

Papers on "Early Symptoms and Diagnosis of Tubercular Joint Disease" were read by Drs. EMMET RIXFORD, San Francisco, and A. J. STEELE, St. Louis, Mo. A paper by Dr. A. B. JUDSON, New York on the same subject, owing to his absence, was read by the Secretary.

"Conservative Treatment of Tubercular Joints," papers by Drs. R. H. SAYRE, New York, and HARRY M. SHERMAN, San Francisco, were read by the authors, and one by Dr. JAMES E. THOMPSON, Galveston, Texas, in the absence of its author, was read by the Secretary.

Dr. ROBERT W. LOVETT's paper on "Operative Treatment of Tubercular Joints" was also read by the Secretary, its author being absent.

"Treatment of Tubercular Joints by Injections of Iodo-

form," was a paper presented and read by Dr. STANLEY STILLMAN, San Francisco.

"Treatment of Tubercular Joints by Injections of Corrosive Sublimate," by Dr. R. H. PLUMMER, San Francisco, was read by title and referred for publication, as was also a paper by Dr. A. E. HOADLEY, Chicago, on "Common Errors in Prescribing and Applying Mechanical Apparatus."

DISCUSSION.

DR. MEYER, of San Francisco—I take the pleasure of introducing a patient with tuberculosis of the elbow joint, treated by combining operative (incision and scraping) with Bier's method of constriction. The wound apparently healed quicker; while it has quite dangerous symptoms as to discoloration, it is noticed that a line of demarkation forms, a slough is thrown off, and the wound apparently heals quicker than by other treatment. This case is only put on exhibition as a suggestion to those members present who have an opportunity to try this new method and report at subsequent sittings, or at some future association as to the value of this treatment. While with the regular incision for resection of the elbow joint there may be considerable of the humerus scraped out, the wound here cicatrized in less time than usual, taking in this case only five weeks. And for that reason I would recommend to surgeons, who have an opportunity, to try and see whether by this method we make more headway than by iodoform and other treatment with operative interference.

DR. H. M. SHERMAN, San Francisco (introducing three patients)—I wanted to give as nearly as I could an example of a later result of hip resection, to show what the work is. This child has been operated on now, I think it is something like four years. For the last two years she has used no support in the way of a crutch or a stick, for her limp; the shortening is accurately corrected by the shoe. Her limp is the lateral list, the unavoidable mechanical result of removal of the neck of the femur. She has perfect support and a very good functional result in being able to move the limb around in almost any way she wishes. The lateral list is practically the only thing she has and there is very little of that. In making a table of cases, she would be put down as a child having a very slight limp; and technically it is not so—her limp is a list.

It is seven years since this boy's hip was removed. He had also at that time a dorsal spinal tuberculosis, and was wearing a leather appendage, and a little apparatus to carry his head. His limp is less than the other, but that is because he can not make the lateral sway; his spine is too rigid.

I think it is nearly three years since this young gentleman's hip was removed. He ordinarily uses simply this cane. The shortening is made up by one of those patent boots, in the position of extension, so that nothing shows. Now that is a bad limp, but this gentleman was older than the children when he was operated upon. And with his stick on the other side that limp becomes insignificant. His hip had become ankylosed so that there was abscess; the bone was really in a very bad condition, and he elected himself to have the operation done so that he could go hunting, and riding on horseback, which he could not do very well with an ankylosed hip. He spends a good part of his time on horseback, and does everything that anybody else could want to do.

As regards what Dr. Rixford said about the diagnosis, and postponing the beginning of treatment until he is sure of his diagnosis, I must object to that. If a child comes to me and I suspect there is tuberculosis of the bone, I begin treatment at once. Afterward if I find out that I was mistaken I have done no harm, and am very glad, indeed, under the circumstances to be mistaken and to have made an error in diagnosis; but I do not want to wait, to be absolutely sure that there is tuberculosis of the bone, before beginning my treatment, and let the disease get ahead of me. I took a splint off of a child the other day for hip joint disease, where she had worn it only a year, and where she had apparently no remnant of the disease at all, and I told the mother I doubted very much if the child had had tuberculosis of the bone; she had gotten well too quick.

Then, as regards the iodoform injections. In the first place, it is as well perhaps for us to remember that it is not an emulsion, it is a suspension of iodoform in whatever vehicle you choose, but it is not an emulsion. I am disappointed in the treatment. I have had a series of cases at the Children's Hospital which have been watched very carefully, the injections have been made, and I have failed to see that they in any way affected the progress of the cases. In no instance

did it do the child any harm, but I do not think that it has made the recovery any more rapid, or that there has been any effect from it.

A tissue that has been infected by the bacillus tuberculosis is destroyed; it has to be removed, and the injection of iodoform will not postpone the removal of it. Nature will do that in those cases that do not suppurate, by the absorption of the infectious tissues and their replacement by cicatrix. When suppuration takes place the staphylococcus thrives on the infected tissue, and it is broken down and runs out through the sinus. I do not see how, when once it is firmly established, the injection of iodoform, even into the tissue itself can in any way facilitate that process. It might perhaps kill the bacillus tuberculosis, but then its effects are still there in the shape of tissue that was infected, and that, either potentially or actually is dead tissue.

DR. L. SCHOOLER, Iowa—The general tendency of Dr. Sherman's paper was in favor of conservative treatment. In the treatment of hospital cases, and where the patients can be kept constantly under the observation of the attending surgeon, I grant that the statistics are better under that class of treatment than under the operative. In private practice, and in consultation work, both in your cities and country towns such as many surgeons are engaged in, I conceive that the difficulties of conservative treatment are in many cases insurmountable, and I am of the opinion that in the great majority of cases under these circumstances the operative system will give better results, and will save long suffering to the patient. Operative treatment, if effectual at all, effects a rapid amelioration and cure of the disease. Tentative treatment, conservative treatment, by injection of different substances and by the application of mechanical apparatus, is in a great majority of cases tedious, and in the class of cases to which I refer extremely unsatisfactory in my estimation.

DR. J. B. EAGLESON, Washington—The gentleman has said exactly what I wished to say. I will simply add one word to what he has already said; that the ability of the average practitioner, scattered about the country in isolated places, to try the conservative methods of treatment must certainly be limited always. I care not how thorough the discipline the person has been subjected to, if he is placed where he will see one of these cases once a year, or twice a year, or half a dozen times in a lifetime, his ability to handle them, from the conservative standpoint must be minimized, to say the least. Hence I say that the dealing with this class of cases must be looked at from the standpoint of the operation done under those circumstances, and if dealt with from that standpoint, then I say that the necessity for early interference is all-important. It is little less than criminal, it is cruel to watch the progress of a case for months and months, and perhaps for years, with the promise that at some time you will interfere to give possible relief by operation. I believe that an early operation in these cases is the resort of such persons under such circumstances. I believe that can not be emphasized too strongly.

DR. KURTZ, California—It is too late to enter into any close discussion on this subject. I simply want to direct your attention to two points. In the first place it seemed to me that there was a discrepancy in the papers in regard to early diagnosis. Perhaps it is trifling, but I think it is of considerable importance. The first reader, I believe Dr. Judson, of New York, pointed out that we have, as a first symptom, pain. I think that is certainly incorrect, according to my experience and according to my study. It is not the pain that first appears, but it is lameness, and that should be well remembered, for it is of very great importance. A child will drag his leg, it will slightly limp and that limp of the patient with hip disease is very characteristic; he drags the whole leg, not one part as in other diseases, and if you examine that, you will find neither pain nor limited motion, but you have that peculiar dragging limp, probably for a month or two months before the subsequent symptoms, the pain sets in. The same reader also made the remark that we should be perfectly satisfied in preliminary diagnosis before instituting treatment. Really, if we want to wait for the pain that he points out as being the first symptom, I think it will be too late. We should rather make a mistake on the safe side and put our patient in bed with his lameness for a week, or a month, or six weeks, or even more, and see if we can not overcome that condition. If we put a child unnecessarily in bed for a month or two months what does it matter? He will not suffer from it. So I say, begin the treatment as soon as you notice his dragging limp. Dr. Sayre in his very able paper seemed to lay great emphasis on the absolute rest cure in

cases of spinal disease; he lays great stress, I say, on the absolute rest cure. This would be the ideal means of treatment; to place your patient on a hard bed, as he says, or board, and keep him there, with or without a bed. I say if we once put a child on a hard bed, with extension, we need no apparatus at all. We all agree that it takes from two to four or six years to cure any of those cases of Pott's disease, or coccyxitis, or any tubercular disease of the joint, with the exception of the smaller joint. So I say it is rather a risky thing to lay a child on his back that long. Give that child a comfortable splint, give him a Bostwick splint, or some modification of it, and you will have fully as good results. That is my experience. I prefer a living slightly deformed child to a straight dead one.

DR. LYON, Conn.—It seems to me that this case, (referring to the case exhibited by Dr. Meyer) is proper to illustrate the subject before us, and I wish to make one remark in reference to it. He tells me that he was injured eleven years ago by the crushing of this elbow joint. He has now a well-nigh useless arm, but he has a valuable forearm and hand if he could make it available. Now if that elbow joint had been taken out, two to four inches of it, he would have had, not a useful forearm and hand, but he would have had a useful arm. That interference with the nutrition of the arm made it a proper site for the infection of other diseases. He has now a wasted arm, but if that had been taken out, I venture to say, from two to four inches, and allowed the bone to come together, this lad would have had a useful forearm and hand.

DR. MEYER.—I wish to say that this case was under my treatment only since June, 1890; that I had nothing to do with the primary injury, as eleven years ago I never thought of the study of medicine even. I only take this case to illustrate what can be done by combining the treatment by constriction in operative cases, and showing what can be done in a comparatively short time, in six weeks after the operation was closed. He was very much emaciated then, but is now better in that respect, and I intend to make a typical resection of the elbow joint, trying to get a movable elbow. Eleven years ago I did not have this case.

DR. THOMAS, Pa.—With regard to the statement that pain is not the first symptom of disease of the joint, I think that the child who is too small to let us know the fact that he has pain will limp; that very limp is an indubitable sign of pain; it can't be otherwise.

DR. GEORGE F. SHIELS, San Francisco—Apropos of this point concerning pain, I think that this word, pain, is merely a word to express an idea. No matter what we call it, a feeling of weakness in the bone, carrying to the individual the idea that it is not strong enough to support the body, will cause him to limp to save that bone. If the individual feels that there is a weakness in that joint and that he must protect it in such a way as to relieve it, and thereby causing a limp, I think it is a very small matter to argue about whether it is a limp or a pain. It is certainly something by which the patient is made aware of the fact there is a weakness in that joint and that it has to be protected by walking in a particular manner, which produces what we call a limp.

DR. R. H. SAYRE, New York—There are one or two points that have been made to-day which I would like to dwell on. I fully indorse the remarks of Dr. Shiels, and also in that connection I would like to say that when Dr. Rixford says he does not get pain in these cases it is probably because he does not cause sufficient pain in the child for the child to cry out and complain. The truth, however, is that it has a little spasm of the muscles, that there is a twitching of these muscles under his hand, as he moves his hand up and down; however the child may say it does not hurt. You will find sometimes these children say it does not hurt, while they cry. Very often they are too little to understand enough of your language to express their feelings properly, and you must be guided by their faces and see if they express sensitiveness in the eyes and mouth; then they have pain, although they very likely tell us they have no pain. And Dr. Shiels is perfectly right when he says that the involuntary protection to the joint which the child gives by its limp, by its little muscular spasm is a symptom that it has pain. I think that to avoid the beginning of treatment till the child has a marked limp, has deformity, a hump in its back which makes you positive that your diagnosis is correct, is a distinct mistake. If you wait until that time you will never get an absolutely good result in your treatment. You have passed the time. You might as well expect a man who has a little hacking cough in the morning, who has slightly elevated temperature, who gives a

little bronchial breathing in the upper part of his lung, to wait until he has a large hemorrhage in his pulmonary cavity, and expect to cure him of his consumption, as to wait until this child has a hump in his back and a limp, rather than confine him for a few weeks at the beginning, for fear it may prove ultimately to have been unnecessary. Sometimes pain is due to an involvement of the cartilage. In many cases we have a marked presence of the disease before there is acute pain. Unless there is an abscess forming or the cartilage is involved, very often there is a distinct disease before there is alarming pain. But a little pain is what we want to find. We want to be able to take this thing in its incipiency.

In regard to these statistics which Dr. Sherman read, that no case recovers which is over 40 years of age, that I know to be a distinct mistake. I have seen cases of tuberculosis over 40 years of age which have recovered. I know of a number of cases in my father's practice, and several in my own, where the patients were over 40 at the time of their first symptoms, and they have gotten well, or, at any rate, they have lived in a comparatively good state of health, well to all appearances for varying periods until they died of old age later on.

The mechanical list of which the Doctor speaks as a necessary consequence of removal of the head of the femur, I do not think is always present. It depends upon how much bone is regenerated after the removal of the head and neck of the femur. It does not always follow because you have removed a couple of inches of bone that you have a couple of inches of shortening. If the cavity is packed and the periosteum left open, there is very often a large amount of bone regenerated, and it may be sufficient in character and sufficient in size to prevent the limp. I think the cases Dr. Sherman showed here are remarkably good, but I think it is not always a fact that we have a limp after the removal of the neck of the femur. I have seen one or two cases where that limp was not present, and where there was a very little amount of shortening, although extensive bone removal had been practiced.

In regard to the gentleman who remarked that he preferred a living deformed child, crooked, to a straight dead one, I would also, but I do not think that to confine a child to a comfortable cuirass or keeping it in bed for even two years, or more is going to be necessarily followed by death. We see that the Indians carried their children around on a board in the way I have suggested when they are small, and there are a great many Indians in the world yet. And the fact that a child has an inflamed spine, and is six months or a year old, I think is a very good indication for putting that child in bed, in a little portable bed, and keeping it at rest. The point I made was that a little child who had an insufficient pelvis on which to get a basis of support, to put his spine at rest ought to be treated in a recumbent position. If they are big enough to run around, all right. But I see lots of children fastened up in apparatus which is simply hung on their shoulders, and they have to lug around that weight in addition to their body and bones. If these children were put in bed they could be transported by their parents, and when they get better they can be put in apparatus.

One gentleman has said that in country practice it is not practicable to practice conservative surgery. The object I had in my paper was to show that apparatus and the instrument-maker were not necessary always to the practice of conservative surgery in treatment of joint diseases. If you should put the joint at rest by your own intelligence and the work of a blacksmith, carrying out the principle which I treat and lay down in my paper, by such means as you may have in your bureau, plaster-of-paris and so on, and even resort to the blacksmith's shop for apparatus, I think that you can in any part of the country get a good result in these cases, if you will attend to the diagnosis and take the abscess before it has made vast strides. There is no doubt that in our large centers we have a great many opportunities which the men in the country towns do not have, but to say that these cases must be subjected to early treatment with the knife because they have tuberculosis is in my judgment a great mistake.

The papers of Dr. James T. Jelks, of Hot Springs, Arkansas, on "The Causation and Prevention of Hernia;" of Dr. L. Emory Lanphear, Kansas City, Mo., of Dr. C. M. Fenn, San Diego, Cal., on the "Management of Reducible Hernia"; of Dr. James D. Eagleson, Seattle, Wash., on "The Treatment of Irreducible Hernia," were read by title and referred for publication.

REDUCIBLE HERNIA.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY C. M. FENN, M.D.

SAN DIEGO, CAL.

In response to the courteous invitation of our Chairman, I have recently been endeavoring to recall the number of times the errant gut has yielded to my manipulations, and the *modus in quo*. The record enumerates thirty-five reductions since 1865, most of them implicating the inguinal region, and apparently confirming the statement that 80 per cent. of hernias affect that site. It appears further, in comparison with Dr. Dallas' estimate of 3,500,000 cases of hernia in this country alone, that the writer has measurably exceeded the ratio to each practicing physician. So large a number of successful replacements, some of them following the failure of other measures, may seem to warrant a brief consideration of the method of procedure; and as I may not rightfully invade the domain of those who have been delegated to speak to you of the etiology, pathology and surgery of ruptures, my remarks will be confined to the technique of reducible hernia. Not a few of the intestinal aberrations noted, occurred in the person of the same individual who, though for more than forty years a victim to those serious types of hernia known as left, oblique, incomplete, inguinal and right scrotal, attained the ripe old age of 79 years. We shall refer to his interesting case further on.

At the inception of this discussion, I venture the assertion that hernias are not merely mechanical displacements of the intestine, but often simulate neuroses, which strangely enough are not limited to the ruptured patient. The latter, if a novice in hernial accidents, or if his unaided efforts have failed to placate his ancient enemy, is frequently overwhelmed with fear of strangulation and impending death. His dyspeptic, flatulent and neurotic habit, added to the emotional excitement of such occasions, causes a rapid accumulation of flatus, which in local excess arrests normal peristalsis, and with the concomitant paralysis of the gut, presents one of the obstacles to its restoration. Hence, also, constipation due to paralyzing effects upon the visceral nerves. This, you are aware, may often follow incarceration of the omentum alone, of the appendix, or of a small knuckle of the bowel, and in the entire absence of any contraction of caliber or impediment within the canal. Furthermore, as showing the assistance during taxis to be derived from intestinal motion, to which we shall refer further on, a recent writer¹ suggests utilizing the cough, which sometimes produces the rupture—an application possibly of the Latin aphorism, "*Capilla ejusdem canis*"—the hair of the dog cures the bite. The enterocele, also, is often typical of the condition within the abdominal cavity, becoming "smaller after fasting and the use of purgatives, and larger when the tube is distended with food, gas or fecal matter," and hence presents one of the indications for treatment.

And how shall I describe the anomalous symptoms of the medical attendant who, at the outset of his career, if not always, seems to approach such cases with illy-disguised trepidation, his brain filled with phantasms of adherent and necrotic tissues, of abnormal epigastric arteries, and other pathologic phe-

¹ Geo. Wherry, F.R.C.S., England.

nomena. Twixt hope and fear that the knife may be required, and scarcely permitting his client to disrobe, much less assume a proper attitude for taxis, he seizes the rupture with both hands and attempts to reduce it *en masse*. Or later, summoning counsel and with the aid of chloroform or opium narcosis, he renews the ineffectual contest, unmindful of the fact that ruptures, like swine, never yield to force.

Protesting, therefore, against undue haste as unnecessary, in view of any immediate or serious pathologic changes, and ignoring all forms of narcosis because of its paralyzing effect on the bowel, I advise, first, removal of all apparel except the shirts. To lay aside the coat merely, or drop the trousers is not sufficient. The patient, now so far free from restraint and on his back, is ready for the examination of hernia and abdomen, and this, by the way, should be accompanied with words of encouragement and instructions as to respiration, no degree of anesthesia during taxis being an adequate substitute therefor. If constipation is present and the intestine is still distended with feces and flatus, a laxative enema with carminatives is indicated. Should none of these things be found to complicate the situation, invert a chair, as the most convenient substitute for an inclined plane, cover it with a quilt and elevate the patient's hips as high upon its back as possible, resting his flexed limbs and inverted extremities on one of the rounds or better still in the hands of an assistant. If there is much tenderness at the hernial site, or other evidences of congestion or constriction, it may be advisable to employ, topically, sulphuric ether or iced or hot flannels. The latter are to be preferred especially for elderly persons, and are best prepared in a colander placed over boiling water. When the abdominal viscera manifest a disposition to gravitate toward the thorax, which may be learned from sound, sight, etc., the opportune moment for the taxis has arrived. I need not dwell on this latter procedure further than to enjoin the utmost gentleness, and to remark that while one hand exerts a compressive *vis-a-tergo* force upon the head of the hernia, the other is engaged in urging the gut piecemeal, so to speak, through the ring. The entire manipulation is a species of *tactus eruditus* which should be cultivated with every opportunity.

Though this attention to details is not always required and may seem unimportant, it undoubtedly contributes to success.

With a few cases from my note-book, I submit the subject for your discussion:

Case 1, having an inguinal weakness of long standing, had taken temporary possession of a hotel bed, hoping to reduce his rupture and withdraw unseen. He was, however, discovered in a helpless condition by the landlady and medical assistance summoned. Failing to accomplish the object, the latter called in one consultant after another, until four were in attendance. After many delays, owing partly to the patient's forced change of lodgings, the hernia was pronounced strangulated and a surgical operation determined upon. At this juncture, the evening of the fourth day, the sufferer was transferred to the hospital under my service, some three miles from the city. I went out on the following morning, the fifth day after the accident, expecting to operate under difficulties, but finding his condition somewhat ameliorated it was decided to make one attempt by taxis. During my temporary absence he was to have a light breakfast, followed by a clyster containing turpentine and assafoetida; then to be placed upon the back of an inverted chair and have ether applied to the rupture. Upon my return the hernial tumor, though larger than the closed hand, promptly responded to the procedure described. Patient was discharged on the following day

Case 2.—The octogenarian's case, already briefly referred to, on one occasion assumed a medico-legal phase, which I venture to narrate. Advancing years had now added loss of vision to other infirmities. While on the street one day, the hernia came out, necessitating his removal into the nearest house. Messengers were dispatched for his regular medical attendant, but in my protracted absence two other medical gentlemen were summoned, with a result which the patient's own words may in part describe. Upon my arrival later, I found him alone and on the floor, his tear-filled eyes and voice betokening great suffering. The hernia was larger than a cocoa-nut and more sensitive than at any previous period, yet it readily yielded to the position, and taxis already described. As he arose from the chair he exclaimed: "I'm glad you came at last, for those fellows, after sticking a needle into me, tried to push my rupture back with both hands, and couldn't do it." At the same time he handed me a note, left by my predecessors, and reading: "We would advise the family physician to apply ether when he comes."

The somewhat remarkable legal sequence came two months later, in the guise of an \$80 law-suit—for services in operating upon a strangulated hernia! The issue was joined, and a number of expert witnesses promptly responded to the hypothetical question, How much is it worth to operate upon a strangulated hernia? "From \$50 to \$200." The plaintiffs, who had pooled their claims, were awarded \$60 and costs, the jury evidently congratulating the defendant that the maximum fee had not been demanded. The history of the case, besides illustrating the faulty methods referred to, recalls the student's definition of a crab, viz: "An animal that always walks backwards." "Correct," quoth the Professor; "with the trifling exception that the *Crustacea* are not animals and never walk backwards."

Evidently the hernia was at this time neither strangulated nor had an operation (?) been performed.

TREATMENT OF IRREDUCIBLE HERNIA.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1904.

BY J. B. EAGLESON, M.D.

SEATTLE, WASHINGTON.

On looking up the literature at my command on the subject assigned me by the Chairman of our Section, I find that nearly all authors of surgical works have been content to pass it by with very few words.

A hernia is said to be irreducible when, while the circulation of the contained parts is not impaired or the passage of the feces obstructed, the contents of the sac can not be returned into the abdominal cavity. This form of hernia is usually of long standing and of quite large size. It may have one or more of several causes, which have been divided into the following general classes, viz., those depending on the shape of the contents of the sac; those depending on the existence of adhesions; and those depending on the condition of the sac itself.

There is nearly always more or less omentum in the sac, in addition to the intestine which, from neglect in allowing it to go unreduced for a long time, assumes a pedunculated form with the enlarged portion occupying the sac in such manner that it can not be pushed back through the neck of the sac into the abdominal cavity. The intestine can frequently be reduced while the omental contents remain. Occasionally the intestine itself, or its mesentery, may become thickened in the sac while the portion surrounded by the neck may become contracted, thereby preventing its reduction.

The presence of other abdominal organs, such as

the cecum, bladder, ovaries, uterus, liver or spleen in the sac usually make reduction impossible.

Adhesions may form between the omentum and the intestine, or between either of them and the wall of the sac, thus preventing the return of the tumor.

There may be a thickening or a folding of the neck of the sac, or the surrounding tissues may compress the neck in such manner as to interfere with reduction. In old cases, especially where a large portion of the bowel or some of the large solid organs have remained in the sac for a long time, the abdominal cavity may be found in such a contracted state as to preclude their return to their former positions.

An irreducible hernia, if neglected, usually has a tendency to keep on increasing until such an enormous size is sometimes reached as to make the patient totally unfit for any manual labor. Irreducible herniæ of either the inguinal, femoral, umbilical or ventral type are, from their exposed condition, very liable to injury from external violence, and may very easily become incarcerated or strangulated. Inflammation of the sac may extend upward and set up a general peritonitis.

Those affected with this form of hernia are usually subject to some derangement of the digestive organs, such as indigestion, eructations, nausea, flatulence, colicky pains and constipation; besides they suffer from the great inconvenience of its bulk and weight as it gradually increases, causing an unpleasant sensation of dragging pains.

TREATMENT.

In the treatment of irreducible hernia, Prof. Gross presented three prominent indications which must be met: "1, to render the affection, if possible, reducible; 2, where this can not be done, to prevent its increase; and, 3, to palliate the suffering caused by the confined and compressed condition of the displaced parts." To these must be added the modern radical cure operation. In all cases the treatment should be guided by the age and condition of the patient, and also the size and nature of the hernia.

In fulfilling the first indication, all the circumstances of the case must be taken into consideration. The probability of the hernia being changed into a reducible one will depend principally on the size and age of the tumor. All other conditions being equal, a small tumor will be more easily reduced than a large one, and one of recent date than one of long standing, in which adhesions have had time to form, and the tissues to become altered in character and the normal relation of the organs changed. Mr. Bransby Cooper recommended a method which has also been successful in some cases in the hands of many other surgeons. His plan is to keep the patient on his back in bed for several weeks—from six to ten—on a low diet, devoid of all fatty and starchy articles of food, with total abstinence from all alcoholic drinks. The bowels should be moved by an active purgative once in six or eight days with a view to aid in the absorption of the thickened omentum and also to increase the peristalsis in the protruded bowel. Iodid of potash and mercurial preparations should be administered for their absorbent effect. Ice is kept constantly on the tumor. Taxis should be employed at frequent intervals. The late Prof. Agnew recommended constant compression by the application of a bag of small shot over the tumor. Repeated venesection has been recommended by some authors.

This plan of treatment is so tedious and annoying that many patients will not submit to it, as success very seldom follows its trial. Maisonneuve and others have been successful in some cases by elastic pressure applied by the means of an india rubber bandage or bag. In cases where the obstruction to the reduction was caused by a contraction of the neck of the sac, or a small band, the subcutaneous division of the constricting part by a small puncture in the skin, through which was inserted a grooved director and a small bistoury, has been done by Velpeau, Bouchut, Guerin, Pancoast and R. W. Johnson, of Baltimore. The latter devised an ingenious probe-knife with a concealed blade for this purpose. This is a dangerous procedure and can not be successful, except in cases where there are no adhesions of any kind to retain the contents of the sac.

When it is impossible to reduce the hernia by any of these methods, or it is not considered advisable to attempt a reduction, the tumor must be supported in such manner as to prevent its increase and, at the same time, protect it from external violence. In cases where the tumor is small, the best appliance will be an ordinary spring or elastic truss fitted with a concave pad to fit the tumor. This may be made of metal, gutta-percha, wood or heavy sole-leather, so long as the hollow is lined with chamois or soft leather, and properly padded to prevent too firm pressure on the tumor. When the tumor presents a peculiar shape or outline, Mr. Bryant has constructed a successful pad of metal molded on a cast taken from the tumor when at its smallest size. When the hernia becomes too large to be supported by a hollow truss, the best device will probably be a strong elastic suspensory bag, especially in the scrotal variety. A form of bag-truss made to lace up on the sides, and a cup made of soft leather supported by a metal rim have also been used.

In the present day of aseptic surgery, the reduction of an irreducible hernia can be most successfully accomplished by performing the operation for a radical cure. Under strictly aseptic conditions and surroundings, open up the hernial sac and carefully dissect loose all existing adhesions, tie off all the superabundant omentum contained in the sac, which may be so changed as to render it unfit to again occupy the abdominal cavity, with sterilized catgut, and after checking all hemorrhage resulting from the freeing of adhesions, return the protruded bowel, enlarging the neck of the sac or the abdominal ring if necessary to accomplish this easily. The operation for closing the internal ring and restoring the inguinal canal, or making a new one can now be performed by any of the popular methods which will be fully described by the papers on the radical cure of hernia.

In cases where the hernia is very large, and the patient is quite fleshy, it is advisable to keep him in bed on a low non-fat producing diet for two or three weeks, preparatory to the operation. Where the abdominal ring is very large, some authorities advise the removal of the testicle and cord on the affected side, in order to make the radical cure more certain. In old and fleshy or very much debilitated persons the operation should not be undertaken rashly, for there is always great danger in operating on such cases.

Where the operation is not considered advisable on account of the age or condition of the patient,

or is refused by him, the tumor must be sustained by means of a hollow truss, elastic suspensory or other appliance for its support.

In these cases where for some reason the hernia can not be reduced, a course of treatment should be instituted to relieve the derangement of the alimentary canal resulting therefrom. This will be best accomplished by strict attention to the diet and bowels. The food should be plain, simple, concentrated and easily digested. Articles of diet likely to produce acidity or flatulence should be avoided. The bowels should be kept in a soluble condition by mild laxatives. The general health of the patient should be sustained to the highest degree possible, and he should be made to realize that he carries with him a constant source of danger, and that any indiscretion in eating, or external violence, may lead to obstruction or strangulation.

TREATMENT OF STRANGULATED HERNIA.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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"If you see a strangulated hernia in the day, reduce it before the fall of night; if in the night, let not the rising sun witness its presence."—*Stromeyer*.

It is almost a truism that a strangulated hernia, if unrelieved, means death. In an experience of seventeen years, I have seen, with Dr. Richards, one case of umbilical hernia recover without operation after the formation of an artificial anus. It is almost equally true that if the strangulation is relieved early, recovery is the rule that ought to admit of few if any exceptions. The fatal cases of to-day are those of septic peritonitis, of gangrene, of contusion, paresis, and in the aged, pneumonia. With the possible exception of the last named, these fatal conditions are directly ascribable to delay in interference. Fortunately this must be oftenest charged to the neglect of the patient, but the cases are not a few in which, from insufficient examination or a doubtful diagnosis, the limit of safety is permitted to pass. The salient feature in the treatment of strangulation is the diagnosis. With that established the course is reasonably clear. I may be pardoned, therefore, for briefly touching on some of the points which seem of special importance. Given the following complex of symptoms, an irreducible tumor, hard and free of impulse in the side of the hernial apertures, accompanied by abdominal pain, obstipation, nausea and continuous vomiting, the diagnosis is indisputable. It is in the absence of or ill-pronounced development of one or many of these phenomena that the cause for doubt must be sought. The physical evidences of the hernia are often defective. The tumor may be small, too small to make a perceptible tumor, and palpable only in the depth of its canal. In the presence of a loose or irreducible hernia on the opposite side, the real seat of the strangulation is easily overlooked. Where a large and a small tumor are present, the probabilities of strangulation are *ceteris paribus*, greater in the smaller one. Furthermore it may be said that, inversely to the size of the hernia, are the acuteness of development and the severity of the symptoms.

The absence of communication between hernial sac

and peritoneal cavity, as shown by the suppression of impulse and irreducibility, is an infallible evidence of strangulation if the constriction is at the neck of the sac. In large hernias, strangulation by hands within the sac is common, in which cases there will be an impulse and the hernia may be partly reducible. In a specimen presented to the Association two years ago—which I was enabled to present—through misinterpretation of these data, perforation within the sac had taken place by pressure from a Meckel's diverticulum.

Torsion of a loop within the sac, occlusion within a diverticulum, of the sac, acute inflammation as of the appendix may occur without the suppression of abdominal impulse, and without increase of tension in the totality of the hernial protrusion. To an experienced surgeon, increased tension is a most important evidence of strangulation. Through gaseous distension of the intestine and serous transudation within the sac, a hernia after two days' strangulation may resemble a cystic tumor in its hardness and elasticity. The detection of a pedicle deep in an abdominal orifice, may avert an error. A subperitoneal lipoma or a cyst may conceal the hernia and complicate the diagnosis. Inflamed and retained testicles, and deep-seated lymphatic glands have been mistaken for strangulated hernia. The error is trivial. To err in the other direction has often proved fatal.

The symptom which in my judgment is most calculated to deceive is that of pain. Until adhesions form about the neck of the sac or within it, or unless manual efforts at reduction have been made, a strangulated hernia produces little or no pain at the site of the tumor. If present, it is overshadowed by the colicky pains of obstruction and the dragging pain of a fixed omentum or intestinal loop. It is felt chiefly in the umbilical region. Until the extra-peritoneal soft parts are involved in the inflammatory processes, a strangulated hernia is not very tender, except over the line of constriction. Within a year I have seen a patient treated for intestinal colic for three days. A small femoral hernia was overlooked. Three days later, an operation revealed a gangrenous hernia and septic peritonitis.

Nearly every strangulated hernia is obstructed. Therefore vomiting and obstipation are capital symptoms. They are not pathognomonic. In acute cases, vomiting is an initial symptom. It is copious, recurs at short intervals, and may in *foudroyante* cases, within twenty-four hours change to regurgitation of feculoid or fecal matter, with persistent hiccough. Such vomiting can not be mistaken. But even in acute cases the vomiting may be limited to one or two seizures in the twenty-four hours. Such vomiting, associated with diminished renal secretion and albuminuria, may readily be mistaken for that of uremia. Quite recently I saw a case of this nature with Dr. Hoppe. The diagnosis was further obscured by pregnancy. Vomiting did not supervene until the fourth day. The operation revealed a small knuckle of intestine concealed behind an adherent omentum. Opposite Gimbernat's ligament it had become gangrenous.

Obstipation is the rule in strangulated hernia. Lavage may remove the contents of the lower bowel. After that the intestine is impervious. The cases are very rare in which strangulation involves the omentum alone. Such a case I reported two years

ago. In the beginning the intestinal current may not be interfered with. With continued fixation of the gut, it soon becomes impermeable. This applies to strangulation of the appendix caught in a hernia, of which a number of cases have been recently reported, and to that form of hernia in which only a part of the circumference of the gut is involved.

There are yet other cases of hernial obstruction in which the diagnosis can not be made in one or two days. They occur in the large irreducible scrotal hernias of the aged. There are present retardation only of the onflow of the intestinal contents, slight colicky pain, little or no vomiting, recurrent constipation. Gradually the bowel is distended to a point beyond which the rings can not be made to yield. Then ensues strangulation as in the acute cases. One or two weeks may pass before the latter makes itself manifest.

Notwithstanding all that has preceded, cases will occur in which doubt can not be dissipated. The prudent and wise surgeon will deal with all these as cases of strangulation.

In a brief paper on the treatment of strangulated hernia, only two methods can claim consideration: 1, taxis; 2, operative interference.

TAXIS.

As surgery has progressively sought the light for its manipulations, and learned the value of larger open wounds, the usefulness of taxis has become restricted. The indications for taxis are few; the contra-indications many. I have long believed that the future of hernia patients would be bettered, if taxis could be altogether stricken from surgical technique. This statement is made with the full understanding that the mortality of reduction by taxis has been placed at from 4 to 8 per cent. (Bryant, Tscherning.) No statistics can be obtained of cases in which an unsuccessful taxis was followed by kelotomy. Taxis should be restricted to the subacute obstructions of old hernias. The smaller the hernia and the acuter the symptoms, the less is taxis indicated; never in these cases after the first twenty-four hours of strangulation.

The bowel may be irreparably damaged before this, but not often. Gangrene may be present without the usual evidences thereof, such as local edema and redness, great tympanites, rapid and feeble pulse, albuminuria. To consider the absence of any or all of these symptoms as indication for taxis, means enlarging the mortality from strangulated hernia.

Should the effort at taxis be successful which, perhaps fortunately, in the class of cases under consideration it rarely can be, it is so at the risk of returning to the abdominal cavity a loop of intestine doubtful as to viability, or with adherent limbs, and a hernial fluid ready to infect the peritoneum. Every effort at taxis is a contusion of the strangulated intestine. The blood-tinged hernial fluid is an evidence thereof. In intra-abdominal strangulation it is never encountered. Rents of the peritoneal coat of the distended intestine, the dread of the surgeon in laparotomy for obstruction, are none the less likely to occur because the bowel is manipulated under the soft parts and through the medium of a water-pad.

When reduction by taxis is indicated, it should be done under full anesthesia. The absolute relaxation thereby obtained is doubtless responsible for many of the successes of taxis. A time limit to the man-

ipulation has been given by many. Two unskilled hands can do more harm with taxis in twenty seconds than a careful operator will do in twenty minutes. Forced taxis is an abomination which has been expunged from surgical practice. It has been my fortune to see but one case of reduction *en masse*. The efforts of taxis should be gentle, continuous, and gradually increasing in force. Lateral pressure and gentle traction upon the neck of the sac may, by straightening the bend of the gut at the point of constriction, open a passage for the escape of its contents and thus be the immediate precursor of a reduction.

Taxis should be resorted to but once. When it fails, herniotomy can not be too soon performed.

KELOTOMY.

An operation for strangulation is, *per se*, not dangerous. The measure of its gravity is formulated by the condition of the parts and of the patient at the time of operation. I have had thirty-seven operations for strangulated hernia, in every case but one. Of these, six ended in death, two from gangrene and peritonitis, one from pneumonia in a man of 70, one from heart failure in a woman with aortic regurgitation, and one through an error in judgment in adding the radical to the relief operation in a large scrotal hernia. In the sixth case, laparotomy was performed for reduction *en masse*. The intestine, which seemed viable at the time of operation by lamplight, gave way on the fifth day. With my present knowledge the deaths from heart failure and pneumonia might have been averted, by substituting cocain for general anesthesia, since in neither patient could it have been a question of radical operation. In a case recently seen with Dr. Topmiller, I made the relief operation, removing a mass of omentum the size of a walnut, and returned the intestine without inflicting enough suffering to elicit a moan. The patient was 68 years of age and the subject of cardiac asthma.

From the foregoing limited experience, the conclusion is justified that in an otherwise healthy individual, death does not follow herniotomy, except as a consequence of grave changes in the hernial contents or within the abdominal cavity. The full statistics of Hagedorn of 170 operations fully bears out this view. It includes cases treated between 1883 and 1890. The general mortality was 14 per cent. The death rate was *nil* in cases in which the large intestine was involved; 48 per cent. in cases where the small intestine and omentum were unchanged; from 22 to 38 per cent. in cases where it was ecchymotic or suspected of gangrene. These results are a vast improvement on those given by Benno Schmidt, Rose and authorities of Great Britain a few years before, according to which the mortality varied from 25 to 48 per cent. Thus is negated the view that the modern methods of wound treatment have not influenced the mortality of operations for strangulated hernia. As operations are performed earlier, and larger experience improves the methods of dealing with the grave complications, the mortality will be doubtless still further reduced.

OPERATION.

Except in the hernias of infants and in the large hernias of the aged, and then only when the constriction is known to be at the neck of the sac, the incision should be ample. An utter disregard of the anatomic tunics will facilitate procedures. There

must be no enucleation until the sac proper has been reached. To recognize this will sometimes embarrass an experienced operator. When thickened and covered by pendulous masses of fat it may greatly resemble a part of the colon. In acute hernias containing considerable sanguinolent fluid, the resemblance to a discolored intestine is very great. The presence of ramifying vessels in the sac is distinguishing. So long as there is a doubt, it is quite certain that it is *not* the bowel which is exposed. In very rare cases there may be no sac under the line of incision, an uncovered portion of the large bowel or of the bladder presenting. An exploratory opening such as would naturally be made into the sac as ordinarily found, would while elucidating the relations, be far from being a serious mishap, if it involved the bowel.

Is the sac to be opened? This question has been affirmatively settled for all times, if not for all cases. In every case in which the radical operation is to be performed, in which there is the least doubt as to the site of the constriction or the condition of the hernial contents, and always before the constriction is relieved, the sac must be opened; the constricting ring to be divided from within. In the hernias of very young children, where the surroundings might make the aseptic course uncertain, and in the large obstructed hernias of subacute course as seen in the aged in whom a confinement of two weeks might be serious, an external herniotomy is doubtless justifiable. Although I have seen a number of cases in which it seemed applicable, I have never performed one, nor is it probable that I shall. An irrepressible anxiety to see the condition of the hernial contents impels me to what was known as the greater procedure of internal herniotomy. The division of the stricture is always a most delicate operation, in which the hernia knife of Cooper is almost indispensable, the finger serving as a guide. Save in the very tightest strangulations, the intestines are readily displaced to permit the nicking at one or several points of the constricting band. To avert the danger of wounding the intestine, the constriction can be divided from without. In inguinal hernia it is feasible. In femoral hernia it ought not to be practiced, since it entails the division of the crural arch.

The constriction relieved, the hernial contents often have a tendency at once to slip into the abdominal cavity. This is to be prevented, for no intestine is to be returned until it has been thoroughly inspected below, at, and for some distance beyond the line of constriction. In hernias which have been irreducible from adherent omentum, it may be difficult to find the strangulated intestine. Often it is small. In a case seen with Dr. Marcus, only a part of the circumference of the gut was found beneath the constriction. In not a few cases the intestine can not be properly exposed until the adherent and thickened omentum has been excised. Since, as a rule, it can not be returned, it might as well be radically treated first as last. In dealing with the omentum, too much tissue should not be included in the ligature; this should be tightly drawn, care being taken that in the necessary manipulation the thin-walled veins are not torn. After thorough disinfection, the omental stump should always be returned into the abdominal cavity and not be permitted to remain near or within the hernial ring. I have seen, with Dr. Forchheimer, one internal strangulation consequent on the fixation of an omentum to the inter-

nal ring, after a radical cure had been effected by truss. Personal experiences I have not had with complications produced by the omental pedicle returned to the abdomen. Those interested in the subject will find them ably set forth in a recent paper by Dr. Bull.

Hernias in which there is obstruction without strangulation are generally dry. The coils of intestine are reddened, covered often with fibrinous flakes, and often adherent to each other and to the sac wall. Such adhesions should always be severed, lest after reduction the obstruction continue. The greatest care is necessary in severing the adhesions which have formed within the neck of the sac. They must be looked upon as the barrier to peritoneal invasion from an ulcerated bowel. Even with the greatest care, a rent may be made here as the bowel is drawn into the wound. This accident happened to me during the winter, before my class.

There are few things more beautiful to the surgical eye than the fast changing colors of a tightly strangulated intestine, relieved of its constriction. Within a few minutes, dark brown or even black, in turn becomes chocolate, purple, dark red, and pink before the intestine is normal. The contained gases pass on, the constriction groove becomes shallower and while you observe, peristalsis may be reestablished. Such an intestine can be returned with safety. Here two things are to be remembered: 1, it is as unsafe to return a distended gut to the abdomen after herniotomy as after abdominal section; and 2, that false reductions can be made after an operation quite as easily as after taxis. The absence of the gut from diverticula of the sac, which may be present between the musculo-fascial planes or in front of the peritoneum, must be established by the finger within the belly cavity before the reduction of the hernia can be said to be assured. With a free severance of adhesions about the neck of the sac, a mass reduction is not possible after herniotomy. When complications such as these follow herniotomy or taxis, the opening of the abdomen is justifiable. In no ordinary strangulated hernia, however, is hernioplasty a proper procedure.

Introduced as early as 1590 by Rosset and in 1723 by Cheselden, this chimera was almost forgotten until Mr. Tait made an effort to revive it in a paper before the British Medical Association, in 1891. Possibly of service for the radical relief, for reasons almost obvious it can have no place among procedures for strangulated hernia.

The most important question entering into the treatment of this subject is what to do with gangrenous hernia. Shall the constricting ring be divided? The theory was long advocated, and recently again promoted by Banks, that the constriction ring should ordinarily not be divided in gangrenous hernia, on the ground that it bars the development of general peritonitis. By the constriction the septic products of a hernia may be isolated for a time. But the peritonitis develops from within, and that without the direct implication of the intestine. In a case of gangrenous hernia which contained only omentum, seen with Dr. Tilton, of Kentucky, death resulted from general peritonitis. Just beyond the neck of the sac was the colon fixed by the adherent omentum, and its wall rendered paretic through traction, was unable to resist the passage through it of organisms fatal to the peritoneum.

Gangrene of the omentum is rare. Its safety is found in the ease with which it forms adhesions to the sac wall, through which it then receives its nutrition. The case alluded to is the only one I have seen. Benno Schmidt questions altogether the existence of primary strangulation of the omentum. Of Hagedorn's 170 cases, gangrenous omentum was only once the sole occupant of the sac. I have found reports of two other cases: One from Heidelberg; the other of W. H. Bennett, of St. George's Hospital. There is but one opinion as to the management of gangrenous omentum. Excision after ligation in healthy tissue, and return to the abdomen, generally ends in recovery unless peritonitis already exists. The three cases quoted all recovered, although in each the radical operation followed that for strangulation.

When gangrene involves the intestine, the solution of the problem is far less easy. Since Ramdohr first successfully resected the gut for hernia in 1727, the possible success of primary excision has been conceded.

Of recoveries there have been many. But the measure, however ideal, has never gained firm footing among surgical procedures. This in face of the fact that the results from the alternative measure, that of the formation of an artificial anus, have been most deplorable. Recently Poulsen reports twenty-nine cases, with but four recoveries. Of thirty-five cases as treated at St. Bartholomew's, four were saved (*British Medical Journal*, June, 1891, i., p. 701). Certain is it that all cases should not be treated alike, and that every case ought to be considered with reference, first to the condition of the intestine and its environments, and second to the probability of the patient to bear the shock of a prolonged operation.

A strangulation affects the gut either along the line of constriction, or at some or all points of the coil involved, or in the course of the intestine for a varying distance above the point of constriction. Where the constricting band binds the gut, a well-marked groove is made by direct pressure. The constriction, tight enough to occlude the caliber of the bowel, may not interfere with its vascular supply. If gangrene results it will be from pressure at the bottom of the groove and limited in extent. Except for the usually small ulcer in the constriction groove, the gut above and below may be normal in appearance. In the fruitless effort of nature to protect the general peritoneum, adhesions are quickly formed between bowel and neck of sac. In the attempt to sever these, the fragile wall of the bowel tears along the line of constriction. Doubtless many cases of this kind occur, the fecal outpour taking place at the time of the operation. To avoid this it might be wise to follow the practice of Mikulicz, who in every case of suspected gangrene opens the rings from within the belly cavity, thus making a laparocolotomy which permits, as he thinks, thorough isolation by gauze of the infected area. The difficulty appears in the fact that pressure gangrene limited to the furrow and made by the constricting band is not always easily recognized. Fortunately the tissues about it, whether torn by manipulation or not, are in a fair condition for partial excision and lateral suture, by which the patient may be saved the perils and annoyance of an artificial anus. Krumm reports such a case successfully treated, and Barette

three, of pressure gangrene successfully managed in the same manner. In such a case the gangrenous area may profitably be inverted and the contiguous parts sutured in a horizontal fold. In the case of rupture appended, the aperture was treated as a gunshot wound, sutured, and the coil returned to the abdomen, but anchored for forty-eight hours to the wound by a catgut suture through its mesentery.

In some cases the force of strangulation, although influencing the circulation of the whole knuckle, appears to affect most seriously its central part and at a point farthest removed from the mesentery. It is clear that if in such a case excision were to be done, it could only be beyond the limits of constriction. The cyanotic gut about the really gangrenous center would ill support a suture. Let alone, it will recover. The handling incident to suture might easily prevent it. Furthermore, in cases of this nature the gangrene is often more extensive than is apparent. Beginning generally in the mucosa, the serous tissue is the last, and therefore least affected. The fixation of the gangrenous area in the bottom of the wound, relying on nature to make the anus preternaturalis, appears to me sound judgment. The data on which this view is based differ from those which militate against the formation of a fecal fistula when the gut is gangrenous in its entirety.

First and foremost, the caliber of the gut remains patent, and death from inanition is rendered impossible. Again, the fistula which results will probably be small, and close in a few weeks or months without operative interference.

When gangrene involves the entire strangulated knuckle the appearances are sufficiently characteristic. Chocolate or dark slate-colored, denuded in patches of its peritoneum, covered with flakes of lymph and in a collapsed condition, it fails to react to mechanical or chemical irritation. The odor is fetid before perforation has taken place. When the strangulation has been very acute, the changes in and about the hernial sac need not be very marked. After the escape of a varying amount of turbid bloody fluid from the sac, the latter appears of a bright or dusky red, minus the glistening appearance of the normal serosa. When it is of older date, one after another of the hernial coverings are involved in the inflammation. They are welded together, in turn to break down. A fecal abscess is the result.

The most serious and far-reaching changes in gangrenous hernia are often found in the afferent portion. They may be said to involve its caliber, its nutrition, its contents and the peritoneum singly or together. Although long recognized, the dangers inherent in this part of the intestine have recently been strongly brought forward by Beneke. Above the constriction there is always some dilatation with more or less paresis and congestion of the intestinal wall. It may be dark in color and edematous from venous stasis. Possibly from the same cause its mucous lining secretes abnormally, and as a result, at times, enormous accumulations of fluid are found—according to Mikulicz from one to three quarts. This forms an excellent culture medium for bacteria and in the process of putrescence, toxins are formed, the absorption of which doubtless accounts for many deaths under the mask of acute sepsis from strangulated hernia before peritonitis has developed. The disintegration of this fluid gives rise to a fecal odor irrespective of the site of the constriction, and it is

this fluid forced into the stomach and thence regurgitated that is so often mistaken for fecal vomit.—(Mikulicz.) Furthermore the wall of a paretic and congested gut has no power to resist the pathogenic organisms which it incloses. Far above the constriction, hemorrhagic infiltrations, diphtheritic-like deposits on, or ulceration of the mucous membrane may ensue. This is far more liable to such necrotic changes than the outer tunics and there is no way of knowing how far the process has extended. In one of Kocher's cases the gangrene extended four inches, and in one of Taendler's six inches above the suture line. In a case not submitted to operation, the diphtheritic deposits were found six feet above the constriction.

When death follows hernia, the symptoms of peritonitis are rarely absent. In the majority of cases, even of gangrene, there is no perforation within the abdomen, and the course of the peritoneal infection must have been through the microscopically intact gut. That it may occur where the gut does not enter into the hernia has already been seen. It has long been known through Nepveu's investigations that the fluid transudate in a hernial sac is rich in pathogenic organisms before gangrene has developed. Benneke has recently shown that the bacteria readily pass through the wall of the paretic bowel and produce diffuse peritoneal infection. On microscopic sections he was enabled to trace their progress through the intestinal wall. (Before the French Surgical Congress, Clado has recently made similar demonstrations.) From these sources metastatic infection in remote organs may ensue. The process is like that seen in other morbid conditions of the intestine; notably in typhoid fever and appendicitis, where peritonitis develops without actual perforation.

Equally important with the local, is the general condition of the subject of a strangulated hernia in determining the plan of procedure. When delay has brought the patient to the verge of collapse, when even the shock from prolonged anesthesia can not be ventured, that must be done which most readily gives relief to the strangulation. It may be the opening of a fecal abscess, the division of the stricture, or the rapid fixation of the gut in the wound. Whatever the procedure adopted in the condition indicated, the result will probably be the same—death within a few hours or days.

In most cases, however, the condition is less deplorable and evidently tolerant of a somewhat prolonged operation. It is in this class that choice must be made between the establishment of an artificial anus, and resection of the bowel with immediate suture of the divided ends.

Authorities are at variance as to the value of the two procedures. In England, Baker, MacCormac, Banks and Treves decidedly oppose the greater operation of resection. In this country the same opinions have been held, unless they have been recently influenced by the reports of successful cases of excision by McCosh, Richardson, Dawbarn and others. In Germany, Kocher's and Czerny's first successes were followed by many failures which frustrated the natural desire of surgeons to make primary excision the normal procedure in gangrenous hernia. Finally Reichel's critical review of the statistics in 1883 made it appear that the preferable primary operation was enterostomy, to be followed by a second operation for the closure of the preternatural open-

ing. From the first, Kocher has remained steadfast to the ideal operation, and in Mikulicz he has recently found a most able supporter.

The advantages and disadvantages of the two procedures are almost apparent. If primary resection is successful, the patient is well in from four to six weeks. If an artificial anus is successfully established, a second operation of a very serious nature must follow. The artificial orifice is as large as the bowel, and the mucous membrane is prone to prolapse. Such an opening never closes spontaneously.

While in a considerable number of cases the enterotome of Dupuytren might be successfully applied with the low mortality of 5 per cent. (Korte), it will fail in many cases and be absolutely inapplicable in others. Again, according to Dupuytren, it should not be used for two or three months after the primary operation. It is during this interval that the greatest danger from artificial anus is encountered, that from progressive inanition. Recently Poulsen has used it twelve and even nine days after the first operation.

It has not yet been established how much of the intestinal canal is essential to the maintenance of nutrition, but where the fistula is above the mid-part of the ileum, rapid emaciation and death follow before any secondary procedure for closing it can be practiced. McCosh does not overrate the argument of statistics in the statement that the death rate of all cases in which an artificial anus is made, including the operations for its relief, is 50 per cent. The danger from secondary resection and enterorrhaphy is very considerable. Haelnel mentions forty-three cases, with sixteen deaths and two failures.

To be successful, the artificial anus must be established in healthy bowel, else the dangers inherent in the afferent portion will not be removed nor will a free outflow from the intestine be secured. The only advantages therefore which can be claimed for this method are the rapidity with which it can be performed and the slight technical skill required in its performance. A further advantage is supposed to exist in the lesser danger connected with this, as compared with the major procedure of immediate resection.

There is hardly a subject in surgery concerning which statistics are so much at variance as are those relating to gangrenous hernia. According to Korte, of 111 cases treated by enterostomy, eleven ended fatally. Herman (quoted by Haelnel) mentions eighty-three cases with seven deaths. On the other hand, Weil reports fifteen cases with thirteen deaths. Benno Schmidt places the mortality at 85.5 per cent. for the formation of an artificial anus, as against 71.1 per cent. for primary resection.

F. A. Southern, Surgeon to the Manchester Royal Infirmary, recently reports eighty-five cases of herniotomy with nine cases of gangrene. All of the latter died. In six, an artificial anus was made; in three, primary excision.

If statistics are of any value in solving the relative merits of enterostomy and primary excision, it is evident that the reports of scattered cases are far less weighty than such from a few and skilled operators, and from hospital records where nothing is concealed. Such a tabulation has recently been made by Mikulicz from seven large clinics of Germany and Switzerland. Of 168 cases of gangrenous hernia, 109 died. Of ninety-four in which an artifi-

cial anus was made, seventy-two died; mortality, 76 per cent. Of sixty-eight primary excisions, thirty-two, or 47.1 per cent. died. Of six intermediary resections, five died. It would appear from this that the mortality of primary excision is very much less than that of the lesser operation. But this can be accounted for by the certainty that the latter was often used as a last measure in conditions approaching collapse, and therefore precluding the major operation.

These statistics practically coincide with the very extensive and recent tabulation of H. P. Zeidler, of St. Petersburg. Of 289 cases in which primary excision was performed, 142, or 49.13 per cent. died. Of 287 cases in which an artificial anus was established, 213, or 74.22 per cent. died. This is an increase in the mortality, of 25 per cent. In the group of cases of artificial anus, there were 5.55 per cent. more of cases hopeless from the beginning than in the group of primary resections. This still leaves 17 per cent of cases which might probably have been saved by primary excision.—(*Cent. f. Chir.* 1893. p. 62).

The advantages of primary resection are patent. Its disadvantages are, the time required for its performance and the danger of peritonitis from imperfect technique. In a measure both can be overcome. The first of these is probably grossly exaggerated. With separation of the mesentery and its closure by suture, to be followed by the continuous Lembert-Czerny suture by lateral anastomosis, or by the use of button or potato plates, not more than half an hour at most should be required for the enterorrhaphy. Complicated clamps, a separate row of stitches for mucous and serous tunics, interrupted sutures unnecessarily waste time. When the continuous suture is used and appears weak at points, a few supplementary stitches can easily be taken. Suturing the mesentery brings the intestinal ends naturally together and gives assurance that the most treacherous part of the suture, that near the mesentery, can be properly applied. The second danger is from injudicious selection of the lines for suture. As elsewhere in gangrenous processes, the danger lies rather in removing too little than too much. If Kocher excised five and Koeberle six feet of intestine, a few inches more or less can not be important. In acute cases, where the caliber of the gut has not been long occluded, and koproöstasis is little, if at all developed, an inch or two on each side of the constriction groove will probably bring the suture line in healthy tissue. Where the mesentery has not been included in the strangulation, the same favorable conditions may be expected. Where, however, much dilatation of the afferent gut exists, its thorough evacuation should precede the enterorrhaphy. After hernia, as after laparotomy for obstruction, it is fatal to return a distended gut to the abdomen. The further danger, that of septic infection of the peritoneum, can in a large measure be reduced by thorough irrigation of the sac before suturing; by careful handling of the gangrenous gut without the wound, meanwhile protecting the peritoneum by gauze packing. Finally, the sutured intestine should be left just within the abdominal cavity and a radical cure should not be attempted. Mikulicz, whose success surpasses that of any other operator—twenty-one cases with fourteen recoveries—insists on the open treatment of these cases. Should fecal extrav-

asation ensue from defective suture or other cause, it would naturally turn towards the wound, whereby the danger of general peritonitis would be largely averted. For from two to five days after the operation the sutured intestine remains where it is placed within the abdomen, and after that length of time the development of peritonitis is not probable. To hasten the process of wound repair, deep and superficial sutures might be drawn through the wound margins and kept over the gauze packing, to be tightened without anesthesia after the danger line has been passed.

Between the extreme measures considered, others looking toward a compromise have recently been brought forward by a number of surgeons. Among these are the intermediary, excision and suture of Riedel. The artificial anus is established in the usual way. After twenty-four or forty-eight hours the edges of the intestine are vivified and united by suture. In 1882 Bouilly suggested excision and suture, the latter being purposely made imperfect at one point to guide the fecal extravasation. To avert the danger from imperfect suture, Hahn follows the kelo-tomy with a median laparotomy. Through this wound he brings the divided ends of the bowel, thoroughly protecting the abdomen against infection by packing them in gauze. When the suture is completed, the closed knuckle is kept in the wound between gauze splints until union is assured. The competency of the suture is certain after twenty-four hours, when the bowel is returned to the abdomen and the external wound closed. It is difficult to understand why the same procedure should not be carried out in the inguinal herniotomy wound. Nevertheless, Hahn has had two successes with it; and in a third, reported by Kutschera, the result was equally satisfactory.

To overcome the danger from death from inanition, Helferich has recently combined enterostomy with an intestinal anastomosis above the constriction furrows. By this method two courses are open to the intestinal circulation, and the closure of the artificial anus is greatly facilitated. The operation was done in two cases, one of which was successful, the fecal fistula closing spontaneously.

There is yet another class of cases in which the condition of the bowel is such that whereas gangrene is not yet present, it might through subsequent necrosis cause death if returned to the abdomen. Such a knuckle is a menace. Who has not seen it? Especially if operating by light, both artificial and bad. A bowel that is not at all doubtful in appearance will at times repay the trust placed in it by a perforation. Among ninety-six deaths after herniotomy, it was in twenty-six cases the result of returning to the abdomen intestine which subsequently perforated. In Hagedorn's clinic three deaths out of fifteen resulted in the same way. To return doubtful intestine is unnecessarily jeopardizing life. To treat such intestine as radically as bowel already gangrenous is an extreme measure, not to be advocated. Fortunately the intestine can be retained in the wound for a number of days in gauze packing or by sutures. When its viability has been established, it is an easy matter to return it to the abdomen. Graefe recently reported a successful case in which the intestine was so retained for five days before replacing it. Should the dread of adhesions be feared, the intestine might be retained just within the abdo-

men by fixation sutures or by gauze. In the event of gangrene, the fecal extravasation would course toward the external wound.

When in 1880 Czerny reported his first case of primary excision for gangrene, he believed that the operation would not displace the older operation of enterostomy. Although the last four years have brought forward success after success from primary resection, the dictum of Czerny still holds good. Each operation has its proper field. The boundary lines are becoming more clearly defined. Nevertheless, it must always remain for the judgment and tact of the surgeon, as individual cases arise, to determine the proper procedure to be adopted. In operative surgery, as elsewhere, the ideal should be sought. This would make primary excision the normal procedure in gangrenous hernia, and only cogent reasons should cause the operator to refrain from striving for the ideal.

CASES OF GANGRENOUS HERNIA.

Case 1.—Male, aged 60 years; Germantown, Ohio; left inguinal hernia; reduction by taxis; obstruction unrelieved. Two days later, laparotomy by lamplight. Bowel apparently viable. Perforation peritonitis on fifth day. Death.

Case 2.—W. P., male, aged 29 years; Carlisle, Ky. Rupture of several years standing. Taxis attempted on second day. Operation in the night of the fifth; one-half pint of foul smelling bloody serum in the sac. Omental mass large as a fist, gangrenous; no intestine in sac. Death in twenty-four hours from peritonitis.

Case 3.—Miss D., aged 30 years; seen with Dr. Jenkins, of Newport. Recent rupture of four days; strangulation. Sac contained several ounces of bloody serum; coil of small intestine four inches long; in its center, opposite mesenteric pudic, gangrenous patch large as a silver quarter. Constriction divided; intestine anchored by catgut suture through mesentery; gauze packing; perforation on the fourth day; profuse discharge during two weeks. Gradual contraction of fistula and permanent closure in one month.

Case 4.—Mrs. K., age 56 years, seen with Dr. Harff. Large intestinal inguino-labial hernia. Strangulation by band; operation twenty-four hours after inception; gangrene of intestine; excision of fourteen inches and end-to-end suture by Czerny-Lembert method. Recovery.

Case 5.—Mrs. P., age 58 years; seen with Dr. Potter, Carthage, Ohio. Small femoral hernia right side; strangulated six days; refused earlier operation. Great abdominal distension; vomiting fecal. Pulse 110, temperature 101. Fetid and bloody fluid in sac; loop of small intestine six inches long, gangrenous, afferent gut normal. Relief of constriction, excision of gut several inches. End-to-end suture by Czerny-Lembert method. Fixation of gut near wound, gauze drainage, death in twenty-four hours from peritonitis.

Case 6.—I. F., male, age 54 years; Good Samaritan Hospital. Irreducible femoral hernia; right side; strangulated four days; fecal regurgitation; general condition good. Few ounces of purplish fluid in sac. Knuckle of intestine and adherent omentum in sac. Constriction at Gimbernaut's ligament divided. Intestine gives. When brought into wound there is a perforation in the constriction groove one-third inch wide and one-half inch long. Edges normal. Inversion and closure by suture as in gun-shot wound. Slight anchoring of intestine; gauze packing; uneventful recovery.

Case 7.—Mrs. H., age 35 years; seen with Dr. Hoppe; four months pregnant. Right irreducible femoral hernia of many years standing. Absolute constipation, five days; vomiting twenty-four hours; sac contained several ounces of bloody fluid and adherent omentum and a knuckle of small intestine, eight inches long. Gangrenous in constriction groove but not perforated. Anchored to wound. Fistula established on fourth day; closed permanently in a month. Recovery.

HOSPITAL CAR.—A hospital car, recently adopted by the Central of New Jersey, is the latest departure in railroad engineering. It is supplied with every known medical and surgical device for prompt aid in case of wrecks or other accidents. While on the line it is given the right of way.

THE SURGICAL TREATMENT OF HERNIA.

Read in the Section on Surgery and Anatomy, at the Forty fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY HENRY O. MARCY, M.D.

BOSTON, MASS.

One of the most brilliant triumphs of modern aseptic surgery is the undoubted demonstration that hernia, in all its common varieties, may be permanently cured. This occasion offers little more than the possibility of somewhat dogmatically emphasizing certain fundamental factors and conditions which enter into the problem, and which must be understood in order to make possible the permanent cure of hernia.

Since inguinal hernia in the male is by far the most common of all varieties, and much the more difficult of cure, it is proper that the limited time at our disposal should be devoted to the consideration of this variety. The normal anatomic relationships of the important structures which form the anterior lower portion of the abdominal wall are invested with an entirely new interest when considered from the standpoint of their physiologic function in connection with the reproductive organs.

For many reasons it would have been of great advantage to the male, if the testicle had been held in suspension within the abdominal cavity, somewhat after the general disposition of the ovary in woman. The dislocation of the testicle into an external pouch necessitates long and tortuous blood vessels, with a corresponding increase in length of the spermatic tube, and these component parts of the cord must traverse an opening in the muscular abdominal wall, which is ever varying in functional activity and motion. We can but admire the adjustment of these entirely diverse relationships, so as to render possible the functional equilibrium of such diverse structures.

In a large degree this is rendered possible only by the obliquity of the inguinal canal, which traverses the abdominal wall in a direction that is normally maintained at or near to a right angle with the intra-abdominal pressure—a condition analogous to the penetration of the ureter through the urinary bladder, which is the only other important illustration of this principle of mechanics found in the human body. It is not a valve which acts only at the exit of the canal to prevent the reflow from backward pressure, but it is exerted upon the whole length of the canal equally, so that, when the normal conditions are maintained, the greater the intra-abdominal pressure, the more firmly in juxtaposition are the walls of the inguinal canal, effecting its complete closure.

Whatever may be the causes which produce a departure from this normal anatomic relationship and result in hernia, certain conditions invariably pertain. The first of these is an enlargement, almost always from above downward, of the internal inguinal ring. When this has taken place, the thin elastic peritoneum easily yields to the intra-abdominal pressure, and the fluid contents of the intestinal canal soon form a hydrostatic wedge, operating more or less constantly in its further enlargement, until at last the obliquity of the inguinal canal is lost and only a large direct opening through the abdominal wall exists. Although these conditions were more or less recognized and described by the earlier mas-

ters of surgery, as well as their functional importance hinted at, the reconstruction of the deformed structures, so as to restore the parts to their normal condition, was not made possible until surgical methods were perfected, based upon the knowledge of the rôle of the bacterial ferments in wounds, and the adoption of methods which should render their exclusion a practical certainty. This having been demonstrated as possible, free dissections, involving structures hitherto considered beyond the domain of surgery, were ventured upon, and thus it became possible to open with safety the peritoneal cavity, dissect away and remove its redundant pocket which served as a receptacle for the hernial contents. The technique of the wound treatment became the next important factor for consideration. Had the testicle been dissected away and removed as was advocated in the sixteenth and seventeenth centuries, the problem would have been simple, not unlike any abdominal wound, to be closed by a considerable variety of methods. On the contrary, however, the maintenance of the cord gave a wound which presented troublesome conditions, and the closure of the abdominal incision in the usual way left the internal ring open, and the canal no longer oblique, but more or less in direct line with the intra-abdominal pressure. It is owing to this faulty technique that hernia after operation, as still too commonly performed for cure, is so likely to be recurrent, and it has caused such severe criticisms, indiscriminately applied to all operative measures for the cure of hernia.

In order to obviate these difficulties and reconstruct the inguinal canal after its normal oblique pattern, it became necessary to employ some method of closure which should permit the permanent retention of the suture material in the posterior wall of the reconstructed canal. To fulfill this demand, it occurred to me that the structures could be coaptated and permanently held in place by the use of buried catgut sutures, a deduction derived from the well-known but then recent experiments of Mr. Lister upon the ligation of arteries in continuity by catgut, and the permanent retention of the ligature.

Important and interesting experimental studies now destined to bear fruit, were carefully made and published by Dr. Jamieson, of Baltimore, in the early part of the present century. This valuable contribution should have given great honor to American surgery, but unfortunately it was prematurely advanced and forgotten.

In order to close the internal ring from below upward, quite upon the exit of the cord from the abdominal cavity, it is necessary to lift the cord, holding it toward the median line. If, as is too often the case, the abdominal wall has been thinned from the long wearing of a truss, the muscular aponeurosis of Poupart's ligament and the conjoined tendon should be incorporated with the transversalis fascia in order to reinforce the posterior wall of the internal inguinal canal. This having been effected, the cord is replaced and the tissues which enter into the formation of the external wall of the canal are sutured. It is important to remember that in doing this, the usually thinned abdominal wall on a level with the internal ring should be reinforced by a stitch or two, carried above the line of the incision through the muscular aponeurosis. Otherwise, a bulging of the weakened abdominal wall may occur, giving discomfort, though not causing a return of the hernia.

The soft parts above the muscular structures are closed with light running buried sutures, the skin is easily coaptated in the same way, and the wound is sealed with collodion *without drainage*. If the wound has been maintained and closed in an aseptic condition it will so remain and primary union will supervene, without suppuration. The patient is rarely a sufferer from pain, is of necessity confined absolutely to the bed only a day or two, any posture of the body being assumed which will give surgical rest to the parts involved. The danger attendant upon the operation for the cure of hernia is so slight that it is scarcely worthy of consideration. In my entire experience I do not recall a case where the life issues seemed to be involved. I have elsewhere¹ collated and reported over three thousand cases, in which the death rate was only the fraction of 1 per cent., and this attributed by the surgeon to some other cause than the operative measures.

Rather more care is requisite with children, but the little invalids are not sufferers and may be made happy with their toys and playthings. After six weeks, light occupation can be resumed and I can not help feeling that it is a serious mistake to apply a support of any character. I believe a truss to be positively injurious and abdominal supporters, rubber bandages, etc., are as a rule harmful. At the best they fail to support the part upon the integrity of which the permanency of the cure largely depends, to-wit: The reconstruction of the posterior wall of the inguinal canal, and undue pressure upon wounds of every description interferes with their circulation and nutrition.

The experience of the year only emphasizes the conclusions which I had the honor of presenting to this Section at its last meeting. From the very large number of hernial operations which I have performed during the last twenty years, I then tabulated 135 cases in which I had followed up the conditions to date. During the year I have re-operated upon two cases where I thought further surgical procedure advisable. In both, there was no return of the hernia, the cord lay obliquely in its reformed canal, surrounded by a dense loose-meshed connective-tissue stroma. In both cases, by ill-judged advice a strong truss had been adjusted soon after operation, and the thinned abdominal wall above the line of the internal inguinal ring was weak and bulging. In one case, over thirteen months after the primal operation, I dissected out well-defined sutures, and I take pleasure in presenting sections of the unmistakable, vitalized connective tissue of the tendon suture, incorporated with the surrounding parts.

I have been recently criticised by a writer upon hernia who evidently fails to appreciate the value and force of the anatomic considerations which, elsewhere as in this paper, I have emphasized as fundamental and primal. He writes:² "In the infantile type of inguinal hernia, as there is practically but one ring, and hence no canal, other tissues must be utilized as a tampon." . . . "When the radical operation is essayed in this considerable class, we are not concerned with the physiologic inguinal canal for there is none."

There is little doubt but that the common cause of hernia, although it may appear after adult life,

¹ The Anatomy and Surgical Treatment of Hernia, H. O. Marcy. D. Appleton & Co.

² Manley, Hernia, p. 134.

originates in an improper development of the inguinal canal, pertaining of necessity to the infantile period. From my standpoint of observation, the "infantile type of inguinal hernia" is by no means an "undesirable class" for operation, since here we are primarily concerned in constructing a physiologic inguinal canal, and not in looking about for material which we may utilize as a tampon. Again my critic, when discussing the chronic or senile hernia, dismisses the possibility of the reconstruction of the obliquity of the inguinal canal as follows: "It is obvious that with these chronic or senile herniæ, pathologic changes have wrought such a radical alteration in the position, consistence, and the relation of the gross structures, and the minute histologic elements, that we need hold out no hope for a cure by radical operation; as the most which we may expect to accomplish is the comfortable reposition of the parts, in such a manner, that they may be painlessly and securely retained by a prothetic support after operation." Quite the contrary, these large old direct herniæ are the cases of the greatest interest and are as susceptible of cure as the smaller or less developed ones. They are the very class of herniæ which I select by preference, when operating in public, for the purpose of teaching the method above outlined. Interesting as is the subject, time forbids a review and analysis of a very considerable number of modifications in the surgical procedures which have within a very recent period been advocated.

There is a general consensus of opinion that the operative field should be sufficiently ample to permit a full inspection of the structures involved, that the hernial sac should be opened in order to ascertain its exact condition, contents and relationship. As a rule this should be sutured, or ligatured to its very base, and the redundant peritoneum resected and removed. A considerable number of very distinguished surgeons in Europe and America advocate the closure of the wound by buried animal sutures, varying, however, in their method of application, without a clear definition of their purpose or manner of reconstruction of the parts. Doubtless such excellent anatomists as Championniere, of Paris, and Park, of Buffalo, have restored the cord to its normal oblique position without making special emphasis upon the importance of this procedure. Certainly their results are in the highest degree satisfactory.

Bassini, of Padua, has somewhat recently published his method, which, in its essentials, incorporates the principles I have so long advocated as fundamental and basic. He emphasizes the necessity of producing a buttress or reinforcement of structures posterior to the cord. Moreover, he describes the closure of the tissues in a way which must certainly narrow the internal ring and increase the obliquity of the reconstructed canal, the importance of which I believe can not be over-estimated. More recently Potempshi, of Europe, Halstead and Fowler, of America, have gone one step farther by firmly closing the muscular aponeurosis of the abdominal wall beneath the cord, protecting it only by the fatty structures, superficial to the muscular layer. Time alone will determine if the nutrition and function of the testicle are impaired by this external implantation of the cord. Most surgeons agree that the wound must be made and maintained aseptic with the most scrupulous care, and closed without drainage.

RECAPITULATION.

The operation for the cure of hernia must be performed with the most careful aseptic detail. The wound must be sufficiently large for free inspection, the cord is lifted from its position, slight tension being made upon it upward and inward, in order to expose its entrance into the abdominal cavity. If the hernial tumor is large, the sac is opened and its contents replaced. The peritoneal sac is then dissected to its base, held tense, sutured at its neck, resected and excised. The posterior wall of the inguinal canal is intra-folded and reinforced by a line of double continuous tendon sutures, until the internal ring is reconstructed closely about the cord. The cord is replaced, the external structures are sutured in like manner, commencing at the upper portion of the incision, closing the structures closely upon the cord quite to the reconstruction of the external ring. The superficial tissues are brought into coaptation also, by buried tendon sutures, and the wound sealed with collodion *without drainage*.

The essential factors of this method are the obliteration of the peritoneal pouch, the reconstruction of the internal inguinal ring, the reinforcement of the posterior wall of the canal which restores its obliquity, and the closure of the wound with buried animal sutures, aseptically applied without drainage. Personalities count for little, but this method for the cure of hernia and the general introduction of the buried animal suture which made it possible, are the result of more than twenty years of original study and investigation, and I claim the privilege of presenting them as my contribution to American surgery.

OBSERVATIONS ON THE RADICAL CURE OF HERNIA.

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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The individual opportunity of a surgeon practicing in the larger cities to recommend and perform operations for the radical cure of hernia, is certainly greater than that of a surgeon in general practice in the smaller cities and towns. It is consequently to the former class that we owe the evolution of the present operations, but as a whole by far the larger number of cases come under the observation of the latter class, and until recently and at the present time too frequently relegated by them to an indifferent palliative treatment, or worse, advised against operation and turned adrift, only to fall into the hands of some charlatan who "cures without detention from business."

As a representative of surgeons in general practice, I desire to speak in favor of reform. Instead of regarding only cases of strangulated hernia or those of exceedingly difficult retention as proper ones for operation, I unhesitatingly recommend it in all cases except retainable hernia in the aged, or inguinal hernia in young children where the prospect of truss cure is fair. This opinion is based on results of about forty operations without a death and with a few relapses. The experience is a moderate one, but if I had made use of the opportunities I have lost, between the failure of my first Wood's silver wire invagination operation fifteen years ago, and the final adoption of a

satisfactory method in recent years, it would be hundreds instead of tens. We are slow to learn, and the profession, as a whole, are yet losing thousands of opportunities because of lack of confidence in themselves or the methods before them.

My experience in open operations has been with those of Czerny, MacEwan, MacBurny, Halstead and Marcy. Hernia may be cured by either of these methods, but far superior to all others are those of Marcy and Halstead. In technique and theory and perhaps, too, in practice Marcy's operation is the most perfect. There are points in the performance of either of these operations where beginners should have special caution.

In Marcy's operation the cobbler's stitch is so perfect in its support of the parts, and the kangaroo tendon so enduring that too much tension must not be used or the tissues will be strangulated. This is particularly liable to occur in the suture of the more muscular outer wall of the canal. Marcy describes the occurrence of liquefaction and shreddy discharge in two cases evidently without suppuration. In the second case in which I performed his operation exactly this result followed, and I believe that it was due to strangulation by over tension and the peculiar manner in which the tissues are surrounded by his stitch. After this I tried various modifications using the tendon as silk is used in Bassini's operation, and in another case using interrupted tendon sutures in the lower side and a mattress suture above the cord. More extended experience, however, has brought me to believe that the best way to perform Marcy's operation is to follow his description without any variation whatever. It should be remembered, though, that in using the cobbler's stitch in closing a hernia, it is not being used in leather, and the tension must merely be sufficient to hold the surfaces in light apposition. The great importance of the animal suture and the intervening blood clot as a framework, over and through which the young connective tissue cells may proliferate in closing a wound of this kind has not been sufficiently emphasized. It is this new tissue that prevents recurrence. Were we to depend on simple edge-to-edge adhesion, we would have a vastly greater number of failures.

In the week following the publication of Halstead's method, I performed his operation twice. The first was a right inguinal in a man 50 years of age, and the second an enormous congenital hernia, irreducible for seventeen years in a man of 40. The performance was typical in both cases. A part of the veins were excised and the reduced cord brought out between the two outer stitches. In both cases there was great swelling of the testicle and in the elder man a considerable degree of atrophy has followed; both, however, made good recoveries and are perfect cures. Since that time I have performed Halstead's operation without removing the veins from the cord, and the results have been most satisfactory. I believe that this feature of the operation is unnecessary to success, and that an otherwise quickly performed and simple operation is needlessly complicated by it. As Halstead, himself, says in his report of fifty-eight cases published in the *Bulletin* a year ago, that "essentially this procedure with or without modification was followed," I surmised that he has practiced this modification himself and that we may also use it and yet give the operation his name. In operating on both sides of double hernia, I have recently

chosen this method in two cases, for the reason that the single row of mattress catgut sutures is more quickly introduced than the double row of tendon. The comparative merits of tendon and catgut can only be referred to here; so far as my own experience is concerned I can see no difference. The method of closing central abdominal incisions by suturing the peritoneum and muscles with interrupted sutures of heavy catgut, and then stitching the skin over them with fine silk is the one I have used to the exclusion of all others in the last three years, and I have had but one ventral hernia, and that a very small one, at the site where a drainage tube had been worn, the hernia appearing six months after the operation during a violent attack of influenza accompanied by severe cough.

The cases in which I have performed Halstead's operation, both as he describes it and without removing the veins from the cord are perfect cures. Notwithstanding this it must be admitted that the theory of longer support for the new tissue during its strengthening by maturity is distinctly in favor of the tendon suture, which undoubtedly remains three times as long as the catgut. It is my belief that an extended experience, especially in cases that were to bear strain early would support the statement that while catgut cures, the kangaroo tendon suture is better. As to double operations, I see no reason why the patient should be inconvenienced by an additional operation and detention in bed. In five double hernias operated at the same time, the result has been good in all, with the exception of a possible recurrence in one side of one case. One of these was complicated with tuberculosis of the left testicle and tubercular enlargement of the glands in both groins; the testicle and glands were removed and the wound dressed by MacBurney's method, on account of the soiling of the surfaces by the breaking of a softened lymphatic. The man has worked at the lathe in a machine shop for two years in good health and without recurrence. In the last double hernia the operation was done at the patient's house, and though every possible care was taken, one side suppurated. Recovery was but little delayed, however, and the patient walked about in three weeks, and now after two months the cure seems perfect. This patient had been operated for stone in the bladder five years ago. It was the straining, incident to stone, that caused the hernia. Patients like this, and the young woman who coughed out the ventral hernia have strong abdominal muscles, and permanence in cure would be much enhanced by a well impressed caution to avoid all severe strain in coughing, evacuation or lifting. The fact that there is a weak spot in the abdominal wall should ever be present in the mind of the patient, and then when severe strain is necessary the groin may be protected with the hand or by flexing the thigh on the abdomen. To advise care does not necessarily argue that the result of the operation is a weak cure. The inconsiderate strain to which some persons subject themselves would force the abdominal contents through anything with which nature or art might surround them. In the one recurrence after double operation, I have no doubt but that it was produced in this way. The patient was a muscular young man who had produced double direct hernias in a tussle with a bull. He was apparently well cured by direct catgut suture of both sides, and remained so for six months when

he was confined for some time in an insane asylum; after his release and more than a year after the operation, he wrote me that he had recurrence on one side, although I have not seen him.

In regard to drainage, I believe that where oozing is completely controlled it is unnecessary, but where multiple operations are performed and perfect technique must be somewhat sacrificed to time, or for any other reasons there may be even slight bleeding, there can be no objection to drainage by a folded strand of catgut in the upper angle of the wound, but in such cases safety would be much enhanced by it.

As to the subcutaneous suture, it requires more time and in my experience the apposition is less perfect than with an ordinary continuous suture of fine silk. I am inclined to believe its advantages in avoiding infection as somewhat problematical. When, however, I set out to perform a typical Marcy or Halstead operation I always use it.

The conclusion to which my experience leads me is that in the radical cure of all hernia, direct suture with tendon or catgut offers a safe and satisfactory means of cure, and that in oblique inguinal the method of raising the cord and closing the canal under it will give better results than any other now at our command.

DISCUSSION.

DR. GEORGE F. SHIELS—I think we have had the opportunity of a lifetime here to-day. You have heard some very interesting remarks upon the subject of hernia, but I would like to refer particularly to the remarks made by the first reader, Dr. Ransohoff, who gave us a paper as full of information as a nut is full of meat.

In reference to the time that strangulated hernia should be reduced, he gave a quotation here, saying that if you see it during the day it should be reduced by the night, and if you see it at night it should be reduced by the morning. I will go a little further and say that a man should see that it was reduced within fifteen or twenty minutes after he became convinced that it was strangulated. And I say this for the reason that if the hernia is strangulated, I wish to draw your attention to the fact that the taxis tends to lower the vitality of the hernia to such an extent that it always becomes a danger. I have had some little experience in operating for strangulated hernia, and I have had several cases where efforts were made to reduce the hernia through several hours, first without and then with an anesthetic; and then when the time came, that an operation was decided to be finally necessary, it was only to discover that the bowel had been so bruised that it had lost its vitality and could not be returned. Hence, I would beg to say firmly, that you should make the time short. I do not believe that you should try taxis very long; if you try it all, and then it should be done very delicately and for two or three minutes without an anesthetic to see if it will return, and then two or three minutes with an anesthetic and then, if you do not succeed, decide to operate carefully.

In regard to vomiting not being a point of particular interest or import, that you should not look for too much vomiting as a symptom, I have had cases, and one I recall in particular, where a girl had return of the tumor or femoral hernia; she did not suffer very violent vomiting or of a fecal nature, but occasionally would have almost a mechanical regurgitation. This would recur for a day or two. The vomiting is not necessarily present, and it is a mistake to expect it always. Neither is the pain invariable. In fact, this girl had gone out and did not think there was much the matter with her. And yet she had a strangulated hernia which required operation, and which was operated upon.

Concerning whether it is wise to return the bowel. It becomes a subject of very great interest when you get down to the bowel, to know whether it is in a good condition enough to return it or not. And that will only be gained by experience, I believe. Still, at the same time, I think that a bowel that is viable will usually, if slightly scratched, just gently scratched, bleed pretty freely, and I find that a pretty good test to know whether the bowel is in a condition to return or not. I give it a very gentle scratch, and if it bleeds pretty

freely it is a fairly good sign that you can return it. Sometimes even a bowel which has lost its glossiness will be in a condition in which you can return it. The idea of returning the hernia after opening the sac is one which I think had better be condemned, in so far that if you do it you are liable to reduce the hernia in block and have it in as bad a condition after as before.

Concerning the operation for the radical cure of hernia, I have very little to say on that subject. We have had a great authority who has read a paper to us to-day, and I would bow in differing from him. I do not believe that the radical cure for hernia is always an operation which should be performed. There are certain cases of hernia which have existed for many years in an individual, which become very large, and become practically irreducible, even by operation. It seems that the long existence of the condition has led to an alteration in the capacity of the abdominal cavity to contain its contents and the hernia becomes larger, an increased abdominal cavity for annex, and that annex becomes sometimes nearly as large as the abdominal cavity itself. Woe be to that man who thinks that he can return that to the abdominal cavity and cover it up, because if he does, I fancy he will find that he can not get it back again; simply because the structures by having been long used to the present condition have so adapted themselves that you may operate as much as you like, but you can not return the contents of that sac into the abdominal cavity; it is not large enough.

DR. ANDREW SMITH, Oregon—I wish to add my indorsement to the suggestion by Dr. Ransohoff of the importance of acting early for the relief of strangulated hernia. He expressed it very aptly and beautifully when he said, Let the sun not go down upon a strangulated hernia, or if it is in the night let it not rise again upon it, but operate at once and use taxis with caution. I wish also to say that I do not believe the results we are getting these days from hernia are due to the particular modification that Dr. Marcy or Dr. Bassini, or Dr. McEwen has made to the old processes of the masters, such as Banks and Turney, so much as the success is due to improvement in technique. While we are judging now of these operations, we are judging of them in the past. The future only will tell whether we can judge as well of the operations that we are now championing, such as those of Bassini and Halstead and others. We all know that hernia operation can not be pronounced a success definitely until time has proved it so. I maintain that it is not a fair proposition to compare those results in the light of but a year or two, with the results of the old masters, whom we are now holding scarcely worthy of mention.

DR. HORRAN, Texas—I want to suggest one thing with reference to the treatment of hernia. We have heard the discussion in reference to operative procedures, but they do not tell us how to avoid such procedures. Now I want to suggest on this line that it is our business, not so much to operate on cases that have hernia as to prevent operations. I think every surgeon will justify that idea. I have operated along this line when I have been forced to do it, as these other gentlemen I presume have done, but I want to ask these gentlemen before they condemn a case of strangulated hernia to operative procedure, even under the methods of technique suggested here by the last reader, that they do one thing, and that is to take the patient out of bed and incline him in a position about like that, (indicating an incline of about 45 degrees) with head against the wall and the feet as high as the head and shoulders of a couple of men or a little more than that, and placing the patient before this position is assumed under the anesthetic—under chloroform—to its fullest relaxation, and then see the results. You do not want taxis. These gentlemen are condemning taxis, and yet, I believe it has its place. But it should not go too far. Under this method I have seen a hernia of three days and a half duration, subside without any taxis. I ask you to accept the suggestion and give it a trial.

DR. T. W. HUNTINGTON, Sacramento, Cal.—I only wish to allude for a moment to a matter which has been under discussion, in regard to the reduction of strangulated hernia. I have had some little experience in this matter. It is a class of cases which have come under my observation frequently. I am aware that a strangulated hernia has been reduced by putting a man in a wagon in an uncomfortable position and traveling him for eight or ten miles to a doctor, and finding the hernia reduced after he has arrived there. I believe it would have been better practice to operate upon that patient before he was put into the wagon. I believe that when ordinary efforts at taxis, such efforts as the ordinary person will ordinarily pursue have failed, then we are

entitled to operate. I do not think we have any right to jeopardize the patient's life by unnecessary delay, because it is in the delay that the danger lies. That is all I wish to say in regard to that.

I have something to say on the subject of the radical cure of hernia *per se*. It is a measure which I have advocated for ten years, and it is a method which I have pursued for five or six years quite frequently. Since my earliest efforts in this direction I have been impressed with one fact, and it is this, that hernia, the ordinary oblique inguinal hernia which I believe to be the most frequent, is a congenital condition. We may not have during the earlier years of life, during the years of infant life, or during the earlier years of adult life, hernia, but when it occurs it occurs as a congenital condition. Now in pursuance of that thought I have gone further and have alleged that when you have corrected the congenital condition you have cured the hernia practically. I care not what steps you may adopt subsequent to that. But you cure the hernia by simply tying off the sac. I do not know any one who has taught this, but I think that when you have caught up the sac, and tied so much off, and pushed the pedicle back into the abdominal cavity you have cured at least that hernia. With regard to dealing with the pillars of the ring subsequently, I have no great choice. Personally I do but one thing; draw the pillars of the sac together, and close them with kangaroo tendon. I believe that the natural channel for the cord and vessels is the better channel. So far as I am concerned, I prefer to put the cord and membranes untouched back into their natural channel and close the pillars of the ring over it, trusting to nature for a result.

DR. E. GRISWOLD, Pennsylvania—There is one condition which we encounter sometimes, especially those of us who go into the country to do surgical work and do hernia operations, that has not been discussed. As it is one of the most important conditions with which we can meet, and one which I met with, unfortunately, not a great while ago, I am anxious to have the sentiment of those who are accustomed to operate, and especially such men as Dr. Marcy in regard to the matter, and that is in cases where gangrene is really present, or so apparently likely to come as to make it doubtful whether it is proper to return the gut, or create an artificial anus. About a year ago last month I was called a distance of fifteen miles one evening to a lady, 68 years of age, who was very thin and who had a recognized femoral hernia on the left side which had not been recognized or even been diagnosed. You all know, who have been accustomed to deal with femoral hernia, how difficult it is sometimes to be certain what you have got. The tumescence is so very small, and sometimes the pain is trifling and the nausea and vomiting so long postponed, that there is a sort of hope entertained by the medical attendant and friends that there is nothing serious the matter, and that dallying along as we did in that case, from Sunday until Thursday evening is allowed. When I got there I made the diagnosis. It happened I had two or three very skilful men with me to help me. I made the diagnosis of strangulated femoral hernia on the right side. The case was an old lady with thin muscles, feeble constitution, rapid pulse and she was vomiting considerably and suffering some pain. I operated by lamplight the best I could. When I got down to the gut, you know how small it is in a case of femoral hernia, but there it was, a little knuckle about the size of my finger nail, and it was so discolored and apparently defective in circulation that I hesitated about returning it. I really thought we ought to make an artificial anus. However, it was concluded to take the risk and return it. The stricture was not very hard to overcome but I made use of considerable force in returning it. I returned it and she did very well for between two and three weeks. I went away to Omaha to attend the National Association of Railroad Surgeons, and when I got back to Pennsylvania afterwards when I called I learned that there was a little opening which had formed in the lower end only a day or so, and had an escape of gas now and then. Finally it closed up and remained closed for three or four weeks, but in the meantime, before it closed there were times when it was extremely difficult to get the bowels to act. It seemed as if there was contraction and constriction going on, and I was prepared to make interectomy, although I was afraid that the woman would not be able to withstand it. So it was postponed, and as I stated, it closed up and remained closed for three or four weeks, and then it opened again, when I got her bowels so that they could be moved without a great deal of difficulty, and from that on she has been able to live although she has still a sinus. Now the question is with me, What shall a surgeon do in a case such as that? Shall he do as I did, or shall he take the risks of operating

at once? As for excising a portion of the intestines in that case I do not think it would have done, but in other cases perhaps it might do. The woman was too weak, too feeble, and had suffered too long to stand it; she had not enough vitality left to stand the operation of interectomy.

DR. REYNOLDS, Wisconsin—I merely want to speak for a moment, since this discussion has taken a wide range, about the way of operating. I have seen in the course of a long practice quite a good many hernias. I used to operate two or three times a year, perhaps. In the last fifteen years I have not had occasion to operate on a hernia, although I have been in active practice and had many hernias to treat. My way of treating hernias, if I got there early, is to put them profoundly under the influence of opium, and give them this position that this doctor has spoken of here. He raised their heads; I lower their heads very much, and put them profoundly under the influence of opium, and if there is much inflammation put on a bag of ice, and let them go to sleep and have some one to keep up the ice bag on the hernia. In the last fifteen years I have had twenty-five cases, to say the least, and every one of them reduced at first, except five; five with gentle taxis, when they got so they were snoring with opium, they would go back; five I had to push back, and the rest all subsided of themselves. That is my experience. My treatment of hernia is similar to that spoken of, the radical cure, where it is strangulated, if it had been very long. You can have that experience for what it is worth.

DR. KURTZ, of California—I hope I may be excused if I talk a little too much here, but we should not pass this subject without mentioning the name of Kölliker, and his operation in connection with radical cure, or in connection with the operation for radical cure of hernia. All the other authors have been named, but Kölliker has not. His operation is very simple, and I think it is just as efficient as any other. It simply displaces the sac and disposes of the sac in such an excellent manner that it will be a protection to the ring. The incision is made right down upon the sac; the sac is then thoroughly dissected from the cord; it is pulled out away beyond its constriction, and thoroughly dissected off from the cord. Then the finger is entered in the hole, into the canal, the same as in the ordinary herniotomy, right to the internal ring, a button-hole is made to the remaining structure, a little incision sufficient for the use of a pair of forceps. With these forceps you get hold of the sac and pull that through this little button-hole and twist it thoroughly. Upon the structure you place the sac and now close up the hole, from the pillars down to the very end. You may use either subcutaneous sutures, or deep sutures; I prefer the deep sutures, whether catgut or kangaroo tendons, or any other superficial sutures; the deep suture should take everything, the sac included, except the superficial fascia and skin. Then the superficial fascia and skin is sutured over with silk. This may also be closed with collodium, and no drainage is, as a rule, needed.

DR. JOSEPH RANSONOFF, Cincinnati, Ohio—I think the return of a hernia that is in the least doubtful, is one of the gravest mistakes that a surgeon can possibly make. Furthermore, in such a case as one of the gentlemen mentioned where the area of gangrene is very small, not larger than a finger nail, the whole thing can be turned in and treated as a bullet wound is treated.

DR. A. E. ROCKEY, Portland, Oregon—I have nothing to add, except in answer to the gentleman in reference to large hernias and the improbability of reducing them. I have operated a few very large hernias and have known that in the majority of these the principal mass was omentum which was ligated, and no considerable difficulty was found in reducing the hernia. One of these was that large, irreducible hernia I have spoken of. That was congenital, and had existed for seventeen years and extended clear down almost to the knee. I think that one who operates much on hernia would not hesitate because the hernia was large and because it was irreducible.

DR. H. O. MARCY, Boston, closed the discussion by exhibiting some drawings he had made on the blackboard during the debate, and explaining the same to illustrate his position in regard to the treatment of these cases. He believed kangaroo tendon to be the best suture that could be used, and said he could not too strongly emphasize the importance of hermetically sealing the wound and the use of aseptics.

On motion, the session was continued for half an hour, which was used by DR. GEORGE F. SNIELS, San Francisco, in the reading of a paper prepared by him entitled, "A Plea for the better Teaching of Anatomy."

A Bill to Regulate the Practice of Medicine and Surgery in the District of Columbia.

The Medical Society of the District of Columbia, at its last meeting entered upon a discussion of the bill to regulate the practice of medicine and surgery in the District of Columbia, to license physicians and surgeons and to punish persons violating the provisions thereof in the District. The bill is as follows:

WHEREAS, Because of the absence of a law to ascertain the qualification of individuals desiring to practice medicine and surgery in the District of Columbia, it is made a resort of persons who are excluded from the practice of medicine and surgery in other States by laws in said States requiring evidence of such qualification.

Be it enacted, etc., That the Commissioners of the District of Columbia shall appoint a board of examiners which shall be known as the board of medical examiners of the District of Columbia; said board shall consist of nine members, five to be selected from a list of not less than ten names submitted by a majority vote, at some regular meeting of the Medical Society of the District of Columbia, three homeopaths to be selected from a list of not less than six names submitted by a majority vote at some regular meeting of the Washington Homeopathic Medical Society, and one eclectic to be selected from a list of not less than two names submitted by a majority vote at some regular meeting of the Eclectic Medical Society of the District of Columbia; of the members of the board first appointed three shall be appointed for one year, three shall be appointed for two years and three shall be appointed for three years, and thereafter each member of said board shall be appointed for a term of three years, or until his successor is appointed; provided that no member of said board shall serve more than two terms in succession; that no member of said board shall have been engaged in the practice of medicine and surgery in the District of Columbia for less than ten years at the time of his appointment, and that no member of said board shall be connected with any college or university having a medical department; and provided further, that the Commissioners of the District of Columbia may at any time remove any member of said board, upon petition by the medical society by which such member was first nominated, and that in case of the death, resignation or removal of any member, the vacancy for the unexpired term of said member shall be filled in the same manner as other appointments are made.

DUTIES OF MEDICAL EXAMINERS.

That each member of said board of medical examiners of the District of Columbia shall, before entering upon the discharge of his duties, take an oath to fairly and impartially administer the provisions of this act; said board shall elect a president, a vice-president, a secretary and a treasurer; it shall have a common seal, and the secretary shall be empowered to administer oaths in taking testimony upon any matter pertaining to the duties of said board; said board shall hold meetings for examination in the city of Washington on the second Thursday in January, April, July, and October of each year and continuing so long as may be necessary to examine all applicants, and at such other times as a majority of the board may deem expedient; said board shall keep an official record of all its meetings, also an official register of all applicants for examination for a license to practice medicine and surgery in the District of Columbia; said register shall show the name, age and place, and duration of residence of each candidate, the time he or she has spent in medical study in or out of medical school, and the names and locations of all medical schools which have granted said applicant any degree or certificate of attendance upon lectures in medicine and shall show the school of medicine which the applicant desires to practice; said register shall also show whether such applicant was rejected or licensed under this act; said register shall be *prima facie* evidence of all matters contained therein; it shall be the duty of the secretary of said board to mail to the address of each applicant a notice of the time and place of examination; said notice shall be mailed not less than seven days before the examination and at a longer period if requested by the applicant at the time of making application; said board shall make such rules and regulations as they may deem necessary to carry into effect the provisions of this act; said rules and regulations, when approved by the Commissioners of the District of Columbia, shall have the full force and effect of law; provided that

said board may elect a secretary from other than its own members, and when so elected said secretary may be removed at any time by a majority vote of said board.

That from and after the passage of this act all persons desiring to practice medicine and surgery in any of their branches in the District of Columbia shall apply to the said board of medical examiners for a license so to do; applicants shall submit to examination upon the following named branches, to-wit: Anatomy, physiology, chemistry, pathology, materia medica and therapeutics, hygiene, histology, practice of medicine, surgery, obstetrics and gynecology, diseases of the eye and the ear, medical jurisprudence and such other branches as the board may deem advisable; said board shall not examine any applicant until satisfactory proof is furnished that he is of good moral character and over 21 years of age; nor until he has presented a diploma conferring upon him the degree of doctor of medicine issued by some medical college authorized by law to confer such degree, provided that said diploma if issued prior to July 1, 1897, shall be accompanied by satisfactory evidence that said applicant has studied medicine and surgery for not less than three years prior to the issue thereof, and if issued subsequent to June 30, 1897, shall be accompanied by satisfactory evidence that the applicant has studied medicine and surgery for not less than four years prior to the issue of said diploma. All examinations shall be both scientific and practical, but of sufficient severity to test a candidate's fitness to practice medicine and surgery.

ISSUE OF LICENSES.

That each application for a license shall be made to the secretary of said board of medical examiners upon a form prescribed by said board and approved by the Commissioners of the District of Columbia, and shall be accompanied by a fee of \$20; each application shall be in the hands of the secretary of said board not less than two weeks before the day set for examination; each application shall state the full name and address of each applicant, his or her age, the place and duration of residence of said applicant, the time he or she has spent in the study and practice of medicine in or out of medical schools and hospitals, the names and locations of all medical schools which have granted said applicant any degree or certificate of attendance upon lectures in medicine and surgery, the school of medicine which the applicant desires to practice, and such other information as the board may require; said information shall be furnished under oath; any application may be rejected for refusal to furnish any of the information called for or for other irregularity; each application shall be kept on file by the secretary of the board.

That examination shall be in writing; in all examinations the questions must be, except in practice of medicine and in materia medica and therapeutics, such as can be answered in common by all schools of practice; and if the applicant intends to practice homeopathy or eclecticism, the member or members of said board of the schools selected by him shall examine said applicant in practice of medicine and in materia medica and therapeutics; the votes of all examiners shall be "Yes" or "No" for the respective branches and written with their signatures upon the backs of the examination papers of each candidate; said examination papers shall be kept on file by the secretary of said board for five years and shall be *prima facie* evidence of all matters contained therein.

That if any applicant shall pass such examination as is hereinbefore provided for in a manner satisfactory to seven members of said board of medical examiners of the District of Columbia, said board shall issue a license, signed by the president and secretary thereof, and attested by its seal, which shall entitle said applicant, after it has been registered as hereinafter provided, to practice medicine and surgery in the District of Columbia; any applicant refused a license by said board for failure on examination may, by depositing \$15 with the treasurer of said board, to cover the cost thereof, appeal from the decision of said board to the appointing power thereof, who may thereupon appoint a medical committee of review, consisting of three members, one from each school of medicine, none of whom shall have been engaged in the practice of medicine in the District of Columbia for less than ten years, nor be connected with any college or university having a medical department, who shall examine the examination papers of said applicant and from them determine whether a license should issue, and their decision shall be final; each member of said committee shall receive for the examination of the papers of each candidate the sum of \$5; if said committee by a unanimous

vote reverse the finding of said board, the board shall thereupon issue a license to the applicant, and the treasurer of said board shall return to said applicant all money deposited by him to cover the cost of said appeal and shall pay the cost of said appeal out of the funds belonging to the said board; if, however, the finding of said board is not reversed by said committee of review, the cost of said appeal shall be paid by the treasurer of said board out of such funds as may be in his possession as a deposit made by appellee to cover the cost of said appeal; all licenses issued by said board shall be numbered consecutively and a register shall be kept by the secretary showing the number of each license, the date of issue and to whom issued.

REVOKING A LICENSE.

That the board of medical examiners of the District of Columbia may, by a vote of seven members, refuse to grant or may revoke, a license, or may cause the name of any person to be removed from the record of the Supreme Court of the District of Columbia or from the register of the health office, or from both, for the following causes, to-wit: Chronic and persistent inebriety, the practice of criminal abortion, conviction of crime involving moral turpitude, or for publicly advertising ability to treat or cure diseases. In complaints under this section the accused shall be furnished with a copy of the complaint and be given a hearing before said board in person or by attorney. Said board may at any time within two years from the refusal or revocation of a license or the cancellation of registration under this section, by a unanimous vote, issue, without examination, a new license to the physician so affected, restoring to him all the rights and privileges of other physicians licensed under this act.

That any person receiving a license as hereinbefore provided shall have it recorded in the office of the clerk of the Supreme Court of the District of Columbia within three months from the date of said license, and the date of record shall be indorsed thereon by said clerk; and the holder of the license shall pay to the recording clerk a fee of 50 cents for making the record; the holder of said license shall, after the same has been recorded, exhibit the same at the health office, and register, in a book provided for that purpose, his name and address. Whenever a license is revoked by said board, the secretary thereof shall report that fact in writing to the clerk of record and to the health officer of the District of Columbia, who shall thereupon cancel such registration.

That this act shall not apply to commissioned surgeons of the United States Army, Navy or Marine-Hospital Service, nor to regularly licensed physicians and surgeons in actual consultation from other States or Territories, nor to regularly licensed physicians and surgeons actually called from other States or Territories to attend specific cases in the District of Columbia, nor to any physician now registered at the health office of the District of Columbia, nor to dentists in the legitimate exercise of their profession, nor to midwives registered at the health office of the said District in the management of uncomplicated cases of obstetrics, nor to the treatment of any case of actual emergency, nor to the use of ordinary domestic remedies without any fee, gift or consideration of any kind being given in return therefor.

WHO IS A PHYSICIAN.

That any person shall be regarded as practicing medicine and surgery within the meaning of this act who shall append the letters M.D. or M.B. to his or her name, or who shall prescribe, advise or apply for the use of any person or persons, any drug or medicine or other agency, or who shall perform any operation, for the treatment, cure, or relief of any bodily injury, infirmity or disease, or who shall publicly profess to do any of these things.

That from and after the passage of this act any person practicing medicine and surgery in the District of Columbia without having first obtained a license to so do and registered the same as herein provided, or in violation of any of the provisions of this act, or of any of the rules or regulations made by authority conferred by section 2 thereof, or after his license, or registration, or both, has been canceled by order of the board of medical examiners of the District of Columbia, shall be deemed guilty of a misdemeanor and, upon conviction thereof, shall be punished for each offense by a fine of not less than fifty nor more than five hundred dollars, or by imprisonment in the District jail for a period of not less than ten nor more than ninety days, or by both such fine and imprisonment. It shall be the duty of the United States district attorney for the District of Columbia to prosecute all violations of the provisions of this act.

That the secretary of the board of examiners shall be paid for taking testimony the same fee that is allowed to an examiner in chancery for the same service; the expense of the said board and of the examinations shall be paid from the license fees herein provided for, and if any surplus remain on the 30th day of June of each year, the same may be divided among the members of said board, *pro rata* to the number of examinations at which they have been present during the preceding year. That all acts or parts of acts, general or special, now existing not in accordance with the provisions of this act, or inconsistent herewith, be and are hereby repealed.

BOOK NOTICES.

Biography of Eminent American Physicians and Surgeons. Illustrated with fine Photo-Engraved Portraits. Edited by R. FRENCH STONE, M.D. Published by Carlton & Hollenbeck, Indianapolis. Pp. 729. 1894.

Since the publication of the remarkable work of James Thatcher, (Boston, 1828) on American Medical Biography, works on this subject have not been numerous, but three important works having appeared in three score years, Williams, Gross and Atkinson. There have been many smaller works, such as Toner's "Medical Men of the Revolution," and medical men of certain States and circumscribed localities by various authors, but the fact remains that a systematic work on American medical biography has appeared once in twenty years. None of them have passed to a second edition and it is more than likely than none of them have been profitable either to the author or the publisher. A curious coincidence is noticed; in the work of Dr. Stone, on page vi. of the preface it is stated that:

"When at length, in the spring of 1893, a sufficiency of material was gathered to form a large volume, the financial panic suddenly occurred, prostrating all branches of business, and this also for a time operated against its more rapid completion. This statement it is considered necessary to make in order to show that the unlooked for delay in the appearance of the work was not occasioned by any fault, neglect or mismanagement of the editor who never for a moment despaired of the enterprise, and who has been unceasing in his efforts to urge it on to final completion."

Dr. Gross in the preface to his "Lives of Eminent American Physicians and Surgeons of the Nineteenth Century," (Philadelphia, 1861), says:

"When at length, in 1857, a sufficiency of material was secured to form a large volume, the monetary crisis suddenly occurred, prostrating all branches of business, and thus effectually preventing, for a time, the publication of the work. This statement it is considered necessary to make in order to show that the delay in the appearance of the work was not occasioned by any fault, neglect or mismanagement of the editor, who never for a moment despaired of the enterprise, but did all he could to urge it on to final completion."

It is thus that history repeats itself—even medical history.

The introductory by Dr. Stone is admirable in style, interesting, and highly instructive. It consists of a "general review of the progress and present condition of medical science and medical practice in the United States of America," and the subject is exhaustively treated. The author concludes the introductory by a plea for the creation of a Department of Public Health as a fitting conclusion of the work of the present century of American medicine.

Like all works on biography which include an account of the living, the material has been very largely compiled, but the vast store of material has been carefully edited by Dr. Stone, and leaves no just ground of criticism; while there are a few names included that may be of questionable "eminence," yet it is doubtful if any work including living men has been more carefully expurgated.

We congratulate Dr. Stone on the completion of this truly great work, and as "history is philosophy teaching by examples,"¹ and "biography the heart of history," so this heart of the medical history of our time should be read and studied by every progressive American physician. Books of this kind as a rule do not pay, and the author of a work

¹ Bolingbroke, On the Study and Use of History.

of this character, a volume devoted to the story of the achievements of the profession itself, should receive at the hands of his brethren that financial encouragement which only a subscription to the work can give.

An International System of Electro-Therapeutics for Students, General Practitioners, and Specialists. By HORATIO R. BLOELOW, M.D., and Thirty-eight Associate Editors. Illustrated. Philadelphia: The F. A. Davis Company. London: T. J. Rebman. Cloth. 1894.

This bulky volume is the result of an attempt to bring up to date the knowledge of medical electricity. The well-known men who have contributed to it, are recognized as advanced workers on the subject, and as a general rule their statements may be admitted as correct. If there are over-claims made by enthusiasts for the uses and advantages of electricity in therapeutics, it must be laid to the fact that electricity, like many other branches of medicine, is far from being an exact science.

The book consists of a series of essays; the first is by Prof. Wm. J. Herdman, of the University of Michigan, and it furnishes an excellent introduction. Prof. Herdman says:

"It is useless for an instructor to attempt the inculcation of therapeutic rules in the use of electricity to a class not familiar with the physical differences between frictional, voltaic and induced currents; and it is worse than useless for the members of that class to attempt the application of such instruction to the patient if they are unfamiliar with the management of the machinery by which such different forms of electric energy are applied. Such attempts are but doomed to ignominious failure, discouraging the physician and disgusting the patient, while the abused agent bears the blame until better methods prevail."

The author then follows with a well considered and powerful plea for special instruction in electro-therapeutics in our medical colleges. This instruction to be preceded by a well grounded knowledge in the physics of electricity and magnetism. There is no doubt that ignorant application of electricity has not only done harm to the innocent patient, but has brought much discredit on electro-therapeutics.

The careful reading of these essays will be very useful to nearly every practitioner of medicine and surgery. There are some statements, like those concerning the treatment of stricture of urethra for example, that are not yet accepted. To establish the truth of a given proposition, the experiments on which the proposition is based must be corroborated by some one, beside the original experimenter, and from identical experiments, the same results should be obtained. Surgeons generally have not been able to duplicate the excellent results in urethral surgery reported by Newman, and there is therefore much skepticism as to the absolute accuracy of his statistics. Medical statistics, like the soundness of an egg, should be above suspicion.

The volume as a whole (a disjointed collection of essays), will be found very useful to practitioners; bristling with electric flashes and sparkling with new thoughts, but it is not at all adapted for use as a text-book by medical students. Its form would preclude its use as a text-book, if there were no other reason. Its curious style of paging (modeled on that of Sajous' Annual), is rather unpleasant, although the copious index makes up for the deficiency to a considerable extent. The illustrations are fairly executed, and are sufficient to elucidate the text.

Materia Medica, Pharmacology and Therapeutics.—Inorganic Substances. By CHARLES D. F. PHILLIPS, M.D., LL.D., F.R.S. (Edin.). Second edition. London: J. & A. Churchill. Pp. 898. Cloth. 1894.

It is a pleasure to examine a book written with such care, and so well printed that each page looks like a work of art. The art of printing from types has advanced but little in the past three centuries, and in examining some of the books that come to our table, we feel sure that the mechanical part of bookmaking has upon the whole materially degenerated since the days of Peter Guttenberg and John Aldus.

Dr. Phillips who is personally well known in America through his attendance upon the International Medical Congress of 1877, has produced a highly creditable work. The present edition has taken account of the many changes in the knowledge of the subject since the issue of the former edition in 1882. Due credit is given American investigations.

From a London standpoint, and writing for a British constituency, it is perhaps hardly necessary to mention American mineral waters, natural baths, and thermæ, and one may look in vain for a single reference to an American water—we are of opinion that our own countrymen are largely to blame, for not reporting the therapeutic results of our own waters, and with the exception of the *Sanitarian*, few of our medical journals have given any attention to the subject. Much space is given to continental waters, and medicated baths by Dr. Phillips. We commend the work as one of the most clearly written, and satisfactory works on the materia medica, pharmacology and therapeutics of the inorganic substances with which we are acquainted. The addition in their proper place of some of the well established American waters, would add much to the value of the book for American readers.

A Compend of the Practice of Medicine. By DANIEL E. HUGHES, M.D. Fifth Physicians' Edition. Thoroughly revised and enlarged, including a very complete section on skin diseases and a new section on mental diseases. Philadelphia: P. Blakiston & Co. Chicago: The W. T. Keener Co. 1894. Pp. 568. Full morocco, gilt, \$2.50.

This book is one of the best of its class, indeed, it is now so complete as scarcely to be classed with the compends. We notice, however, that the author fails to make use of modern bacteriology to any great extent in his pathology, and antiseptic therapeutics finds no place. The author also uses the old system of weights and measures in his prescription writing, although he occasionally gives parts by weight. We trust that with the next revision these blemishes on an otherwise excellent book, will be corrected.

The publishers have left nothing to be desired; good paper, clear type, handsome binding, and gilt finish have made a volume as pleasing to the eye as its contents are instructive.

Healthful Womanhood and Childhood. Plain talks to Non-professional Readers Relative to Healthy and Diseased Conditions Peculiar to Women and Concerning the Care of Young Children. By HENRY BIXBY HEMENWAY, A.M., M.D. Pp. 290. Cloth. Evanston, Ill.: V. T. Hemenway & Co. Sold by subscription. Price \$2.

This is an extremely outspoken little book, so much so that we doubt the expediency of having it read by "all classes of society." It contains much valuable information, but a book which contains such chapters as that on the "Hygiene of the Marriage Bed," and on the "prevention of conception," et cetera, is scarcely one to be chosen for the parlor library. For mothers whether old or young the book will be found very useful and instructive, but it would be out of place in the hands of youths of either sex.

As a work on popular hygiene, within its limits, its precepts are founded on common sense, and sound medical theory. We feel sure that the public would be benefited if it could be placed in the hands of all parents capable of reading it understandingly.

Practical Lectures in Dermatology Comprising a Course of Fifteen Lectures Delivered at the University of Vermont Medical Department during the Session of 1892 and 1893. By CONNICK W. CUTLER, M.S., M.D. 8vo., cloth. New York and London: Published by G. P. Putnam's Sons. 1894.

This little work contains in convenient form the outlines of the subject of dermatology. It is elementary, but on that account will be found useful to students, and to those practitioners away from great libraries, whose text-books are a little the worse for the lapse of time since they were published. The author is a little short-sighted it seems to us, in omitting to translate the antique British weights and measures in his prescriptions, into the decimal system—now made official by the last Pharmacopœia. With that exception the student may safely study the book.

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On receipt of the subscription the weekly JOURNAL of the Association will be forwarded regularly.

Gentlemen already members of the Association should send their annual subscription to the Treasurer, or direct to the JOURNAL office.

SATURDAY, JULY 7, 1894.

MEDICAL PRACTICE IN THE DISTRICT OF
COLUMBIA.

Although it is not strictly accurate to assert, as is done in the preamble to the act to regulate the practice of medicine in the District of Columbia—the text of which will be found in this issue of the JOURNAL—that there has been hitherto no “law to ascertain the qualifications of individuals desiring to practice medicine and surgery in the District,” it is unquestionably true that the District has become “a resort of persons who are excluded from practice in other States by laws in said States requiring evidence of such qualifications.” As a matter of fact and of history the Medical Society of the District has been, for over half a century, charged with a duty in this respect. By an act of Congress, approved July 7, 1838, the Society was authorized to elect a board of examiners who were empowered “to grant licenses to such medical and chirurgical gentlemen as they may, upon a full examination, judge qualified to practice the medical and chirurgical arts;” and it was forbidden, after the appointment of such board, to practice in the District without said license. The act was vague and inoperative in many respects; those already in practice in the District were exempted from its operation; newcomers who could produce “a diploma from a respectable medical college or a board of examiners established by law” were also exempt; while the sole penalty for others who entered upon practice without the license was a prohibition against the collection of “any fees or reward for the same by any process of law”—a prohibition which was seldom, if ever, enforced, although a majority of those engaged in practice obtained licenses *pro forma*.

While the new law is by no means perfect it is a step in the right direction, and, if judiciously and vigorously enforced, its operation should serve to exclude unqualified practitioners from the District in

the future. Some of its provisions are admirable, as, for example, that by which the diploma is made merely the passport to an examination, carrying with it no higher claim to recognition—the applied test of qualification being examinations in the entire curriculum of medical study, which “examinations shall be both scientific and practical, but of sufficient severity to test a candidate’s fitness to practice medicine and surgery.” So, too, the provision by which the diploma, if issued prior to June 30, 1897, must be accompanied by satisfactory evidence that its issue was preceded by not less than three years’ study of medicine and surgery; and, if after that date, by such evidence of not less than four years’ such study. Section 7, in which are defined the causes for which a license to practice may be refused or revoked, will relieve the Board of an embarrassment which besets similar Boards operating under laws which are less specific on this point. The District Board may refuse or revoke license and otherwise disqualify for practice for any of the following causes: Chronic and persistent inebriety; the practice of criminal abortion; conviction of crime involving moral turpitude; publicly advertising ability to treat or cure disease. This is, probably, as far as it is necessary to go and the authority thus clearly conferred upon the Board should result in excluding the notoriously unfit and unworthy from practice in the District.

The obvious defects in the act fall within the category of those commented upon in the editorial entitled “Schools of Practice,” in the JOURNAL of last week. Three different “schools of medicine” are recognized, both in the composition of the Board of Examiners and in the examinations; and connection with a medical teaching and graduating institution is no bar to membership. The objections to these two points were urged in the editorial referred to, and there need be nothing further said on the subject, except to call attention to the fact that in the original draft of the act it was provided “that no member of said Board shall be connected with any college or university having a medical department.” This provision was stricken from the act before its passage—probably because its retention would have excluded so many of the profession in the District. Some compensation is made, however, in Section 6, which provides for the creation of a “Medical Committee of Review,” none of whose members shall be “connected with any college or university having a medical department”—and to which reviewing body appeal may be taken by any applicant refused license by the Board of Examiners.

On the whole, the act is a distinct gain both for the profession and for the public of the District of Columbia.

Blank Applications for membership in the Association, at the JOURNAL office.

THE SANITY OF PRENDERGAST.

The second trial of the assassin PRENDERGAST who foully murdered the Mayor of Chicago, MR. CARTER H. HARRISON, last autumn, resulted in a verdict by the jury that the prisoner had not become insane since his conviction and sentence.

On the part of the public there is apparently not only no desire to "go behind the returns," but a demand for speedy justice by the application of the *lex talionis*.

At the first trial, the plea of insanity was set forth with great ability by the counsel for the prisoner, and "experts were put upon the stand to give testimony for and against the lunacy of the assassin. The jury then decided that the prisoner was sane and fully responsible for his acts, and thereupon, in due course the judge pronounced sentence upon him.

The relatives of the assassin were not idle. His counsel in due time served notice on the Court that the prisoner had become insane since the trial, and after much discussion, the question of his alleged insanity again came to the front with the usual tedious torturing of the testimony of the hapless medical expert.

There will be a sense of relief that there is a fair prospect of ridding the world of such a monstrosity as PRENDERGAST, and whether these wretches are sane or insane, it can not be denied that the world will be better off when its PRENDERGASTS and SANTOS shall have taken leave of it. We can well spare assassins from our midst, and sympathy might much better be expressed with the State, and the families of the victims, than with the murderer.

It is impossible to entirely lose sight of the magnitude of the crime committed in the examination of this question, and it is an evident truth that if the peace of society is to be maintained, laws respected, and the State preserved, we must not obtrude a defense of technical insanity to shield the perpetrator from the consequences of his crime. The insanity, when valid as a defense, should be clear and distinct. There are worse perils for a country than the execution of a criminal whose brain may be technically aberrant, and while one view of the humanities would naturally prevent the execution of a maniac, there is no excuse for preserving the worthless lives of those assassins who are simply eccentric.

THE DEATH RATE OF ST. LOUIS.

The following editorial article appears in the *Medical Brief* of St. Louis:

We have just finished reading, with surprise and indignation, an editorial in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (May 26, page 813) giving a comparative list, in point of healthfulness, of the most prominent cities in the United States.

Great stress is laid upon the salubrity of Chicago, the death rate being given at 17.8 per one thousand; while the

other cities mentioned range from 20.54 per thousand for Baltimore to 24.48 for Philadelphia. St. Louis is *conspicuous* by her absence. The reason for this omission will be found in the following letter from Dr. George Homan, City Health Commissioner:

St. Louis, May 31, 1894.

DR. J. J. LAWRENCE, Editor *Medical Brief*, City:

Dear Sir:—In answer to yours of 29th instant I have the honor to state that the annual death rate in this city, as calculated by the Health Department, is based on the last census enumeration (460,000) plus 4 per cent. annual increase, which would make the total population in 1893 about 520,000.

As thus reckoned the death rate per thousand for the municipal year ending March 31 last was 17.9.

It is very easy for city officials to assume any convenient population figures that would suit their purpose and thus, on paper, minimize the death rate; and it was because of this custom or liability that this department adopted the basis and ratio above mentioned, and publishes them in the monthly bulletin in order that those concerned may know on what the given percentages rest.

Very respectfully yours,

GEO. HOMAN, Health Commissioner.

St. Louis is unquestionably one of the healthiest of American cities, her system of sewerage has no superior, she is blessed with pure water, the climate is unexcelled, and her death rate, calculated upon a *known* population, is only 17.9.

In the JOURNAL article, which has called forth the above, the second paragraph, first column of page 814, begins: "Of other large American cities *whose bills of mortality for 1893 are at hand*," etc. The bills of mortality for the city of St. Louis for 1893 were not at hand when the article was written, and there is a distinct disclaimer, in the phrase above italicized, of any attempt to deal with the death rate of all large American cities and an equally distinct avowal that the comparison was limited to those "whose bills of mortality for 1893 are at hand."

As a matter of fact there were before the writer, at the time of writing, the St. Louis mortality returns for the months of June, July, August, September and October only. These gave a total of 4,235 deaths for the five months, or an annual death rate for the period of 19.54 per thousand. This rate, as is shown by Dr. HOMAN's letter, would have been much too high, and, therefore, St. Louis was omitted from the comparison, as were several other large cities whose returns were also incomplete.

It is unnecessary to say that the JOURNAL has no intention and no motive for discriminating against or in favor of any city.

THE JUDICIAL COUNCIL.

Our esteemed contemporary, the *Philadelphia Medical News*, states that the question of the "conduct of the JOURNAL," was referred to the Judicial Council and has not yet been decided by them.

At the last meeting of the ASSOCIATION, the question of the action of the management of the JOURNAL in publishing certain advertisements was considered by the Judicial Council, and after a full hearing in the matter, the Council decided to leave it as heretofore in the hands of the Trustees.

MALICIOUS JOURNALISM.

We observe the following in our usually carefully edited contemporary, the *New York Medical Record* of June 30:

The JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION publishes this fortuitous combination of items:

"The American Academy of Medicine will meet in Jefferson, N. Y., August 29 and 30."

"R. In debility from seminal losses, elixir nutrans, ℥viii. Sig. Dessertspoonful four times a day, after meals and at bed-time."

As this journal never published any such item, we at first concluded it a silly attempt at a joke by some compiler, but searching through our file of exchanges we found the following in the *St. Louis Medical Review* of June 16:

The American Academy of Medicine will meet in Jefferson, N. H., August 29 and 30.

R In debility from
Seminal Losses
Elix nutrans ℥viii
Sig - Dessertspoonful
four times a day
after meals and
at bed-time

No man in his senses, having the page before him, could have mistaken the type for that of this journal, and we are rather reluctantly forced to conclude that the *Record* man deliberately published this statement and purposely gave a wrong credit.

The *Record* owes not only the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, but its own readers, a prompt correction.

CONSTRUCTION OF RELIEF DEPARTMENT CONTRACT.

The growth and multiplication of railroad and other corporations employing large numbers of persons in more or less dangerous occupations, has led to the formation, in many instances, among, or for such employes, of aid associations or relief departments. The Burlington Voluntary Relief Department is such an organization, of a very peculiar constitution. Its scheme is that the employes of the Chicago, Burlington & Quincy Railroad Company and certain other associated companies shall contribute certain amounts from their wages to constitute a species of insurance fund to be paid out to the employe in case of injury, or to the beneficiary named by him in his application for membership, in case of his death. The railroad company furnishes the clerical force for the management of the department, keeps the custody of the funds, pays to the association interest upon monthly balances, and also guarantees the payment of losses. A member of this

association agreed that, in consideration of the amounts paid by the company, the acceptance of benefits for injury or death should operate as a release and satisfaction of all claims for damages against the Company, arising from such injury or death, which could be made by him or his legal representatives. He was killed in an accident upon the railroad. The beneficiary named was his widow, who accepted the benefit, and by instrument in writing, received it "in full satisfaction and discharge of all claims or demands on account of, or arising from, the death of said deceased, which I now have, or can hereafter have," against either the relief fund or the railroad company. Subsequently, as administratrix, she brought suit for damages against the railroad company on behalf of herself and children. Under these circumstances, the Supreme Court of Nebraska holds, in the case of *Chicago, Burlington & Quincy Railroad Company v. Wymore*, decided May 15, 1894: 1, that the deceased's contract did not, of itself, waive a right of action; 2, that neither that contract, nor the acceptance of the money or release of liability by the widow, operated to bar a right of action by the administratrix on behalf of the children; 3, that her voluntary acceptance of the benefit, and release of the Company, did not operate to bar any action for her own benefit. The membership contract was, in effect, only that the beneficiary named therein might waive her right of action by accepting the benefit; but this action was not for the benefit of his estate, but for that of his widow and next of kin, and the measure of damages was not what he might have recovered, had he lived, but their pecuniary loss by reason of his death. Whether or not he could, by a compromise after the accident, before his death, deprive them of their right of action, he could not contract away their right before the injury, and without their consent. Nor could he contract that the widow might, after his death, deprive the next of kin of their remedy. She had a right to compromise with the Company after her husband's death, so far as her own rights were concerned, but that was all.

SECTION REPRINTS.

Gentlemen desiring copies of section reprints of particular sections will please send their names to the JOURNAL at once, unless they subscribed at the meeting. No section book will be published unless there are at least fifty subscribers for the volume.

CORRESPONDENCE.

Address of a Sanitarium in Adirondacks.

To the Editor:—Will you be so good as to send to me the location and name of that sanitarium for phthisis in the Catskills or the Adirondacks? The man in charge has a French name, I believe. Very respectfully,

N. H. P.

ASSOCIATION NEWS.

American Medical Association.

SECTION ON SURGERY AND ANATOMY.

Minutes of Meeting, 1894.

The Section was called to order Tuesday afternoon, June 5, 1894, at 2:10 P.M., Dr. John B. Roberts, of Philadelphia in the chair. In the absence of Dr. Floyd McRae, of Atlanta, Ga., Dr. Reginald H. Sayre, of New York, N. Y., was appointed Secretary.

The chairman then delivered his address entitled, "Some Surgical Sins."

The following scientific papers were then read:

"The Pathology of Malignant Growths," E. Laplace, Philadelphia, Pa.; read by title.

"A Critique of the Sporozoan Theory of Malignant Neoplasms from a Micro-technical Standpoint," A. P. Ohlmacher, Chicago, Ill.

"The Clinical Recognition of Malignancy in Tumors," C. A. Wheaton, St. Paul, Minn., Henry W. Coe, Portland, Oregon; read by title.

"The Necessity of Early Surgical Interference in Malignant Tumors," R. A. McLean, San Francisco, Cal.

"The Value of Caustics in Malignant Growths," John Parmenter, Buffalo, N. Y.; read by H. O. Marcy, of Boston. L. Duncan Bulkley, New York, N. Y.; read by Secretary.

"The Radical Cure of Malignant Tumors by Operation," J. H. Wythe, Oakland, Cal.

"The Value of Inoculations with Septic or Toxic Agents in the Treatment of Malignant Neoplasms," John A. Wyeth, New York, N. Y.; read by title.

Discussed by Marcy, Boston; Shiels, San Francisco; Griswold, Pennsylvania; McLean, Detroit; Quimby, Kansas City; Copeman, Iowa; Bulkley, New York; Ransohoff, Cincinnati; Rosenstirn, California.

"Non-Malignant Stenosis of the Pylorus and Duodenum," X. C. Scott, Cleveland, Ohio; read by title.

The Chairman then appointed as a nominating committee to nominate officers for the ensuing year, Drs. D. W. Graham, of Chicago and H. M. Sherman, of San Francisco, and as alternates on the executive committee to take the place of Drs. J. M. Matthews, Louisville, Ky., and W. E. B. Davis, Birmingham, Ala., Drs. Joseph Ransohoff, Cincinnati, Ohio, and Reginald H. Sayre, New York, N. Y. The Section at 5 P.M. adjourned. When called to order at 9:10 A.M., June 6, the discussion on "Tubercular Disease of the Joints," took place. Papers on the "Early Symptoms and Diagnosis of Tubercular Joint Disease," were read by Emmet Rixford, San Francisco, Cal., and A. J. Steele, St. Louis, Mo., while that of A. B. Judson, New York, N. Y., was read by the Secretary. "The Conservative Treatment of Tubercular Joints," was set forth by H. M. Sherman, San Francisco, Cal., Reginald H. Sayre, New York, N. Y., and a paper on the same subject by J. E. Thompson, Galveston, Texas, was read by title.

The paper by R. W. Lovett, Boston, Mass., on the "Operative Treatment of Tubercular Joints" was read by the Secretary.

"The Treatment of Tubercular Joints by Injections of Iodoform" was considered by Stanley Stillman, San Francisco, Cal., and a paper on the same subject by Nicholas Senn, Chicago, Ill., and one on "Injection of Corrosive Sublimate," by R. H. Plummer, San Francisco, Cal., were read by title. The subject was then discussed by Drs. Sherman, California; Schoaler, Iowa; Eagleson, Washington; Kurz, Colorado; Shiels, California; Sayre, New York, and Huntington, California.

A paper on "Common Errors in Prescribing and Applying Mechanical Apparatus," by A. E. Hoadley, Chicago, Ill., was then read by title.

The Section was called to order at 2 P.M., and on motion adjourned till 2:30 P.M. When called to order again the

Nominating Committee presented the names of Dr. Joseph Ransohoff, Cincinnati, Ohio for Chairman and Reginald H. Sayre, New York, N. Y., for Secretary for the ensuing year and on a vote being taken they were declared elected. The following scientific work was then transacted, it having been moved that papers of those not present be read by title:

Papers on "The Causation and Prevention of Hernia," by James T. Jelks, Hot Springs, Ark., "The Management of Reducible Hernia," by Emory Lanphear, Kansas City, Mo., and C. M. Fenn, San Diego, Cal., and "The Treatment of Irreducible Hernia," by James B. Eagleson, Seattle, Wash., were read by title.

"The Treatment of Strangulated Hernia," by Joseph Ransohoff, Cincinnati, Ohio, was considered.

"The Radical Cure of Hernia," by W. E. B. Davis, Birmingham, Ala., and H. O. Marcy, Boston, Mass., read by title.

A. E. Rockey, Portland, Oregon, read a paper on "Some Observations on the Radical Cure of Inguinal Hernia."

These papers were discussed by Drs. Shiels, California; Rockey, Iowa; Horton, Tex.; Huntington, California; Griswold, Pennsylvania; Reynolds, Wisconsin; Ransohoff, Ohio, and Marcy, Massachusetts.

A paper on "Concussion of the Brain," by L. C. Lane, San Francisco, Cal., was then read, and then a paper on the "Treatment of Fractures of the Lower End of the Humerus,"

by Oscar H. Allis, Philadelphia, Pa., was read by the chairman. The following papers were read by title:

"Treatment of Fractures of the Lower End of the Radius," by P. S. Connor, Cincinnati, Ohio.

"Treatment of Fractures of the Neck of the Femur," by Bedford Brown, Alexandria, Va.

"Treatment of Fractures of the Shaft of the Femur," by Llewellyn Eliot, Washington, D. C.

"Treatment of Open or Compound Fractures," by H. H. Mudd, St. Louis, Mo.

The question of fractures was discussed by Drs. Lane, California; Sayre, New York; Birkstein, California; Kent, California; Wheaton, Minnesota; Horton, Texas; and Thomas, Pa.

After a paper by G. F. Shiels, San Francisco, Cal., entitled "A Plea for the Better Teaching of Anatomy," and one on "Tendon Grafting for the Deformities following Infantile Paralysis," by S. E. Milliken, New York, N. Y., the Section adjourned.

On being called to order Thursday morning, June 7, at 9 o'clock, the subject of "Obstruction to Urination in the Male," was considered.

Papers on the "Effects of Obstruction in Urination upon the Bladder and Kidneys," by J. William White, Philadelphia, Pa.; the "Diagnosis and Treatment of Enlargement of the Prostate Gland," by Hunter McGuire, Richmond, Va., and William T. Belfield, Chicago, Ill.; the "Symptoms and Treatment of Stone in the Bladder," by Wm. T. Briggs, Nashville, Tenn.; and the "Symptoms and Treatment of Tumors of the Bladder," by John B. Deaver, Philadelphia, Pa., were read by title.

C. F. Buckley, of San Francisco, read a paper on this last subject and presented pencil removed from the bladder.

The subject was discussed by Thomas, Pennsylvania; Huntington, California; Thompson, Washington; Dodge, Michigan; Griffith, Missouri; and Ransohoff, Ohio.

In the afternoon the following papers were read by title: "Stricture of the Male Urethra," by W. H. Crawford, U. S. A.; "Carcinoma of the Urethra, with a Report of Two Cases," by H. O. Walker, Detroit, Mich., by title; and the following read by the author. J. Rosenstirn, San Francisco, Cal., "Treatment of Stricture of the Urethra."

"The Pathology and Symptomatology of Hemorrhoids, Anal Fistulae and Anal Fissure," by J. M. Matthews, Louisville, Ky., and David Powell, Marysville, Cal., read by title.

"The Treatment of Hemorrhoids," by Charles B. Kelsey, New York City; "The Treatment of Anal Fistulae," J. McF.

Gaston, Atlanta, Ga., read by title. One on the same subject, by G. B. Somers, San Francisco, Cal.

"The Treatment of Anal Fissure," by T. W. Huntington, San Francisco, Cal., and one on the same subject, by Lewis H. Adler, Jr., Philadelphia, read by title.

On Friday morning, June 8, the Section was called to order at 9:15 o'clock, and the following papers were read by title:

"A Plea for the Early and Systematic Removal of the Inguinal Lymphatic Glands in Cases of Malignant Growths in Regions from which these Glands receive Lymphatics," by H. Reineking, Sheboygan, Wis.

"Shall it be Catgut, Silk, or Both?" by A. Morgan Cartledge, Louisville, Ky.

"Electrolysis in the Treatment of Aneurism of the Aorta," by C. M. Richter, San Francisco, Cal.

"Spinal Surgery; with Report of Two Cases of Laminectomy for Paraplegia caused by Potts' Disease," by F. C. Schaefer, Chicago, Ill.

A paper on "Bloodless Vaginal Myomectomy" was read by O. J. Mayer, San Francisco, Cal., who also showed a patient on whom he had operated for varicocele by removal of the enlarged veins of the cord through a longitudinal incision and then sewing up the incision by approximating the ends, thus transforming the cicatrix into a transverse one.

A paper on the "Surgical Uses of Acetanilid" was then read by G. W. Woods, U. S. N., and discussed by Dr. Grand, Oregon.

Dr. J. D. Thomas, Pittsburg, Pa., read a paper entitled, "How long is Syphilis Contagious?" and the following papers were read by title:

"Clinical Recognition of Malignancy in Tumors," by Dr. Wheaton, Texas.

"Treatment of Phlegmonous Erysipelas and other Forms of Suppurative Inflammation by Ice Water," by H. Bergstein, Minnesota.

Dr. Haughton, of Texas, then read a paper entitled, "How Best shall we Treat Wounds To-day?"

Dr. Shiels, of San Francisco, Cal., showed a case of multiple bilateral lipomata.

Dr. Bonnewell, of Philadelphia, Pa., exhibited a surgical engine, and the Section was declared adjourned.

REGINALD H. SAYRE, Acting Secretary.

SOCIETY NEWS.

Des Moines Valley Medical Society.—The Des Moines Valley Medical Society held its twenty-fourth annual meeting at Ottumwa, Iowa, June 23. Dr. H. C. Eschback, of Albia, presided, and Dr. A. O. Williams, of Ottumwa, Secretary. This Society comprises the physicians residing in some twenty counties.

Dodge County, Iowa, Medical Association.—Drs. McDonald and Sears, of Beaver Dam; Owen, of Fox Lake; Scoen, of Mayville; Clason, of Neosho; White and Feld, of Watertown, and Hallock and Lueck, of Juneau, met in Juneau and organized a Dodge County Medical Association. Dr. Hallock was elected President and Dr. Sears Secretary and Treasurer. The next meeting of the Association will be held at Beaver Dam, July 9, 1894.

Colorado State Medical Society.—At the recent meeting of the Colorado State Medical Society, held in Denver, the following officers were elected for the ensuing year:

President, Dr. Hubert Work, Pueblo.

First Vice-President, Dr. J. R. Robinson, Colorado Springs.

Second Vice-President, Dr. E. Stuver, Rawlins, Wyo.

Third Vice-President, Dr. Laura Liebhardt, Denver.

Treasurer, Dr. W. F. McClelland, Denver.

Corresponding Secretary, Dr. C. K. Fleming, Denver.

Reporting Secretary, Dr. E. R. Axtell, Denver.

Assistant Secretary, Dr. Chas. Manly, Denver.

South Dakota State Medical Society.—The thirteenth annual session of the South Dakota State Medical Society was held at Huron, June 22. The following were elected officers for the ensuing year:

R. T. Dott, of Alexandria, President; G. E. Martin, of Carthage, first Vice-President; Wm. Edwards, of Bowdle, second Vice-President; W. J. Mayturn, of Alexandria, first Secretary; Earl Rice, of DeSmet, second Secretary; C. B. Alford and G. W. Moody, of Huron, and J. C. Morgan, of Sioux Falls, Trustees. The Legislative Committee consists of Drs. Peterman, of Parker, Martin, of Carthage, and Moody, of Huron.

The officers will name the time and place for holding the next meeting. The banquet was provided by local members of the Society and served by ladies of Grace Episcopal Church. Dr. Alford, of Huron, was toastmaster.

The St. Louis Medical Society met June 23. Dr. Fry described an interesting case of bulbar paralysis in a woman 50 years of age, dwelling minutely upon the symptoms of the patient, and giving a complete history of the case. Dr. Funkhauser explained a case of a lesion of paralysis in a female child aged 1 year, caused by a fall from bed. Both cases having been discussed, Dr. Smith took the floor to introduce a new trephine invented by him, to be used with either a dental engine or an electric motor. He read a brief paper on trephining, when a recess was taken in order that the doctors might examine the trephine at work. In the discussion which followed, the new trephine was somewhat adversely criticised by Dr. Meisenbach and others. Dr. Fairbrother's paper on "Simulated Diseases," read on the 16th ult., was then discussed in detail, many of the participants reporting cases in point that had come under their notice.

North Texas Medical Society.—The meeting was held at Sherman, Tex., June 19.

Mayor Edmonds welcomed the Association to Sherman, and Capt. J. S. Porter then welcomed the Association in behalf of the citizens. The addresses were replied to by President Chilton, who delivered his annual address.

Dr. Ford also delivered an address.

The following papers were read:

"Operative Treatment of Prolapsus and Retro-displacements of Uterus—Report of Cases," by F. B. Fite, of Muscogee, I. T.

"Face Presentation with Report of Case," I. P. Gunby, of Sherman.

"Uterine Fungosities," by W. R. Hoord, Whitewright, Texas.

To-day's session opened promptly at 9 o'clock.

Hon. John H. Reagan was a visitor at the morning session and by request delivered a short address to the Association in which he avoided any mention of politics. He dwelt principally upon his experience with surgeons and physicians in the service of the Confederate States.

The Section on Practice was then resumed.

"Purpura Rheumatica," by S. D. Thurston, of Dallas.

"Caricature of my Experience with Dengue and La Grippe," by J. M. Foot, of Paris.

The afternoon session was devoted to obstetrics and gynecology.

"Septic Endometritis," by R. R. Walker, of Paris.

"Some of the Dangers and Their Proper Treatment of the Third Stage of Labor," by W. R. Wilson, of Dallas.

There were about seventy-five members in attendance.

Minnesota State Medical Association.—At the last session the following officers were elected: President, Dr. J. Ohage of St. Paul; First Vice-President, Dr. W. A. Hall, of Minneapolis; Second Vice-President, Dr. F. S. Bissell, of Litchfield; Third Vice-President, Dr. John B. Dunn, of St. Cloud; Secretary, Dr. C. B. Witherle, of St. Paul; Treasurer, Dr. R. J. Hill, of Minneapolis. A committee composed of Drs. Beard of Minneapolis, Hewitt of Red Wing, Hoog of Minneapolis, William Davis of St. Paul and McGaughey of Winona,

was appointed to take steps toward securing legislation tending to prevent the spread of tuberculosis. An appropriation of \$300 was made from the treasury to pay for the printing of the State medical directory.

In the afternoon the Section of Surgery, presided over by Dr. Thomas McDavitt of St. Paul, held a four hours' session. Thirteen papers were read and discussed. Operations on the Middle Ear and Mastoid was Chairman McDavitt's subject. He was followed by Dr. C. A. Wheaton, of St. Paul, who made an excellent address upon general surgery. Parasitic Origin of Carcinoma was the subject of a paper by Dr. W. T. English, of Winona. One of the most interesting papers of the afternoon was that by Dr. L. C. Bacon, of St. Paul, upon The Advisability of Opening the Medullary Canal in all Cases of Acute Infectious Bone Disease of Children. Dr. Burnside Foster, of St. Paul, gave some Notes on a Few Clinical Experiences of Inherited Syphilis, and Dr. F. A. Dodge, of Le Sueur, presented a paper upon Vesical Calculus with specimens. The first paper discussed at any length was that of Dr. Archibald McLaren upon Enterorhaphy—Report of one Successful Case of End-to-End Anastomosis of the Large Intestine with the Murphy Button. Dr. J. H. Dunn's paper upon Appendicitis, with a Summary of Thirty-three Consecutive Cases, was also given considerable attention. Dr. C. H. Mayo, of Rochester, read a paper upon Brain Cysts, which was followed by a talk upon Fractures of Orbital Wall and Margin by Dr. H. McI. Morton, of Minneapolis. The discussion which it provoked was led by Dr. C. H. Hunter, of Minneapolis. The other papers read were as follows: Some Remarks on the Treatment of Suppurating Wounds, by Dr. Harold Graff, of St. Paul; Diagnosis and Surgical Treatment of Cancer of the Stomach, by J. W. Macdonald, M.D., L. R. C. S. E., of Minneapolis; Non-Tuberculosis Diseases of the Joints, by Dr. A. J. Gillette, of St. Paul.

The Association was entertained at a banquet by the Ramsey County Medical Society. Dr. Park Ritchie was toastmaster. The next meeting will be held in Duluth.

The Association of American Medical Colleges.—Resolutions adopted at a meeting held in San Francisco, Cal., June 7, 1894:

Resolved, That colleges, members of this Association, shall require of all matriculates an examination as follows:

1. An English composition in the handwriting of the applicant of not less than two hundred words; said composition to include construction, punctuation and spelling.
2. Arithmetic, fundamental rules, common and decimal fractions and ratio and proportion.
3. Algebra—through quadratics.
4. Physics—elementary—Gage.
5. Latin—an amount equal to one year's study, as indicated in Harkness Latin Reader.

(The above resolution does not apply to students exempt from the entrance examination, as per Sec. 2, Art. III.)

Resolved, That the following classes of students be recognized as entitled to apply for advanced standing in colleges members of this body:

- a, Such graduates of recognized colleges and universities as have completed the prescribed courses in chemistry and biology therein.
- b, Graduates and matriculates of colleges of homeopathy.
- c, Graduates and matriculates of colleges of eclectic medicine.
- d, Graduates and matriculates of colleges of dentistry requiring two or more courses of lectures before conferring the degree of D.D.S.
- e, Graduates and matriculates of colleges of pharmacy.
- f, Graduates and matriculates of colleges of veterinary medicine.

It is provided, however, that the above class of students be required to comply with the provisions of the entrance examination and to prove their fitness to advanced standing by an individual examination upon each branch below the class he or she may desire to enter.

Resolved, That students graduating in 1899 or subsequent classes be required to pursue the study of medicine four years, and to have attended four annual courses of lectures of not less than six months' duration each.

PUBLIC HEALTH.

Aniline Colored Candles.—Two deaths occurred last week in New York City as the result of eating candies, known as "jelly beans" and "strawberry balls," which were ascertained on analysis to be colored with aniline dyes. The City Health Department is pursuing an investigation into the extent of this dangerous manufacture.

Wisconsin Sanitary Organization.—The State and local health authorities of Wisconsin are to be organized under the name of the Wisconsin Association of State and Local Boards of Health, for the purpose of popularizing sanitary work and knowledge in the State and to secure uniform and effective sanitary legislation.

Canadian Quarantine Station.—The Canadian quarantine station on Grosse Isle in the St. Lawrence below Quebec, is reported as being in perfect order and one of the most extensive of modern quarantine plants. There are forty buildings with a capacity of housing three thousand persons and the effects of one thousand immigrants can be thoroughly disinfected in twenty-four hours. Dr. Montzambert is in charge of the station and has been appointed Superintendent of the Canadian Quarantine System by the Dominion Government.

Restriction of Phthisis in Texas.—Dr. R. M. Swearingen, State Health Officer of Texas, has issued a circular letter to every county physician and local health officer in the State, urging the enforcement of recognized measures for the restriction of the spread of consumption, with especial reference to the hotels of Southwest Texas—Austin, San Antonio, El Paso and other cities, which have induced many consumptives to leave their less favorable Northern surroundings by "glowing advertisements of pure water and balmy airs that could magically restore flesh to wasted frames, and have kindled hopes that reason had extinguished."

Making Vaccination Safe.—In making vaccination compulsory within twelve months after birth, the State of Maryland wisely provides for a supply of pure and efficient vaccine. Section 3, sub-title, "Infectious Diseases," title, "Health," of the Code of Public General Laws of Maryland, recites that: "The State Vaccine Agent is required to take all the steps necessary to reproduce from the cow true vaccine virus, for the use of physicians residing and practicing medicine in the State, and shall furnish none more than four removes from the cow, and none that has not been produced under his own supervision and direction; provided that he may take, use and furnish such virus furnished to him by any physician intrusted by him to procure the same, such virus not to be taken from the arm of a child less than three months old."

Smallpox in Michigan.—Dr. Henry B. Baker, Secretary of the Michigan State Board of Health, has compiled a tabular statement of smallpox in that State since Jan. 1, 1894. From this it is learned that there have been fifteen outbreaks in thirteen cities and towns and twelve counties—the first January 9, the last June 11. In all there were forty cases, with fifteen deaths, in twenty-one infected houses. Dr. Baker desires to congratulate the health officers in Michigan, and especially the people who have been protected by their efforts, on the success of their work for the restriction of smallpox. In the fifteen outbreaks there have been on the average to each outbreak only 2.7 cases and one death; in eleven of the fifteen outbreaks the infection was restricted to the one house in which it first occurred. Dr. Baker adds: "The fifteen deaths out of forty cases are a powerful argument for vaccination and re-vaccination, be-

cause they show that among persons unprotected by vaccination smallpox is still the same deadly and dreadful disease that it has been—the mortality thus far having been 37.5 per cent."

Notification of Contagious Diseases.—A determined effort is being made by Dr. N. G. Tucker, Health Officer of Nashville, to enforce the law passed at the last session of the Tennessee Legislature, requiring physicians to notify the health authorities of every case of a communicable disease they may be called upon to treat. The penalty for neglect or refusal to notify is a fine of not less than ten nor more than one hundred dollars, or the county jail for not more than three months, or both fine and imprisonment. Every communicable disease, except venereal, is comprehended in the law; but the State Board of Health limits the list, "for the present," to smallpox, cholera, yellow fever, scarlet fever, diphtheria, measles, whooping cough, chickenpox and typhoid fever.

A Factor of the New York Death Rate.—Out of a total population of 1,856,695, New York has—according to Dr. Roger S. Tracy, Deputy Registrar of Vital Statistics, who has just completed the semi-annual census of the tenement-house population of that city—a total of 1,332,773 souls living in 39,138 tenement houses. Of this number there are 2,346 rear houses with a population of 56,130. In the ward which contains the largest tenement-house population there are 7,702 houses, with a population of 252,331; and in the ward which contains the smallest number there are 8 tenements with a population of 175. The total number of children under 5 years of age living in tenement houses is 180,359. This enormous aggregate of human beings, living under the conditions of the tenement house, is the chief factor in New York's excessive death rate.

Vital Statistics of Rhode Island.—An act prepared by Dr. Gardner T. Swarts, Secretary of the Rhode Island State Board of Health and State Registrar, has been passed by the Legislature, which seeks to remedy a defect in the system of registration of births, deaths and marriages heretofore in vogue. It is now made the duty of the clerk or registrar of each town and city to transmit certified copies of births, marriages and deaths, by him recorded, whenever the child born, or the bride or groom, or the person deceased were resident of any other town or city (in or out of the State) at the time of the birth, marriage or death, to the clerk or registrar of the town or city concerned. This will often greatly facilitate the legal establishment of the fact of birth, marriage or death—a use of vital statistics not to be overlooked. The fee for recording births was increased by the Legislature to 20 cents for each birth, instead of 10 cents for the first fifty entries and 10 cents for each subsequent one. It is through such measures as these that the vital statistics of Rhode Island have acquired exceptional value.

The Bubonic Plague.—Latest advices from Hong Kong are by the Pacific mail steamer *Peru*, arrived at San Francisco, July 1. She is the first vessel that has arrived at a United States port from the plague-smitten district since the disease broke out in Hong Kong last May. Four days out from the latter port a Chinese wiper in the engine room developed a case of the disease and died in four hours. On arrival at Nagasaki the *Peru* was put in quarantine and detained for seven days. She brings news that the plague has become worse and that the disease has broken out in new districts. From June 7 to 14, 701 persons died from the pest in Hong Kong and fully 75,000 Chinese had fled from the city. It is reported that a Chinese junk, with about 400 passengers from Hong Kong, escaping from the plague, capsized and sank in Cop Siu Moon Pass. Five British

soldiers who were engaged in the enforcement of sanitary laws in Hong Kong have fallen victims to the plague. Advices from the United States Legation at Tokio, June 30, confirm the reports of the existence of the disease at Canton and announce that the Japanese Imperial Government has proclaimed quarantine against vessels from several Chinese ports to Japan. Arrivals from Yokohama at Victoria, B. C., are subjected to rigid sanitary inspection and treatment and all effects of Oriental passengers are thoroughly disinfected.

Rarity of Phthisis.—At the recent meeting of the American Climatological Association, Dr. Guy Hinsdale, of Philadelphia, called attention to the low mortality from consumption in a district falling partly within New York and partly within Pennsylvania and embracing an area of 12,000 square miles. Throughout this region there is, according to the best available information, a population of over one thousand persons living, to each annual death from phthisis. The maritime district of New York, including Westchester County and Long Island, has one annual death from phthisis to every 400 persons living, while the southern tier of counties, from Broom to Chataqua on Lake Erie, has an average of only one death to 1,091 persons living. Co-terminous, on the south, with these counties of New York are the Highlands of Pennsylvania—the northern and western uplands behind the escarpment of the Alleghenies, with an elevation of 1,200 to over 2,000 feet, characterized by extensive forests, a dryer air and lower temperature than prevails at the seaboard or lake shore, and, by reason of its distance from the storm tracks of the St. Lawrence Valley and the changing temperature of the seaboard, eminently suited for consumptives. In this region, Kane, in the southwestern part of McKean County, has acquired a considerable reputation for consumptives and hay fever victims. The surrounding country is an elevated table land of 2,000 feet elevation; the water courses are small and fogs, which are common in the valleys, are not observed on this high plateau or "Big Level" as it is called. Pneumonia, pleurisy and diphtheria are rare in this locality.

Public Health at Home and Abroad.—A congress of sanitarians and medical men will be held in London, Eng., during the latter part of the present month to consider "many topics of immediate and vital interest." In connection with the call for this congress it is announced that "cholera now rages in many parts of Asia, and that strange disease, indefinitely termed the plague, has gained a foothold in the seaboard cities of China. Smallpox is more or less prevalent on the continent of Europe, and it is to deal with these various epidemics that threaten Great Britain that the congress has been called. It is recognized that sanitary precautions of the most rigorous sort must be imposed, but it is thought that timely action will preserve the health of these islands as completely and effectually during the present season of danger as during last year's cholera scare. There is no actual fear expressed, but it is recognized that early measures must be taken in order to conserve the health of the Kingdom." Meanwhile, it may be noted that the freedom from alarm in the United States with regard to the foreign epidemic diseases continues undisturbed. Smallpox is abating and has ceased to furnish the press with sensational head-lines; our sanitary officers abroad fail to discover ground for alarm in the cholera situation—notwithstanding the detection of the cholera vibrio in some cases in Paris, the extent of the outbreak in Belgium and its continuance in Eastern Europe; fewer yellow fever ships have arrived than usual and these have been promptly cared for at the quarantine stations; due vigilance is being exercised with respect to the Chinese plague; and, except for an increased mortality in some localities, due to the phenom-

enally high temperature of June, the public health conditions of the country, up to date, are most gratifying. To the wide-spread labor troubles we are at least spared the addition of the horrors of a cholera or yellow fever epidemic.

NECROLOGY.

HOWARD G. ATKINSON, M.D., of St. Joseph, Mo., June 28.—Joseph Potts Thomas, M.D., of Louisville, Ky., ex-President State Medical Society, June 24, aged 64.—Perry Tipton, M.D., at Washington, D. C., June 25.—Geo. T. Wiseman, M.D., of Bainbridge, Pa., June 26, aged 73.—F. M. Eckford, M.D., at Los Angeles, Cal., June 18, aged 76.—James Loar, M.D., of Bloomington, Ill., June 14. He was aged 64 years and had practiced medicine in that city nearly thirty years.

MISCELLANY.

S. S. Kahn, has been appointed City Physician of San Francisco.

Mr. George S. Cox, State chemist, of Madison, Wis., has been recently appointed Professor of Chemistry and Dr. F. T. Nye of Beloit, Wis., Professor of Rhinology and Laryngology in the Wisconsin College of Physicians and Surgeons.

Georgia Medical Practice Act.—Notwithstanding the best efforts of the best elements of the profession in Georgia, the bill to regulate the practice of medicine in that State has been defeated, and she still continues to be an asylum for the rejected of her sister States that have some legal protection against incompetency and charlatanism.

Lactophenin.—In the *Lancet*, April 21, a new analgesic and hypnotic product finds favorable mention. Dr. Landowski has given it a trial in the wards of Prof. Pronst. This substance is an analogue of phenacetin, with a difference, namely, that lactic acid is a constituent instead of acetic acid. It is in the form of a white powder, tasteless and soluble in 330 parts of water. The initial dose is .50 given thrice daily. The maximum dose is placed at 1 gram. In small doses the drug is valuable as a calmative of neuralgia; in large doses it is hypnotic. It is well borne by some patients who are antipathetic to antipyrin. In some cases diaphoresis was produced.

Recognition of Dr. Rauch.—Speaking of the effect of the laws intended to regulate the practice of medicine in the improvement of the standard of medical education, Dr. R. H. Fitz, in his annual address before the Massachusetts Medical Society, said: "There is not only a prolongation of the period of study as the effect of these laws, but there is also an increased demand for a preliminary education, the establishment of new professorships, and more exacting examinations for the degree. Of all agents distinctly bringing about this change, the Illinois State Board of Health, and especially its Secretary, the late Dr. John H. Rauch, deserve the highest consideration."

Zola's Bacteriology.—One of Emile Zola's characters in his new novel, "Lourdes," is evidently a student of bacteriology and has witnessed demonstrations of the increased morbific potency obtained by mixing cultures of the toxigenic bacteria. Standing at the pool in the miraculous grotto and watching the increasing nastiness of the water, in which so many persons suffering from cancerous and tubercular affections, purulent sores, ophthalmia and offensive cutaneous diseases, are bathed, he exclaims: "What a home for microbes! The present mania for antiseptic precautions receives a fearful blow from such a spectacle. How does it happen that one common nasty disease does not kill all the invalids?"

Masonic Home for Consumptives.—With the consent of the Grand Master of the Grand Jurisdiction, A. F. and A. M. of New Mexico, the Montezuma Lodge of Santa Fe has adopted a resolution setting forth "that the death rate from consumption is increasing at an alarming rate all over the world; that the benefits of climatic cure are now universally recognized by physicians; that the most perfect climate is found at Santa Fe," and inviting the Masons of the United States and Canada to coöperate with Montezuma Lodge in the erection there of a national home for consumptives, to be governed and maintained by Masons for benevolent and charitable purposes.

Where They Move To.—Commenting upon the destination of a recent applicant to the Texas State Board of Medical Examiners—who defined histology as "the history of medicine," and when asked what system he practiced replied, "The Vanderbilt and St. Louis systems and sometimes the homeopath system," further explaining that this latter system consisted in "sweatin' the patient"—the *Atlanta Medical and Surgical Journal* sadly remarks: "In Texas and most other States such applicants are promptly declined and told to move on. They do move on to Georgia, Ohio, etc., where their ignorance is safely guarded by the absence of any law that may interfere with them."

Sequardine—a Glycerio-Phosphate.—Dr. Albert Robin has enunciated before the Paris Academy some original views regarding the replacement of Dr. Brown Séquard's elixir by a less sensational preparation. Starting with the working thesis that the late Professor's orchitic remedy was important in a certain range of cases, and that the good effects wrought through it were due to phosphorus elements, and also taking into consideration the fact that phosphorus is present in nearly all the reliable brain foods, or restoratives of nerve waste, Dr. Robin has made a series of trials with a glycerio-phosphate of his own invention. These trials have advanced sufficiently far and favorably to warrant him in addressing the Academy. The new remedy will doubtless be thoroughly investigated by the *confrères* of the late Dr. Brown-Séquard. There are many admirers of his who will be gratified to see the name of the enthusiast and physiologist embalmed in a monument of this kind—a neurologic remedy of permanent use and value.

The Young Doctor's Opportunity.—Dr. Hugh Blake Williams tells the *Chicago Herald* a doleful story of the experience of a young physician: "You have no idea, my dear boy," he said, "of the difficulties which environ the young man when he first starts out in the practice of medicine and surgery. When I first started out I was trying to do both, and considered myself competent to do either, but somehow the balance of the community where I started down in old Virginia, did not seem to agree with me. I used all the arts usually employed by young practitioners. I had my horse brought round every morning, and I used to gallop around as though there was a pestilence in every section of the county and nobody could get well until I got there. I had a boy regularly employed to call me out of church in the middle of the services, and I used to go with a rush that would break up a camp meeting. None of these things seemed to work worth a cent. To add to my discomfiture, the balance of the doctors in town seemed to have leagued against me and to be working against my interests.

"Finally, however, my chance came. There was a medical convention one day in the next county, and all the doctors of my own town except myself went over to attend it. That afternoon an Irishman named Rafferty fell in a sewer and broke his leg. I was the only doctor left in town, and I got the case. I fixed that Irishman up in the best shape you ever saw. I put more splints on him than would be needed for the fractured leg of an elephant. I gave him a big drink to settle his nerves, and when I left him I had the neighborhood covered with tanbark for several squares to stop any noise that might disturb the patient. I went

around in the morning expecting to find him calm and composed, and I found him hot and clamorous for my blood. What was the matter? Well, I don't want anything more than is necessary said about it, but to tell the whole truth to you, I found that I had set the wrong leg."

Medicine Among the Aztecs.—In a review of Flores' "History of Medicine in Mexico," Dr. David Cerna, of the Medical Department of the University of Texas, furnishes (*University Medical Magazine*, July, August, 1892, *Tri-State Medical Journal*, May, June, 1894) some interesting information concerning medical education and the regulations of medical practice among the Aztecs during the earliest period of ancient Mexican history, *i. e.*, that prior to 1521. The scientific professions were considered sacred; the privilege of following them was tendered only to the higher classes of society, and such professions were studied under the guidance and immediate supervision of the priests, who, among the Aztecs, were the most learned. The teaching of medical science, however, was both sacerdotal and hereditary, and father-physicians usually made physicians of their children and guided these afterwards in the practice of the healing art. For the proper study of the more or less rudimentary medical science among the Aztecs, the branches required to be mastered were medical and surgical pathology, therapeutics, botany, pharmacy and lastly clinical medicine and surgery. The studies of the pharmacist were more simple, but he was required to possess a knowledge of botany and pharmacy. Obstetrics remained always in the hands of women, and of those females especially who had already borne children and had, therefore, some practical knowledge. These, stated in a few words, were the principal branches of the healing art taught to those who intended to follow the professions of physician, surgeon, midwife and pharmacist. The candidates, however, who had satisfactorily finished their respective studies, were not allowed to go into practice without legal authorization. Physicians, surgeons, obstetricians and pharmacists, even after graduation, were obliged to obtain licenses before they were permitted to practice, and, notwithstanding the prevalence of superstitious ideas, quackery and witchcraft in connection with medicine, were severely punished by a special court or tribunal. Transgressors of the law, in this respect, frequently fell victims to human sacrifice so common among the Aztecs. Physicians were not idle in regard to medical studies; they had their societies which provoked reunions especially at the capital of the Empire, and in them the most interesting medical topics were brought forward and discussed. There were diffused throughout the land, especially at the two great cities of Texcoco and Tenochtitlan, civil and military hospitals for the reception of the sick among the poor and destitute, and of those who had been injured in the service of the country. The hospitals were superintended by the ablest physicians and surgeons, although always under governmental control. Five hundred years before the American Public Health Association met beneath the shadow of the great bust of the last Emperor of the Aztecs, that picturesque and interesting people had already attained a remarkable degree of development in the most complex of the learned professions—that of medicine.

Medical College Notes.

HARVARD MEDICAL ALUMNI'S FOURTH BANQUET—The fourth annual dinner of the Harvard Medical Alumni Association was held June 26.

There were present about 200 members of the Association. The retiring President, Dr. James R. Chadwick, sat at the head of the table. The guests of the occasion were Dr. William W. Keen, Professor of the Principles of Surgery and of Clinical Surgery in Jefferson Medical College, Philadelphia; Dr. William Osler, of Montreal, Professor of the Principles and Practice of Medicine at Johns Hopkins University, Baltimore; Dr. William M. Polk, Professor of Obstetrics and Diseases of Women and Children in the University of the City of New York, and Dr. John S. Billings, Deputy Surgeon-General of the U. S. Army, of Washington-

The other distinguished medical men at the guests' table were Drs. Francis H. Brown, Henry W. Williams, Dr. Reginald H. Fitz, Professor of Theory and Practice of Medicine at the Harvard Medical School; Dr. George B. Shattuck, editor of the *Boston Medical and Surgical Journal*; Dr. David W. Cheever, Professor of Surgery, Emeritus in the Harvard Medical School; Dr. Henry P. Bowditch, Professor of Physiology at the Harvard Medical School; Drs. Samuel W. Langmaid and William K. Wilcox.

Scattered about the other tables were Drs. George W. Gay, Frederick C. Shattuck, Thomas M. Rotch, Maurice H. Richardson, Theodore W. Fisher, Edward Cowles, H. A. A. Beach, John H. McCullom, Francis H. Williams, Charles N. Green, Francis H. Davenport, E. W. Mackie, Arthur B. Duel, Joseph H. Cunningham, R. F. Chase, A. K. Page, Charles F. Sweet, Leander M. Farrington, C. G. Page and John E. McGrath.

Dr. Chadwick opened the post-prandial exercises. In reviewing the work of the Association during the past year he said that the most important bit of legislation, from a medical standpoint, was the passage of the medical practice act. The law, in the speaker's opinion, did not go far, but a little advancement was encouraging. Its passage was due solely to the medical profession, which, said Dr. Chadwick, when confronted by problems regarding the public health, shows a singular and unselfish disinterestedness.

Dr. Chadwick pictured the contrast, as he viewed it, between the selfish political legislators at Washington and the unselfish medical congress which recently met at the capital. He said he was glad to record another successful year for the medical school, all classes except the entering showing an increase. This exception was due, he thought to the business depression rather than the four years' course. He announced that two new scholarships had been given during the past year, making twelve in all, whereas for this number there were forty-two applicants. The medical school during the past twenty-five years has received in bequests \$491,469.

Dr. Samuel W. Langmaid, Chairman of the Committee to report upon the work of the school, referred to the changes in the Faculty, and congratulated the Alumni upon the death of the three years' course. The Committee looks forward to the time when the degree of Bachelor of Arts will be necessary for admission to the school, and reported that after July, 1896, a step will be taken pointing in that direction. After that date six subjects will be made compulsory in the entrance examination, and the standard made in every way higher. The committee spoke of the work of the school at great length. Harvard ought to teach other schools how to teach, said the Chairman, and it ought to supply the constantly increasing demand for higher medical education formerly secured abroad.

Dr. Keen opened the talk on "Medical Education." Colleges, he said, are taking cognizance of the fact that medical education is advancing rapidly, and are preparing for it. He hoped the time would come when professors should give up their private practice, and confine themselves to the school and hospital. He believed in taking care of the soul but thought the proportion of money given to divinity and medical schools was rather too one-sided in favor of the former. He hoped the time was not far distant when foreigners would come to our shores as students.

Dr. Osler, of Johns Hopkins, made a witty address, in which he spoke of the requirements of the degree in sciences before admission could be secured to Johns Hopkins, and also, as he termed it, the delicate question of medical co-education. To this he is opposed on principle, and from his standpoint believes it to be non-successful. At the end of one session 33½ per cent. of the female students get married, he said.

Dr. Polk's address was most interesting. If, he said, the lengthened medical courses were to be conducted upon the old lines of study the advanced system would prove a dismal failure.

Dr. Billings spoke on the subject from the standpoint of his own experience, and attached great value to his college course, his medical school training being limited. The Doctor believed that Harvard was at a disadvantage without its own hospital.

The newly elected President, Dr. Geo. B. Shattuck, was introduced to the Alumni, and he made a few remarks, thanking the Association for the honor conferred. He promised to have some foreign speakers at the dinner next year.

The annual meeting of the Association was held before the dinner at the medical school building on Boylston Street.

Dr. Augustus Thorndike, the Secretary, read his report of the last meeting and of the Councilors' meeting. The report showed that, with twenty-seven members of the graduating class of the medical school who will join the Association tomorrow, the strength of membership is 1,159. Fifty-four members joined during the year and eighteen died.

The report of the Treasurer, Dr. Walter Ela, showed a balance in the treasury of \$1,536.83.

Dr. William T. Porter, Assistant Professor of Physiology in the Harvard Medical School; Dr. William D. Howells, of Johns Hopkins University, and Dr. James K. Paddock, of Pittsfield, President of the Massachusetts Medical School, were elected to honorary membership.

The following officers were elected for the ensuing year: Dr. George B. Shattuck, of Boston, President; Dr. Walter Ela, of Cambridge, Treasurer; Drs. J. B. Adams, of Framingham, I. T. Dana, of Portland, Me., Richard H. Derby, of New York, Samuel A. Fiske, of Denver, Col., John Green, of St. Louis, Mo., Henry Hun, of Albany, N. Y., Horace G. Miller, Providence, R. I., John L. Robinson, Manchester, N. H., John Brooks Wheeler, Burlington, Vt., W. S. Whitwell, San Francisco, Vice-Presidents; Drs. T. F. Breck, of Springfield, James R. Chadwick, of Boston, Charles E. Stedman, of Dorchester, Councilors for three years.

UNIVERSITY OF NASHVILLE.—Dr. Charles S. Briggs has been elected Professor of Surgery in the medical departments of the University of Nashville and Vanderbilt University to succeed his father, the late Dr. W. T. Briggs. Dr. S. S. Crockett has also been elected Professor of Anatomy, to fill the vacancy caused by the transfer of Dr. C. S. Briggs.

KENTUCKY SCHOOL OF MEDICINE.—The thirty-eighth annual commencement of the Kentucky School of Medicine was held at Louisville, June 21. There were 200 graduates.

MEDICO-CHIRURGICAL COLLEGE.—Prof. William H. Pancoast has resigned from the presidency of the board of trustees of the Medico-Chirurgical Society of Philadelphia.

Hospital Notes.

NEW HOSPITAL FOR THE IOWA INSANE.—The site for the new Iowa State hospital for the insane has been located, joining the western limits of the city of Cherokee.

EMERGENCY HOSPITAL MILWAUKEE.—The new \$60,000 Emergency hospital on Sycamore Street, opposite the Union depot, will be ready for occupancy July 4. Only two stories will be finished, but the doors will be opened. There will be accommodations for at least 100 patients in case of necessity. The common council has appropriated \$7,500 for furnishing the building.

OHIO EPILEPTIC HOSPITAL.—The trustees of the Ohio Epileptic hospital at Gallipolis held a session June 22. The Board will open bids on July 19 for the erection of three or four buildings. One of the buildings will be a dining room, two cottages and possibly a hospital. The cottages for females will probably be ready for occupancy some time in August or early in September, but the date can not be definitely fixed upon at this time. The institution now has about 200 male inmates.

The Lying-in Hospital at New York City.—This institution is nearly a century old, but has never yet had a building worthy of the name of hospital. The Society, caring for the institution, has recently determined upon a new and radical departure. It has obtained possession of an exceedingly valuable and handsome property, the Fish mansion at the corner of Seventeenth Street and Second Avenue. The cost of the property is over \$200,000, of which \$90,000 is a cash payment. Money from the original fund has been expended, year after year, under the direction of a board of managers, in supplying physicians to poor women who were in need of attention at their homes. Rented rooms in the building at 314 Broome Street, have been occupied by the Society for office purposes for a number of years. The old Fish mansion is to undergo alterations, and will be used as an administration building for the Society, and in the near future they expect to erect a large hospital on the adjoining grounds.

The Society was organized expressly for charitable purposes, and the hospital which they will build will be a place to which poor women can be sent for treatment. It is not connected with any church or creed, but it has a number of wealthy friends who would give of their money in aid of the charity. Heretofore the work of the Society has been mainly among the poor women in the Hebrew quarter of the city.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from June 23, 1894, to June 29, 1894.

Capt. GUY L. EDIE, Asst. Surgeon, is granted leave of absence for one month, to take effect on or about July 1, 1894.
First Lieut. WILLIAM F. LIPPITT, JR., Asst. Surgeon, is granted leave of absence for two months, to take effect upon the return of Major CALVIN DE WITT, Surgeon, to Ft. Leavenworth, Kan.
Major GEORGE H. TORNEY, Surgeon, is relieved from duty as attending surgeon and examiner of recruits at Philadelphia, Pa., and will report in person to the Superintendent U. S. Military Academy, West Point, N. Y., for duty, relieving Major PHILIP F. HARVEY, Surgeon, who, after being thus relieved, will report to the commanding officer, Plattsburg Bks., N. Y., for duty at that post.
Lieut.-Col. JOHNSON V. D. MIDDLETON, Deputy Surgeon-General, is relieved from duty at the Presidio of San Francisco, Cal., and will report to the commanding General, Dept. of California, for duty as Medical Director of that Department, relieving Lieut.-Col. ALBERT HARTSUFF, Deputy Surgeon-General. Lieut.-Col. HARTSUFF, on being thus relieved, will report in person to the commanding General, Dept. of the Missouri, for duty as Medical Director of that Department.
First Lieut. CHARLES WILCOX, Asst. Surgeon, relieved from duty at Angel Island, Cal., and ordered to Presidio of San Francisco, Cal., for duty, relieving First Lieut. HARLAN E. MCVAY, Asst. Surgeon.
First Lieut. MCVAY, on being thus relieved, ordered to Alcatraz Island, Cal., for duty, relieving Capt. OGDEN RAFFERTY, Asst. Surgeon.
Capt. RAFFERTY, on being thus relieved, ordered to Benicia Bks., Cal., for duty, relieving Major JOSEPH B. GIRARD, Surgeon.
Major GIRARD, on being thus relieved, ordered to duty at Presidio of San Francisco, Cal.

PROMOTIONS.

Lieut.-Col. JOSEPH P. WRIGHT, Deputy Surgeon-General, to be Asst. Surgeon-General with the rank of Colonel, May 16, 1894.
Major ALFRED A. WOODHULL, Surgeon, to be Deputy Surgeon-General with the rank of Lieut.-Colonel, May 16, 1894.
Major JOHN S. BILLINGS, Surgeon, to be Deputy Surgeon-General with the rank of Lieut.-Colonel, June 6, 1894.
Capt. WILLIAM R. HALL, Asst. Surgeon, to be Surgeon with the rank of Major, May 16, 1894.
Capt. GEORGE H. TORNEY, Asst. Surgeon, to be Surgeon with the rank of Major, June 6, 1894.

Marine-Hospital Changes. Official list of changes of stations and duties of medical officers of the U. S. Marine-Hospital Service, for the four weeks ended June 23, 1894.

P. A. Surgeon A. H. GLENNAN, granted leave of absence for five days, June 18, 1894.
P. A. Surgeon R. M. WOODWARD, to proceed to Cleveland, Ohio, for duty, June 11, 1894.
P. A. Surgeon C. P. WERTENRAKER, to proceed to Reedy Island Quarantine for special temporary duty, June 12, 1894.
Asst. Surgeon W. J. S. STEWARD, granted leave of absence for thirteen days, May 29, 1894.
Asst. Surgeon EMIL PBOCHAZKA, to proceed to New York City for duty, June 11, 1894.
Asst. Surgeon A. R. THOMAS, to proceed to St. Louis, Mo., for duty.

LETTERS RECEIVED.

(A) Ames, R. P. M., Springfield, Mass.
(B) Bach, J. A., Milwaukee, Wis.; Bascom, F. S., Salt Lake City, Utah; Bates & Morse Adv. Agency, New York, N. Y.; Buner, Wm. C., Oberlin, Ohio; Brettaner, Joseph, New York, N. Y.
(C) Columbia Chemical Company, Washington, D. C.; Cutter, John A., New York, N. Y.; Castle, Wilmot & Co., Rochester, N. Y.
(D) Donchy & Co., New York, N. Y.; Dickey, T. A., Middletown, Ohio.
(E) Enstis, W. C., Owatonna, Minn.
(F) Fee, Chas. S., St. Paul, Minn.
(G) Greene, Chas. S., San Francisco, Cal.; Green, C. C., Beaver City, Neb.; Griffith, G. W., Amesbury, Mass.; Gallup, Benj. E., Chicago, Ill.
(H) Ilitchcock, Chas. W., Detroit, Mich.; Harris, W. L., Washington, D. C.; Hamilton, L. D., Marion, Ohio; Hopkins, J. G., Thomasville, Ga.; Hanson, A. H., Chicago, Ill.
(I) Listol Chemical Co., Chicago, Ill.
(J) McPherson, C. W., Hazelhurst, Ill.; Moorehouse, W. D., Wauwatosa, Wis.
(K) Nowlin, A., Hutto, Texas; Neff, I. H., Kalamazoo, Mich.; New England Vaccine Co., Chelsea Station, Mass.; Nelmyer, W. G., Chicago, Ill.
(L) Posman, A., Paducah, Ky.; Pantagraph Printing & Stationery Co., Bloomington, Ill.; Playter, Edward, Ottawa, Canada.
(M) Stechert, G. E., New York, N. Y.
(N) Topfiff, C. L., New York, N. Y.
(O) Woodbridge, J. E., Youngstown, Ohio; Würdemann, H. V., Milwaukee, Wis.; Weaver, W. P., Wilkesbarre, Pa.

PAMPHLETS RECEIVED

Teno-Suture and Tendon Elongation and Shortening by Open Incision; Advantages and Disadvantages of the Various Methods. By H. A. Wilson, M.D., Philadelphia.
Clinical History, President Jas. Abram Garfield. By Robt. Reyburn, A.M., M.D., Washington, D. C.
Forty-eighth Annual Announcement Starling Medical College, Columbus, Ohio, 1894-95.
The Non-surgical Treatment of Ovarian Disease. By J. H. Kellogg, M.D., Battle Creek, Mich.
Chronic Purulent Middle Ear Disease. By S. J. Gettelson, M.D., New York.
Report on the Leprosy Question in Louisiana. By Isadore Dyer, Ph.B., M.D., New Orleans, La.
Annual Announcement Rush Medical College, Chicago, 1894-95.
Annual Announcement College of Physicians and Surgeons, Chicago, 1894.
Annual Catalogue Woman's Medical College of the New York Infirmary, 1894.
Euphrophen, Substitute for Iodoform. New York: W. H. Schieffelin & Co.
Hysterical Seizures Relieved by Hypnotic Suggestion. By Judson Daland, M.D., Philadelphia.

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CHICAGO, JULY 14, 1894.

No. 2.

ORIGINAL ARTICLES

AMBROSE PARÉ, THE FATHER OF FRENCH SURGERY. 1509-1590.

Read before the Des Moines Valley Medical Society, at Ottumwa, Iowa, June 21, 1894.

BY JAMES MOORES BALL, M.D.

PROFESSOR OF OPHTHALMOLOGY AND OTOLGY IN THE ST. LOUIS COLLEGE OF PHYSICIANS AND SURGEONS.

ST. LOUIS, MO.

Great good sense, wonderful industry, remarkable opportunities, and an untiring and unconquerable ambition, have combined to render the name of Ambrose Paré celebrated in the annals of surgery. Born of humble parents, amid unfavorable surroundings, under circumstances which would have crushed a spirit less ambitious, Ambrose Paré, by his unaided efforts, made himself master of the surgical science of his day, commanded the confidence of emperors and peasants, of statesmen and soldiers, and left posterity the record of a life well spent. He marks the dividing line between the servile surgery of the ancients and the original, independent and progress-



FIG. 1.—Initial from Paré's book, A. D., 1594.

ive art of the moderns. Just as Vesalius, Eustachius and Fallopius dared to contradict the errors of thirteen hundred years, and correct the anatomic mistakes of Galen, so Paré brought about a new order of things in surgery. Firm in his convictions, honest in his statements, and accurate in his observations, this great man was far in advance of his age. The story of his life reads like a romance.

Paré was born at Laval, a small town in the province of Mayenne, in France, in the year 1509. His life was spent during a period of great and stirring scenes—a time remarkable in the history of the world. At the time of his birth the art of printing had been invented less than sixty years; the existence of a new

continent had been proclaimed by Columbus seventeen years; Martin Luther was delivering Biblical lectures in the University of Wittenberg, and preparing to shake the foundations of the theological world; Ariosto, of Italy, was writing immortal verse; Erasmus, residing in the same sunny clime, was delighting the world with his matchless scholarship and educating the young son of James IV. of Scotland; and Copernicus, while studying the revolutions of the heavenly bodies, had not dared to proclaim his views. Louis XII., of France, was engaged in war with Italy. Henry VIII. had just succeeded to the English throne. Maximilian I. ruled the land from the Danube to the Zuyder Zee.

The same year that Paré first saw the light of day, there was ushered into the world, one Michael Servetus, destined to discover the lesser circulation and die by slow torturing fires; and John Calvin, the theological bigot of Geneva. Paracelsus, that compound of science, eccentricity and charlatanism, was in his sixteenth year. Realdus Columbus, celebrated as an anatomist, was 15 years of age.

The early education of Paré was obtained from a priest. While yet in his teens he was apprenticed to a barber-surgeon who instructed him in minor surgery. While thus engaged, Laurent Colot, the celebrated lithotomist, chanced to visit the town for

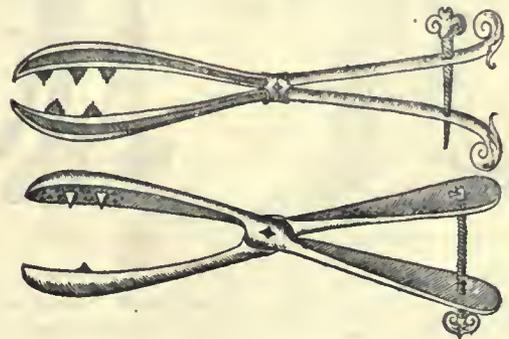


FIG. 2.—Stone crushers used by Paré.

the purpose of operating for stone. Paré was present, and was so struck with admiration at the result of the operation that he resolved to devote himself to the higher branches of surgery, an art which was then almost exclusively in the hands of the barbers. With this object he set off for Paris where Jacques Goupil, one of the professors in the College of France, acted as his preceptor. Here the masters explained to him the works of Lanfranc, Albucasis, Guido de Chauliac, and John de Vigo, the only surgical textbooks of the times. Soon Paré became interne to that famous hospital, the Hotel Dieu, where he remained for three years. During this time Paré was engaged in teaching anatomy. In 1536, in his twenty-seventh year, he received the appointment of military surgeon and was directed to accompany

René de Montjean to Italy. After the surrender of Turin, and the death of Montjean, Paré returned to Paris and began the practice of surgery.

The three years spent in campaigning were of great value to Paré and during this time he made some important observations. In the treatment of gun-shot wounds, the teachings of John de Vigo, physician to Pope Julius II. had been followed implicitly. Such injuries were regarded as poisoned wounds and the practice was to cauterize them with boiling oil, or the hot iron, while alexipharmics were administered internally. John de Vigo assures us that the danger of these wounds results from the round form of the balls, their degree of heat, and the poisonous qualities that the powder communicates to them. This theory, so destructive in its effect, received universal credence until Paré arose to combat it. After the battle of Pas-de-Suze, the supply of boiling oil having given out, it was observed on the following morning by Paré that those wounds looked best which had not been dressed with hot oil; and he also noticed that such patients showed less

French surgery, was published, with the following title: "The Manner of Treating Wounds made by Arquebuses and other Fire Arms, and those made by Arrows, Darts, and the like; and also of Burns, made especially by Gunpowder: Composed by Ambrose Paré, Master Barber-Surgeon, Paris."

In a few months a second edition was issued. In both editions the use of the actual cautery was advised to check hemorrhage. Paré, however, was thinking, day by day, of a plan by which hemorrhage could be controlled without the frightful torture of the hot iron. He resolved to test his theory and finally, at the siege of Dampvillier, in the year 1552, an amputation was made upon the person of M. de Rohan, and, for the first time in the history of surgical science, Ambrose Paré ligated the bleeding vessels. Fortunately the patient recovered and, full of joy at having escaped the red-hot iron, said that he had parted with his leg on very good terms.

The young surgeon had made two great discoveries: By the first he saved from cauterization all who had simple gun-shot wounds; by the second all who suffered an amputation were spared the tortures of the actual cautery. And, in the language of Malgaigne, "Military surgery, which till that time had been a torture, became a blessed art, and it was a barber-surgeon who produced the double marvel."

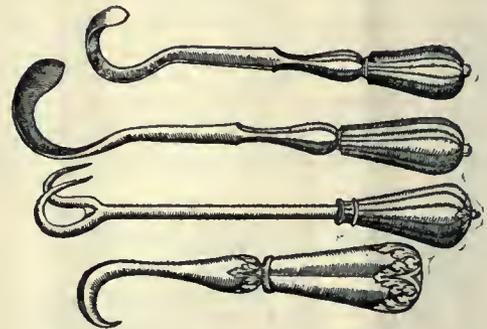
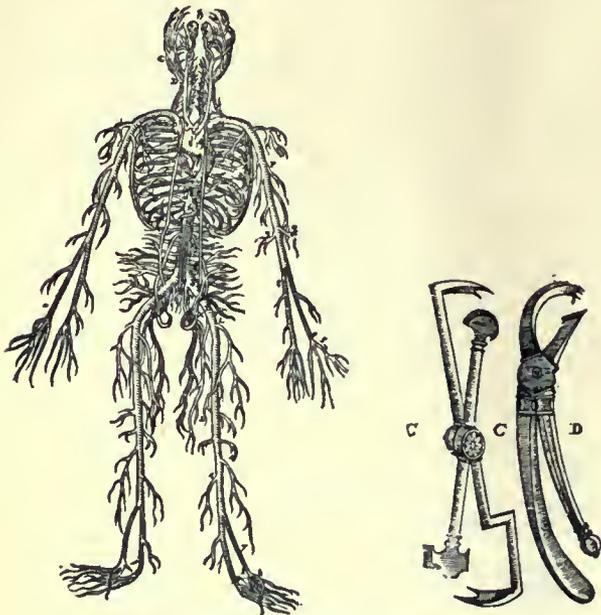


FIG. 5.—Obstetrical instruments, (Paré.)

febrile reaction than the others. It required great courage for him, a young man without name or authority, to combat a doctrine so universally accepted; but Ambrose Paré was not the man to be overawed by weight of authority when his own sober judgment taught him differently.

In Paris, Paré was interviewed by Sylvius de la Bœe. Malgaigne says: "This interview was honorable in all respects to both." Sylvius, whose teachings attracted more auditors than those of Fernel, even invited the young surgeon to dinner, and heard with great attention, the observations and experiments on which Paré had established his doctrines on gun-shot wounds, and was so much struck with them that he besought him with great warmth, to write them out and make them public. Paré felt sensibly this encouragement, coming from so high a source, and prepared his text, drew the figures, and in the year 1545, at Virant Gaulterot's, sworn bookseller in the University of Paris, that little work which marked in a manner so glorious the revival of

The practice of ligating an artery was entirely new, but the idea was old. Galen, Celsus, Avicenna and Albucasis had all spoken of the tying of arteries and veins, but there is no evidence to show that they practiced it. For centuries the actual cautery had been the principal means of checking traumatic hemorrhage. Sometimes, by way of variety, hot oil or boiling pitch were applied to the bleeding surface. The discovery of Paré revolutionized the practice of surgery and brought on his devoted head a torrent of abuse. Like Harvey at a later date, Paré suffered in his practice for a time. Of all his enemies, Gourmelen, President of the College of France, was the most clamorous. At the present day he is remembered only for his opposition to the great surgeon. "It was then," said Gourmelen, "very forward, rash and presumptuous in a certain individual, to venture upon condemning the cauterization of bleeding vessels after cutting off a mortified limb, a method so highly and continually commended and approved by all the ancients, teaching in opposition to that, without any authority, without good sense, some new method of his own, of tying arteries and veins." He called Paré a bloodthirsty cruel rascal, while Paré, stung to the quick, sometimes lost his temper but generally conducted his defense with admirable coolness, as the following will show:

"You boast, M. Gourmelen, that you will teach me

my lessons in surgery, and my operations; but in that, I believe, you are a little mistaken, for my education has been quite after another fashion. I have learned my art, not in my closet; no, nor by hearing the discourses of physicians, though that also I have not despised; but in the Hotel Dieu, where I lived for three years, seeing many diseases, and practicing many operations upon the living body, and learning also much anatomy from the dissection of the dead. But," he continued, "I have yet more to boast of, for, being in the service of the King of France, I have, in my time, served four successive Kings, having followed them in battles, skirmishes, and assaults;

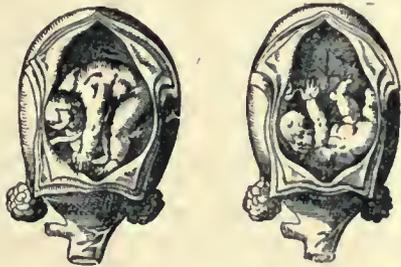


FIG. 6.—"De situ infantis in utero." (Paré.)

sometimes I have been in sieges, and sometimes shut up with the besieged, curing their wounds." "And last of all, I have lived in this great renowned city of Paris many long years, where, thank God, I have been held in some repute, and ranked at least equal to my peers, insomuch that there have been few difficult or celebrated cures in which my head and hand have not been employed. How, seeing these things, dare such a man as you, who has made surgery no part of your study, talk of teaching me?"

Paré, although proud of his discovery, arrogated nothing to himself, but with true piety ascribed it all to God. He says: "I think it was taught me



FIG. 7.—Reduction of a dislocation of the humerus. (Paré.)

by the special favor of the sacred Deitie; for I learnt it not of my masters, nor of any other, neither have I at any time found it used by any. Only I have read it in Galen, that there was no speedier remedy for staunching of blood than to bind the vessels through which it flowed towards their roots, to-wit, the liver and the heart."—(Johnson's translation, London, 1634.)

Nor was the use of the ligature the only discovery made by Paré. He was the first to employ the twisted suture in the operation for hare-lip; to extract cartilaginous bodies from the knee joint; and to perform podalic version in difficult labor. He was a man of great mechanical genius, as is evidenced by the large number of new instruments and appliances

found in his book. He gave the first account of what is now incorrectly described as Hey's saw, and the club-foot boot, claimed to have been devised by Mr. Syme, of Edinburgh. Among the many wood cuts of curios, one sees artificial eyes, ears, noses, teeth, arms, legs and hands.

Surgeon successively to Henry II., Francis II., Charles IX., and Henry III., it was said of Paré that "the Kings of France transmitted him to their suc-

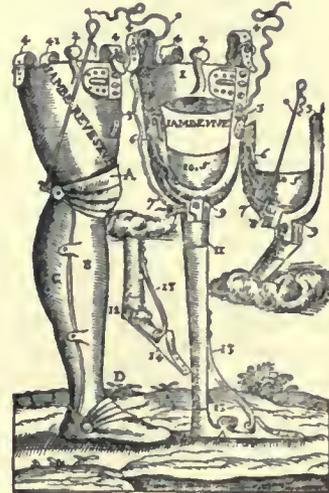


FIG. 8.—Artificial limbs. (Paré.)

cessors as a legacy of the crown." These monarchs were all warmly attached to Paré; he was at once their privy-councilor and trusted surgeon, and his influence over them was by no means small. Let it be said in his honor that this influence was never exerted in an unjust cause. So great was the power of this good man over Charles IX., that he was enabled to put a stop to the massacre of St. Bartholomew, (Aug. 24, 1572), when 70,000 Huguenots were murdered in Paris and various parts of France. The

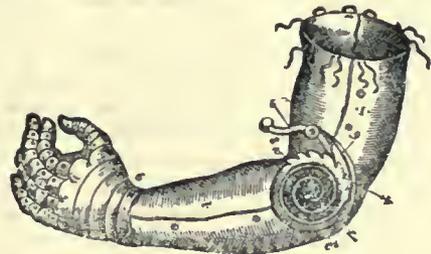


FIG. 9.—Artificial arm. (Paré.)

details of that horrible event are well known. For years, Huguenots and Catholics had been at enmity; and affairs had at last reached such a crisis that the bloodthirsty mother of Charles deemed it necessary to kill all the Huguenots. For three days and nights these unfortunates were hunted like the beasts of the field. Helpless infants, old men and women were slain by hired assassins. The streets of Paris were blocked by the bodies of the dead. How long the slaughter would have continued is impossible to say, had not one man, and he a Huguenot, done his duty. That man was Ambrose Paré. "It was not long," says the Duke of Sully, who has so graphically described the scene, "before Charles felt the most violent remorse for the barbarous action to which they had forced him to give the sanction of his name and authority. From the evening of the 24th of

August, he was observed to groan involuntarily at the recitation of a thousand acts of cruelty, which every one boasted of in his presence. Of all those who were about the person of this prince, none possessed so great a share of his confidence as Ambrose Paré, his surgeon. This man, although a Huguenot, lived with him in so great a degree of familiarity that, on the day of the massacre, Charles telling him the time was now come for him to turn a Catholic, he replied, without being alarmed: 'By the light of God, sire, you can not have forgotten your promise, never to command me to do four things, namely, to enter into my mother's womb, to be present in the day of battle, to quit your service, or to go to mass.' The king soon after took him aside, and disclosed to him freely the trouble of his soul. 'Ambrose,' said he, 'I know not what has happened these two or three days past, but I feel my mind and body as much at enmity with each other as if I were seized with a fever; sleeping or waking, the murdered Huguenots seem ever present to my eyes, with ghastly faces, and sweltering in blood. I wish the innocent and helpless at least had been spared.' The order which was published the following day, forbidding the continuance of the massacre, was the consequence of this conversation. At the time, Paré was 62 years of age, and of all his good deeds this was the greatest.

Nor was the influence of Paré over the populace less potent. Among the soldiers his presence was sufficient to inspire new courage. At the siege of Metz, when Charles V. had surrounded the town with an immense army, and the garrison, comprising the flower of French nobility, were reduced by hunger and sickness to the utmost extremity, Paré was introduced into the city by stealth, much to the joy of the besieged, who exclaimed: "We have no longer any fear of dying, even if we should be wounded; Paré, our friend, is among us." At this period Paré had already passed sixteen years as an army surgeon and was known to all the officers and many of the rank and file. In his "Chirurgia," our subject tells how the Duke de Guise commanded that he "should be weel used, and bid mee I should not faile to be the next day upon the Breache, where I should meete with all the Princes and divers Captaines, which I did; who receaved mee with great joy, and did me the honor to imbrace me, and tell me I was very welcome, adding withall that they did not feare to dye if they should chance to bee hurt." (Johnson's translation). The next day after his arrival, Paré successfully trephined M. de Bugend, who had been struck on the head by a piece of stone, and had remained insensible for fourteen days.

Paré became a member of the College of Surgeons in 1554, submitted to the examinations and received successively the degrees of Bachelor, Licentiate, and Master in Surgery. Although ignorant of Latin, Paré was received regardless of a statute which required that the candidate should know that language. He never wore the professor's cap and gown. He was tall in stature, with slender figure and a grave and dignified countenance. All his portraits represent him in his court dress, with the frilled collar characteristic of the age. No one can examine that grand old folio, "Opera Chirurgia," of Paré, without being overwhelmed with the thought that this work was penned by the intellect of a giant. Here we have nearly one thousand closely printed pages, over 300

illustrations—many of which contain numerous figures—which cost the author an almost fabulous sum. We find complete treatises on many subjects; on human anatomy; beasts, birds and fishes; monsters and prodigies; fractures and dislocations; tumors and wounds; artificial arms, legs and hands; amputations and ulcers; cauteries and ligatures; trephines and dental forceps, etc., etc.

So long as surgeons practice their beneficent art, the name of Ambrose Paré will be mentioned with reverence.

2600 Gamble Street.

CONCUSSION OF THE BRAIN.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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During the last forty years the subject of concussion or commotion, as the Germans and derivative Latin writers term it, has been a matter of careful study, observation and experimental research. It is caused by some external violence which communicates vibration, oscillation or minute movement to the anatomic elements of the parts acted upon. In the causation all observers agree; but what occurs in the constituent elements of the parts affected can not be said to be as yet satisfactorily settled. All the parts of the body may be the subject of such action: Bones, muscles, nerves, viscera; and some assert that the blood itself may be the subject of concussion. The study of the effects of concussion has been devoted chiefly to the brain; yet it seems certain that the same cause would be followed by like effects, no difference what part of the body might be the site; and hence that one common definition might be given of concussion, founded on physical and physiologic laws. In a classic article on this subject by Verneuil, the able French surgeon and writer, after revealing to the reader the difficulties which perplex him in his task, he offers us the following definition of concussion: It is a series of phenomena, occurring more or less suddenly, which result from a mechanical shaking or jarring movement of the anatomic elements, tissues and organs, characterized by temporary excitation or depression of the properties, offices or uses of the parts which are shaken; and as a result there are caused anatomic changes similar to those which are normally seen in the successive phases of functional excitation or functional repose. This definition is the embodiment of what its author has derived from his own observations and that of others, and especially from results which others have obtained in experiment on animals.

In the milder grades of concussion in the animal, the question has been whether there is any appreciable lesion to be discovered in the part subjected to experiment. The most admit that such lesion can not be discovered, and since in man, in case of concussion of the brain, the subject soon recovers, hence there is no opportunity of searching for the evidence of such lesion; for as Verneuil says, we derive our elements of the diagnosis of any disease from three sources, to-wit: The causation, the symptoms arising, and the direct inspection of the parts affected. But in the case of cerebral concussion one or more of these sources of information is often wanting.

The inspection of the injured part is wholly denied to the surgeon; the extent of the violence done can only be vaguely and imperfectly estimated; and not infrequently it is wholly unknown; as where the patient is found unconscious or unable to explain how he was injured; and finally the remaining source of knowledge, viz., the symptoms, are often far from being clear and well defined.

Concussion as will presently be more fully detailed, may be said to present itself in three grades which we will designate the mild, severe and fatal; the second of which offers symptoms sufficiently durable to admit of deliberate consideration, and presents as a marked condition a depression of the cardio-pulmonary functions, in which pulse and breathing are slow and feeble; temperature is lowered as a result of these changes and the functions of the sensory and motor nerves are temporarily abolished. The patient neither moves nor feels; the mental faculty is, for a time, reduced to nullity; the patient is not conscious of existence; and in all this the animal, for a time, has lost his distinguishing characteristics, and lies at the verge of plant life.

Many explanations of these conditions have been offered, as will be seen by a brief review of the literature which, during the last forty years, has been written on the matter.

In 1842 Haworth wrote on concussion of the brain, and claimed that the violence impinging on one side of the skull carried the brain against the opposite wall, and thence rebounding a vacuum remained, in which blood and gas collected, as it were, by *contrecoup*. Haworth thinks that a vacuum is also formed in the brain in those who ascend great heights, and thus he would explain the cerebral trouble more or less present in such cases. This explanation of the phenomena arising from concussion could only be applicable in those cases which have arisen from great violence, in which the patient dies at once from the violence to the brain; the organ being lessened in its volume, and into the empty spaces thence arising, blood escapes from lacerated vessels. The filling of the space with blood is a secondary effect of the injury.

In 1852 there were reports on concussion of the brain by Fano, Chassaignac and Haas; the former two find that where death has immediately followed the blow on the head, then there will be found an effusion of blood around the pons-varolii; but if death occurs later, then in the cerebral structure there will be found disseminated small clots of blood, which these writers attribute to cerebral contusion. They deny that concussion can injure without leaving some signs of violence; one always can find ecchymosis or marks of cerebral injury. Haas thinks that there can be concussion with or without ecchymosis; in which there is sopor, and unconsciousness; if it be simple concussion then these conditions may soon disappear; but if blood be effused then these symptoms may continue and even increase in intensity.

Continuing his studies, in 1853 Fano discredits the notion that in concussion there is perceptible material change in the cerebral structure, but he claims that there will be effusion of blood near the base of the brain. Fano, Chassaignac and Sanson have found in the brain small points of effused blood, not larger than millet seeds. In milder cases, Eisenmann thinks there is a shock which acts reflexly through

the vasomotor filaments on the capillaries, and produces a stasis of blood in the latter; and in more severe cases the stasis may be carried to the extent of rupturing the vessels. The order of the phenomena is as follows: The shock is first propagated from the vibrating bones to the nerves, and thence a recurrent reflex action on and through the nerves, next stasis, and sometimes rupture of the vessels, and occasional structural softening.

Paget, writing on cerebral concussion in 1863, made three stages of it: In the first stage an unconsciousness occurs, and this may vanish and the patient recover; in the third stage the violence is greater, and the condition may be sthenic, or asthenic in character. The sthenic symptoms occur early, viz., within a day or two; the asthenic symptoms occur after a longer period, viz., after ten or eleven days. Between the first and the third, or inflammatory stage, Paget places a second one in which there is almost a total absence of morbid signs. After surgical operations, for example an amputation, Paget finds that similar conditions may arise, viz., an asthenic stage, or that of depression, or a sthenic stage, or one of reaction may appear. As here, different plans of treatment are demanded in the opposite conditions, so in concussion of the brain, the stage of depression demands stimulants, while that of reaction requires sedatives and depressants.

Paget estimates the chances of recovery to be very slight after severe concussion of the brain; in such cases not more than one in twenty get well.

Alquié, in Paris, made some experiments in 1865 on concussion and determined from them, that through the injury caused, the functions of the brain were more or less interfered with; and further, he decides that concussion and contusion do not differ much from each other in their respective actions. The lesion produced by slight concussion is so slight that it eludes the closest search with the eye. Its mechanism is not that of vibration, but of a blow that came and went at once. The causal violence carries the brain forward in one direction, viz., that of the causal violence. Alquié concludes that concussion and contusion are convertible terms. Local and diffused concussion can not be distinguished from each other in their action. The phenomena resulting from severe concussion, are vertigo, fainting, weakness, drowsiness and coma. The cerebral trouble caused may appear in remissions and exacerbations. From concussion, one or many functions of the head, or the parts dependent on it, may be impaired or annulled, and this disturbance may be brief or lasting. Concussion in its action resembles grave mental disease.

In his treatment, Alquié is in accord with Paget. Collapse and depression demand stimulants; active reaction demands an opposite course.

Beck, of Freiburg, in 1865, referred the effects of cerebral concussion to violence transmitted to the medulla oblongata, and to lesion of the centers which preside over the functions of the heart and lungs. He finds as common causal agency, a blow with a blunt instrument.

Witkowski, in 1877, made some experiments on animals, in which the head was struck with a hammer, and the pressure of the blood in the carotid arteries was noted in the meantime. The immediate effect was increased blood pressure in these vessels; the increase commenced immediately after the injury,

and reached its highest degree in from twenty to fifty seconds, and continued for from one to two minutes. This increased pressure followed both slight and more severe concussion. It was afterward succeeded by a slight descent of pressure below the normal standard. The pulse, as a rule, was not changed.

In the cases in which the skull has been trephined, so that the brain could be seen after removing sections of the dura mater, it was found that the strokes caused a perceptible contraction of the vessels of the dura mater; this continued for a minute or two, and then a slight reaction followed. Witkowski decided that these alterations in the blood pressure were not due to the oscillations from concussion, but were the consequence of direct action on the nerve matter. Though he offers this explanation, it is probable that few readers can recognize or comprehend it.

Duret, of Paris, in 1877, made experiments on animals, in which he studied the effects of concussion on the brain. The violence done to heads of animals was produced by blows on the skull, and also by violently injecting fluid into the cranial cavity, through a trephined opening. He finds the leading results of concussion to be slowness of the pulse and respiration; and, finding an absence of all lesions in the cerebral hemisphere, he sought for injury in the medulla oblongata. In the experiment in which water was violently injected into the skull, the fluid in the lateral ventricles was caused to pass downward through the middle ventricle, and the canal of Sylvius, from the third to the fourth ventricle. In its passage through the canal, the fluid caused lacerations of the walls of the narrow passage. In another experiment the skull was trephined above, and the posterior ligament connecting the axis and the atlas was exposed. Now when pressure was made through the trephined opening above, then an impulse could be perceived below, from the descent of the fluid into the spinal canal.

Duret's experiments were done chiefly by the injection of water into the cranial cavity. This fluid was forcibly thrown against the surface of the brain beneath the dura mater. It is evident that the action of such violence differs from that caused by a blow. It is not so instantaneous, the violence progressing from a slight grade to the higher one; and only when the fluid reaches a certain amount could it displace the intra-ventricular fluid. Such action must differ from that in which the violence impinges on the outside of the skull and thus travels upward to the less resistant cerebral matter; hence the results of Duret's experiments may be deemed an approximation to, rather than an actual reproduction of, the action of concussion from direct violence.

In 1878 Duret continued his researches on this subject, and divides the shock of concussion into three classes, viz., central, bulbar and medullary, according as one of these structures is most involved. In the case of a blow the passage of the fluid downward acts most severely on the bulb.

Duret divides the action of concussion into two periods: In the first period there is a spasmodic and a paralytic stage, in which there is coma with depression. In the second period there is a congestion and inflammation. The site of the blow has an influence on the morbid phenomena; for when the forehead receives the blow, the pons and bulb are the

most affected, but when the side of the head is the site of the violence, then the other hemisphere is the more affected.

After the review of the subject of concussion, if the facts which have been drawn from so many quarters be condensed, and conclusions be drawn from them, the following may be offered as an epitomized summary of the changes which are induced, temporarily or continuously, in the brain, from concussion. In the mildest grade there is a brief diminution of the blood pressure in the part; its tension is temporarily lowered. As the result of this there is mental disturbance. The cells in the cortex of the brain, on whose normal condition the evolution of thought in some unknown way depends, are deprived for a few moments of their accustomed supply of nutrient material; the result is a brief perversion of intellect; memory is lost; the power to recognize surrounding objects is weakened or lost. As a personal illustration of this, from a fall from a carriage the writer once suffered temporary concussion of the brain; though he arose at once to his feet on a street with which he was very familiar, yet for a moment all appeared to him as if he was in a strange city. That picture registered in the memory, yet remains as an enduring scene of mental imagery; and though there was knowledge of what had occurred, and thought enough to search the head for fracture, yet the subject of the injury possessed no accurate knowledge of his surroundings. The writer would attribute the conditions to the temporary disturbance of the circulation in the surface of the brain.

If the violence be somewhat greater than that here supposed, then to the disturbance of blood pressure there is superadded a disturbance of the cellular constituents composing the surface of the brain. A jostling or displacement of the molecular elements of these cells, even though it be microscopically minute, must suffice to induce functional derangement. In such condition the patient lies unconscious to all that is around him; he breathes naturally; the pulse is commonly somewhat weakened and irregular; the temperature is not increased, and sometimes is less than normal; the pupil is neither dilated nor contracted, and reacts somewhat to light. The patient may remain for hours, a day, or even a week in this condition in which he is neither awake nor asleep; he is so nearly asleep that his condition is often mistaken for sleep; but it differs from sleep in this: That the eye-balls do not occupy the position they have in healthy sleep; they are often in motion beneath the closed eye-lids. There is an absence of snoring in the breathing. In fact, the patient breathes as one who is partly asleep, rather than as one who is really so. For the lack of a name we will designate it the sleep of concussion.

In the grades of concussion just mentioned, its action is chiefly manifested in obtunding or temporarily depressing the functions of the mind; but if the intensity of the causal violence be still greater, then besides the abolition of the thinking faculty, the cardio-pulmonary functions are disturbed, depending doubtless on the lesion of the centers at the base of the brain, which preside over these functions; the lesions which were represented by the lacerations in that region observed by Duret. The pulse is soft and often irregularly hastened; the breathing is similarly affected; regular, alternating with irregular breathing; slowness with accelera-

tions; and these disturbances of the action of the heart and lungs, conjoined to unconsciousness may remain for days or weeks, and then consciousness may reappear suddenly, the patient arising, as from a sleep, with a gradual disappearance of other abnormal conditions. Such an injury of the head as here described often results from a fall from a carriage or a horse, also to the boy from an accident in climbing. In such accident the weight of the body multiplied by the velocity acquired at the final moment of striking the ground, represents a high degree of violence, especially where the surface fallen on is a hard one. In such cases, when severe, there is a contusion of a limited surface of the brain; and thence results a localized or isolated palsy of some part of the body. Or, as the writer has observed, there may be a partial hemiplegia in the arm or leg; and not infrequently one limb is more affected than the other; and at the same time there may be restlessness of the limbs on the non-paralyzed side.

In the still higher grade of concussion, the functions of life are permanently suspended, either at once or death ensues in a few minutes after the receipt of the violence. Such fatal result gives the opportunity of necropsy, in which the condition of the brain could be inspected; yet singularly enough there is far from agreement among observers in respect to these conditions; some asserting that the brain did not fill the skull; others have found to the contrary. Of the first condition there is a notable instance on record; an observation made and reported by Littré over a century ago. This case, cited by nearly all writers on concussion, was that of a criminal who, to escape punishment, ran and struck his head so violently against the wall of his prison that he fell dead. The desperate energy displayed in the fatal act has had no small share in retaining the account in history.

In the necropsy of the case reported by Littré, the cerebral matter was found broken down, and to lack much of filling the cranial cavity; that is, a vacuum was found in the upper part of the skull. There have been reported a few other cases, in which there was found a slight open space above the brain in those who had died from cerebral concussion. There has been reported an effacement of the natural irregularities of the cortex of the brain. Other observers contend, however, that both the empty space as well as the alleged leveling of the surface is not present in the unopened cranium, but is caused by the escape of blood from vessels which are divided in the opening of the cranial cavity. Notwithstanding these discordant utterances, the predominant weight of observation is on the side of those who assert that there is some lessening of volume, as well as an effacement of the cortical irregularities of the brain. Besides these evidences of violence, the cerebral matter, on being cut, presents minute ecchymoses of blood, due to ruptured minute vessels, and it is probable that such rupture, in less extent, occurs in concussion of a mild degree.

DIAGNOSIS.

The diagnosis of cerebral concussion is an easy matter in cases in which there is history of violence acting on the head. Yet in the absence of such history the problem of diagnosis becomes sometimes difficult, since it must be wholly solved by the symptoms present; then the pulse, the breathing,

the pupil and the color of the face give valuable information; stertor and contracted pupil point to poison with opium. The fumes of spirits in the breath point to alcoholic excess. An instance of this kind came within the knowledge of the writer: A man who was found prostrate by the side of the street was the object of puzzling study to some physicians, when the coachman of one of the doctors solved the matter by saying that he would give half a dollar to be as sick as the man was.

There are cases in which the work of diagnosis is much embarrassed by the lesion not being a simple one of concussion: since there may be joined to it contusion and compression; especially compression, which would greatly modify or change the usual symptoms of a case of concussion; in fact, concussion and compression present in a case would mutually interact, and influence the symptoms of each other; and in such case the surgeon would find it extremely difficult, perhaps impossible, to determine all the conditions present; in such embarrassment the most prominent symptom should claim attention and treatment.

PROGNOSIS.

From what has preceded, it is clear that the prognosis of concussion of the brain must depend on the grade of the injury. In the grades of slight severity a recovery may be certainly anticipated at an early period; but in the severer forms the prospect is more unfavorable. The patient may remain in an unconscious and half dead state for weeks, and afterward slowly recover, or from his half dead condition he may lapse into actual death. Also it is to be observed that after severe concussion, though the patient may live, yet not infrequently there remains some vestige or memento of the injury in the form of perverted motion, sensation or impaired mentality. From the observations of Griesinger and other alienists it has been seen that the mental character often undergoes some change in those who have been the subject of severe cerebral concussion. The memory may be weakened or altered in some way; the recollection of proper names, of specific nouns and adjectives may be partly or wholly lost; from the framework of language may be plucked the most of its exuberant appendages, and the whole be reduced to a meager skeleton of generic headings and categories. Besides this, the character of the individual may be slightly or greatly modified; the hitherto well-controlled temper may become vehement and rash; he has outbursts of anger, and may become the actor of lawless deeds. He becomes distrustful of those around him. These changes may be plainly manifest, or they may be so slight as only to be perceptible to the subject's intimate friends; and whatever character these changes assume they will probably remain permanent, inasmuch as they depend on structural change which will continue unchanged. In modern times, when crime seeks for its defense that its subject can not control his actions, and consequently that he is not responsible for his offenses, the matter of concussion has assumed a special importance in forensic medicine. As the concussion of the spinal column from railway accident seeks, for real or assumed injury, reparation from the pockets of the corporation, so the transgressor of law often claims immunity on the ground that at some time previously he has been injured in his head, and as concussion

leaves no tangible or visible mark, hence it conveniently serves the purpose of such subterfuge.

TREATMENT OF CONCUSSION OF THE BRAIN.

Since there are two totally different states in which the patient of concussion may be, viz., depression or excitation, so the treatment must be shaped as one or the other condition exists or predominates. As a rule, the first effect of concussion is to induce depression and exhaustion of the vital forces; and this condition must be met and counteracted by stimulants and excitants. The patient is often so prostrated that the reflex action of swallowing can be only imperfectly performed; a condition, in fact, which renders it extremely difficult to administer remedies by the mouth. If, while the muscles of deglutition are in a partly palsied state, liquid medicine be given by the mouth, the most of it will probably pass into the trachea and add to the patient's perilous condition by partially asphyxiating him. In fact, the same precaution is required here as must be exercised in administering medicines to a person moribund or near death. The wine or other thing then given, as the writer has witnessed, can strangle and immediately end life. Hence, when the patient is greatly prostrated by depression and can not readily swallow, fumes of ammonia should be applied to the nose; also tickling of the nostrils will often rouse the patient. Stimulants, as brandy and warm water and black coffee, may be injected into the rectum. Hot applications should be placed over the præcordia, and the surface of the body should be well rubbed, so as to promote the movement of the blood. In case of extreme prostration, syncope may be avoided, or rather life awakened by lowering the head so that the heart may be aided by gravitation, in carrying the blood to the brain. After the patient has been sufficiently resuscitated to swallow, then remedies may be given by the mouth. The administration of stimulants must be limited to the period of depression; afterward the treatment must look to controlling the inflammatory symptoms which usually present themselves after a few days. The stage of excitation is ushered in about the eighth, ninth or tenth day after the receipt of the injury. Should the patient be plethoric, then bleeding from the arm should be done; not less than a pint of blood should be drawn. The signal advantages of such depletion have been verified by the writer in several instances. If the subject be very robust, as much as thirty ounces can be safely withdrawn; thus inflammatory action, through the absence of material for its maintenance, is subdued and retained within tolerable limits. Depletion might be done by means of leeches; yet withdrawal of blood from an open vein is more effectual. A valuable adjuvant in this antiphlogistic treatment is ice, which should be applied to the patient's head as soon as he emerges from the primary stage of depression. The ice, well crushed, should be applied to the head in an India rubber bag, and this should not be heavy, lest it cause sloughing in the subjacent scalp. The head should be maintained in an elevated position, so as to favor the ascent of the blood through the veins, toward the heart. All constriction of the neck should be avoided. As a faithful ally in this work of derivation of the blood from the head, is warmth applied to the lower extremities; for this, hot water, contained in bottles or a rubber sack may be used. As

there is danger of freezing the scalp, so there is of burning the feet, unless the warmth be carefully used.

As to internal treatment, there should be given a purge; for this, none is better than calomel and jalop, 10 grains each. Besides this, to restrain or prevent the development of inflammation there should be administered iodid of potassium in doses of 10 grains, repeated every four hours for the adult. If the patient be a child of 4 or 5 years of age, the dose should amount to 3 grains, repeated three to four times daily; and should there be the usual restless somnolence, this must be controlled by bromid of potassium, of which an amount equal to that of the iodid of potassium should be given. By the use of this internal medication, the writer has frequently seen the subjects of severe concussion pass safely through the inflammatory stage; the temperature retained in low limits.

There should be mentioned a mode of treatment formerly much used in cases of cerebral concussion; this was vesication of the scalp. To do this, first let the hair be shaven off, and then the whole covered with emplastrum cantharidis. This does not act entirely as an ordinary blister; little serum is drawn out, but instead there will form a coating of fibro-albuminoid material over the scalp, tenacious and adherent. This vesication was a favorite of Dupuytren, and it is claimed that good results followed its use. Yet when one considers the slight anatomic connection between the scalp and the encephalon, it is difficult to conceive how this external blister can act on the parts within the cranium.

Frequently two or three months are required for entire recovery of the patient, so that he can resume some occupation; and for a yet longer period, limited exercise of the body and mind should be enjoined.

SHALL FRACTURE AT THE LOWER END OF THE HUMERUS BE TREATED IN THE FLEXED OR EXTENDED POSITION.

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As only ten minutes are allotted to this paper the author can not enter into any defense of the principles herein advocated. For a fuller discussion, the reader is referred to the *Annals of the Anatomical and Surgical Society, Brooklyn*, Vol. 11, No. 8, 1880. Reprints of the article therein contained will be cheerfully sent to any one interested in the subject, by addressing the author, 1604 Spruce Street. For alleged malpractice, with verdict for the defendant, see paper by Dr. C. E. Kurtz, *Trans. College of Physicians of Philadelphia*, Pa.

The advantages claimed for the rectangular position are:

1. That it is convenient. the patient can be up and about, enjoying his freedom.
2. That if ankylosis supervenes, the rectangular position furnishes the most useful stiff elbow.

In regard to the first point, viz., "that it is convenient," I have simply to say that the argument has far more consideration from the profession than it is entitled to. The vital question is, In what position can a fracture be treated that will yield the best and most perfect results? It was a wise remark of the late Dr. Levis that there was no good reason why a person should not as properly go to bed for a fractured clavicle as for a fractured femur. In the treatment of fractures of the extremities the recumbent posture is in the highest degree favorable to the

earliest attainable decline of inflammatory processes.

The chief, and as some say unanswerable argument, in defense of the flexed position is, that it is the most favorable if ankylosis takes place; this is true but it is also true that only a small percentage of fractures at the lower end of the humerus result in stiff joints, and of these the injuries are from direct crushes, in which the fragments are comminuted, or the injury compound. In my experience the majority of elbow fractures in childhood are due to indirect violence, as falls, and in this class no ankylosis is likely to follow.

Whatever advantages may be claimed for the rectangular treatment, these should be carefully weighed with the disadvantages, if such there be. One thing is certain that deformity and loss of full function is apt to attend injuries at the elbow. Is the deformity due to the mode of treatment?

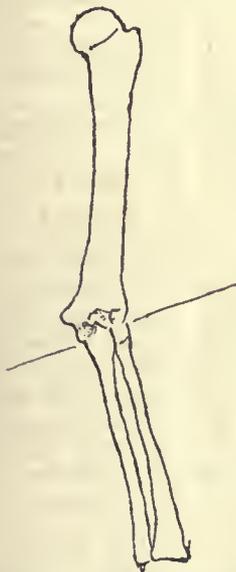


FIG. 1.—Note the length of the internal condyle, and contrast the axis of the shaft to the humerus with the axis of the articular surface.



FIG. 2.—Note the support obtained by resting the elbow against the side of the pelvis, especially serviceable in weight carrying.

Neither the upper nor lower extremity is straight. In the humerus and femur the inner condyle extends below the level of the outer condyle, hence the long axis of the humerus does not agree with the long axis of the ulna, nor the long axis of the femur with the long axis of the tibia. In the normal extended arm, the limb during supination appears most crooked.

This is best seen in the emaciated. This is nature's own mechanism and the laborer turns it to advantage. When carrying a heavy weight, as a pail of water, he brings the middle of his extended arm against the pelvis, and this throws the weight at a distance from his feet, and does not impede locomotion.

In the treatment of fractures at the lower end of

the humerus, by arbitrary manufactured splints, the tendency is to change the plane of the articular surface. As a single illustration of this I will take a fracture of the internal condyle. In this fracture the condyle is detached from the humerus, but remains attached to the ulna through the lateral ligament, while the outer condyle remains a firm part of the humerus. In the application of an anterior rectangular splint, the bandage that binds the arm to the splint has a tendency to displace upward the broken internal condyle. This is not observed dur-



FIG. 3.—Pathological specimen from Gurlt. Internal condyle displaced upward.



FIG. 4.—Gun-stock deformity seen in horizontal elevation of the limb.

ing the treatment while the arm is bent, but when the cure is effected and the arm extended, a typical gun-stock fracture is noticed.

This deformity is of comparatively trifling disadvantage for the lighter offices of the joint, but it is a very great loss when the carrying function of the limb is taken into consideration.

ADVANTAGES OF THE EXTENDED TREATMENT.

1. It permits of the best flow of circulation and is the position best suited to combat excessive inflammation.
2. It permits of inspection of the whole limb, and permits of comparison with its unbroken fellow.
3. It is a position in which the dressing can be applied with ease and simplicity.
4. In this position if either condyle is unbroken we have a natural splint, by means of which the natural articular surface can be preserved.
5. It is the position in which we dress fractures of the condyles of the femur, in which we get perfect joints with full range of motion.

TREATMENT IN THE EXTENDED POSITION.

In the treatment of fractures at the lower end of the humerus, no manufactured splints are ever required. Dr. Powers, of New York, has had excellent results in treating fractures of the elbow at right angles, but he never uses manufactured splints. He invariably uses plastic material, which he molds to the limbs.

FIG. 5.—Note the loss of support due to the altered articular axis of the lower end of the humerus. Elbow can not rest against the pelvis.

If I have a skilled assistant, I usually hold the limb extended and ask him to apply the dressing. Otherwise I place the limb in the care of attendants and apply the dressing myself. A first dressing should always make provision for swelling. Hence I either apply cotton or an elastic substance above and below the point of fracture, or lap about it pieces of flannel saturated in lead water and laudanum. The patient is then placed in bed and the limb made to rest comfortably upon a pillow. The renewal of the dressings for the first week must be left to circumstances. If dressed dry and the pain rapidly subsides, I often do not disturb the first dressing for a week.

As soon as the swelling subsides sufficiently, I apply a soft bandage directly to the limb. I prefer thin flannel, butter-cloth or the thinnest, coarse-woven cheapest muslin. In applying the bandage I make no reverses, except at the top and bottom when I wish to change the direction of the bandage. I only use the spiral and let the bandage take its own course. By degrees as the bandage runs up and down the limb, the whole is covered in. This mode of applying the bandage is immeasurably superior to the spiral-reverse, which latter creases the skin and slips. When the limb is properly dressed with the spiral, the bandage alone makes an excellent splint. On completing the bandage, a glutenous paste may be rubbed into the outer layer, or adhesive plaster may be made to cover in the bandage. Such a dressing will permit of easy motion without displacement.

Usually after the swelling subsides, the patient will be able to rise and walk about, but the arm must be left hanging and not bent and put in a sling. If the hanging arm is painful, the patient should again assume the recumbent or the semi-recumbent position.

As to passive motion I have only time to add that if begun too early or with too much spirit, the result will be to protract the cure. Only gentle passive motion in the latter half of the treatment will be conducive to early functional return. The complete range of motion is often delayed for months after the cure is effected.

FRACTURE OF THE LOWER END OF THE RADIUS.

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY P. S. CONNER, M.D.
CINCINNATI, OHIO.

As ordinarily met with, fracture of the lower end of the radius, is the result of "cross-breaking strain" consequent upon over-extension of the hand upon the forearm. Force received upon the palm, carried up through the os magnum and the projecting line of junction of the scaphoid and semi-lunar, if sufficient to break the radius must do so in a more or less longitudinal direction, not transversely. Over-bending of the forearm bones may, and at times does, cause fracture of the radius, which is approximately transverse; but the level of the break is always higher than that of the common "wrist fractures."

Experimentally, by over-extension, every variety of the fracture under consideration can be produced; from the simple crack through the articulating extremity to a separation and displacement of the car-

pal fragment equal to that of the most severe injury coming under professional care. Whatever its degree, displacement is due to the secondary action of the anterior radio-carpal ligament upon the fragment already dragged off from the radius; and it is in the majority of cases largely maintained by the binding force of an untorn dorsal strip of periosteum, as originally shown by Pilcher. Much has been written, and more said, respecting impaction of the dorsal compact edge of the lower end of the upper fragment in the cancellous upper surface of the lower fragment; and proof of its existence has been found in inability to properly adjust the fragments by traction upon the hand in the direction of the long axis of the forearm. But, unless it may be under very unusual conditions, a force sufficient to pin the upper fragment in the lower would be sufficient to, and would split the lower fragment into two or more pieces and consequently prevent impaction. The resistance to replacement by direct extension is, in the great majority of cases, probably in all, not in any fixation of the upper in the lower fragment, but in the untorn periosteal band already mentioned. Only when such band is absent because of complete laceration at the time of injury, or it has been torn by the dragging force exerted through the hand, can proper apposition be secured by such manipulation. But, if instead of pulling upon the hand it be over-extended, brought, in other words, in the position in which the fracture occurred, any existing periosteal band is at once relaxed; and moderate pressure upon the upper end of the lower fragment is sufficient to carry this fragment into its proper place, at times with a very audible snap. Little or no pain is produced, no anesthetic is required; the securing of proper apposition of the fragments is the work of but a few seconds. Personally, I have never had any difficulty in thus adjusting a case coming under care within twenty-four hours after receipt of the injury. If there is, as there certainly is at times, a fixation of the ulnar styloid process under, or in the posterior annular ligament, such process will be set free either by simple over-extension, or by such combined with rotation. Once properly apposed, there is practically nothing other than outside violence to produce a secondary displacement. The weight of the dropped hand strongly tends to maintain apposition, and additional security is afforded through the action of the tendons crossing over the line of break on the palmar and dorsal surface. The supinator longus through its styloid attachment, does without doubt act upon the lower fragment, but such action is too feeble to cause displacement.

Proper adjustment (and the earlier it is effected the better) will prevent or greatly limit effusions, exudations and adhesions. The unfortunate result, at times observed, which has been attributed generally to age, to rheumatic or gouty habit, to too short or too long employment of splints, to improper conduct on the part of the patient, or carelessness on the part of the doctor, is commonly, very possibly always, due to imperfect adjustment at the time of the original dressing; the displaced lower end of the upper fragment making such pressure upon the soft parts upon the palmar surface near the wrist as to interfere with both arterial and venous circulation, especially the latter, and that not only directly but indirectly through the induced nervous disturbance. Under such circumstances the ordinary treatment by splint

and bandage only makes a bad matter worse, the vessels and nerves being compressed between bone and board. That which is absolutely essential to thoroughly satisfactory repair, is early and complete adjustment. This is one of the few fractures in which the chief difficulty lies in securing not maintaining apposition. Once secured, only the simplest after-treatment is really required; a band around the wrist perhaps, to lessen the after-spreading due to separation of and later somewhat misplaced attachment of the inter-articular cartilage.

In view of possible after-ligation, as professional opinion is now, it is wiser as a rule to employ some form of splint, plaster-of-paris or other, never extending below the wrist line and thus supporting the hand, which should be allowed to hang free. But the use of such splint is not necessary so far as the break is concerned, provided (and this proviso must be kept constantly in mind) complete apposition of the fragments is secured.

Its manner of production well understood, the difficulties in the way of primary adjustment duly recognized, and the first dressing properly made, this fracture becomes one of the simplest to treat, causes little inconvenience, comparatively, to the subject of it, and is very satisfactory in its end-result.

FRACTURES OF THE NECK OF THE FEMUR AND THEIR TREATMENT.

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY BEDFORD BROWN, M.D.
ALEXANDRIA, VA.

My personal experience in fractures of the neck of the femur comprises fourteen cases. Of these about 10 per cent. died in less than twelve months from complications, as inflammation and suppuration at the seat of injury, and fever. Two per cent. were bed-ridden for the balance of life. The remainder recovered sufficiently to walk with the aid of a cane or crutch for the balance of life. All the bed-ridden cases were of the extracapsular variety while the cases that recovered the power of locomotion were of the intracapsular non-impacted variety.

All of these cases of fracture of the neck of the femur occurred in females varying in age from 60 to 85 years old. These fourteen subjects presented every variety of conformation of figure. In two there was great obesity. In some the figure was tall and spare, while in others it was quite petite, and very delicate and slight. In one the figure was that of a very robust woman a little over 60. In one, a woman of 85, the weight did not exceed eighty pounds and the person was very emaciated.

Causes of fracture of the cervix femoris.—The causes of this fracture may be classified as the direct or major and the indirect and minor.

The major form of cause is always from direct violence, as a sudden fall from a distance on the hip, or a violent blow or great pressure from mechanical causes on the same point. On the contrary, the minor causes are always of the indirect variety from unusual sudden pressure on the foot while walking, a slight misstep, a sudden twist of the foot while walking.

A knowledge of the major and minor, or direct and indirect character of the existing causes will aid us

materially in differentiating the variety and location of the fracture. The major or direct causes almost invariably cause the extracapsular variety of fracture with or without impaction, while the minor or indirect cause produces intracapsular fracture.

Symptoms.—In all cases of suspected fracture of the neck of the femur, the entire person, from the anterior superior spinous process of the ilium to the toes, with the exception of the external genital organs which can be protected from view by a napkin, should be exposed to inspection. After the clothing has been removed above the pelvis we are at once enabled to see the relationship of the two opposite trochanters to each other, their corresponding appearance, their relative prominence. We can also observe the relative positions of the two limbs throughout their entire length, and also we can better detect the slightest eversion of the foot in the least departure in its direction, and at the same time detect the least degree of shortening of the limb. Much of the information gained by this investigation is in these cases derived from comparative observation. The trochanter should first be examined. In the fractured bone, except in cases of impaction and non-displacement of the fractured ends, the trochanter is depressed and flattened compared with the sound side, and when moved from side to side the arc of the motion is considerably reduced. Extending our investigation downward, we observe the lower or tibial end of the patella does not correspond with that on the sound side. It is from a quarter to an inch above the line of that of the sound limb. Continuing our observations to the foot we find a shortening of the limb to the extent of from a quarter to an inch and a quarter in length. At the same time we find the foot of the injured limb everted. When by our own aid we correct this eversion it invariably returns spontaneously, and when the patient is requested to correct it, she is unable to comply with the request. Here we have a typical picture of a simple fracture of the cervix femoris,—first the depressed flattened trochanter, the difference in the line of the corresponding patellæ, the shortening of the limb and eversion of the foot. When the entire person is exposed without any movements of the patient, or manipulation on our part, the eye can detect these peculiarities at a glance.

Then again, in non-impacted fracture, if an assistant grasps the foot of the injured limb and alternately extends and relaxes the limb while the attendant grasps the trochanter and presses it firmly towards the pelvis, distinct crepitus may be detected.

Methods of Differentiation between Intracapsular and Extracapsular Fractures.—In determining the important question whether a fracture is intra or extracapsular, is non-uniting or uniting, the peculiar character of the cause assumes diagnostic importance. It may be said with much degree of certainty that shortening of the limb to the extent of a half or one inch, eversion of the foot, moderate pain in the hip, no indications externally of contusion, some crepitus on extension, flattening of the trochanter occurring after a slight indirect injury, as a very sudden misstep, striking the foot against the floor or steps forcibly, or a sudden twist or wrench of the foot from any slight cause in the aged, denote intracapsular fracture with no possible tendency to unite. On the contrary, shortening of the limb to the extent of from one to two inches with eversion of the foot, great

pain in the hip, flattening of the trochanter, effusion in the surrounding tissues in front and rear of trochanter, crepitus on extension in the comparatively young, much contusion of soft parts, from a major form of cause as a violent fall, blow or pressure directly on the trochanter denote extracapsular fracture with tendency to union of ligament.

Then again a slight shortening of the limb and eversion of foot, with much pain on attempted motion, absence of crepitus, slight ability to raise the limb or stand upon the foot, great effusion in front and rear of trochanter, from a violent direct injury to the trochanter with contusion of soft parts, indicates impacted fracture.

Diagnosis of Impacted Fracture of the Cervix Femori.

—The two cases of impacted fracture of the neck of the femur which came under my observation both resulted from indirect and violent causes. In one the patient was 70 years old, and had a violent fall directly on the trochanter of that side. The trochanter was found on comparison with the opposite side to be flattened and depressed, and very tender on pressure. There was considerable swelling back of the trochanters, and in front below Poupart's ligament there was great swelling and much pain and tenderness. There was entire loss of power over the limb and inability to stand on it.

Shortening of the limb was imperceptible and eversion was entirely absent. The injury occurred more than six years since, and the patient has never recovered the use of the limb and is still comparatively bed-ridden.

The second case occurred in a comparatively young person with identical symptoms as the former, and has never recovered a fair degree of locomotion in the limb since the injury.

Complications.—One of the most serious complications observed in my experience has been symptomatic fever following the injury. It is more apt to occur in the extra than the intracapsular variety, because the causes are of a more violent character, and the anatomic structures of the part are more extensively lacerated.

I never saw but one case of protracted fever following intracapsular fracture in an aged person recover, and that was in the case of a woman aged 85 years. She recovered and lived in comparative health and comfort to reach 90 years, and then died from hemiplegia.

A temperature ranging from 101 to 103 degrees, a quick pulse, pain and restlessness denote serious organic changes going on in the injured structures, that if permitted to progress will continue until extensive inflammation, effusion of exudates and suppuration intervene.

Treatment of Fractures of the Neck of the Femur.—

There is no class of fractures that require the exercise of more judgment in their treatment or more accuracy in diagnosis than fractures of this kind.

In one variety of fracture, the extracapsular, in those below middle life we can adopt means with safety to bring about union. To adopt the same means in intracapsular fracture in the aged would insure certain death. Hence the importance of an accurate differential diagnosis.

Treatment of Intracapsular Fractures.—In my own experience a good rule to work by in treating intracapsular fractures of the cervix femoris in the aged, is to so manage the case from the beginning as not to

expect union of the fractured bones, but on the contrary to so conduct the management of the case as will, if possible, insure a good, strong, false joint, by which after a time the patient can regain a fair degree of locomotion for the balance of life. To bring about this desirable object, the pelvis from the anterior superior spinous process is enveloped with a broad flannel roller four inches wide and fifteen feet long, applied down below the trochanters. This flannel bandage gives comfort by the support that it affords the fractured bones, and the prevention of too much motion, and gives opportunity to the soft parts involved to throw out adhesive exudations. This is the full extent of the apparatus to be applied. As for the balance of treatment, pillows long and short, small and large, are to be relied on for splints and supports. Comfort of position is to be the guiding rule in the management of this class of cases. The ingenuity of surgeon and nurse will be taxed to so arrange the pillow splints as to insure comfort, relieve pain and secure sleep. When these objects are accomplished all has been accomplished that judgment and experience can do until inflammatory action subsides, and the process of fibrinous exudation is completed, and then the false joint is ready for use. To attempt, on the contrary, to confine this class of patients in a stiff apparatus with the view of accomplishing that which no power can ever effect, a union of bone or ligament, is to condemn our patient not only to unnecessary suffering but to certain death.

In the treatment of extracapsular fracture from violent and direct causes in the comparatively young, we may calculate with a degree of certainty on ligamentous union, provided the method adopted will maintain perfect adaptation of the fragments and we can adopt such methods and apparatus as will insure this end, without fear of detriment to the patient as in the former case. After the pelvis has been firmly enveloped in the broad flannel roller, as in the former case, then Buck's extension apparatus is applied and the extension maintained until union takes place, which is usually about six weeks.

In impacted fracture my method of treatment has been to envelop and support the pelvis and fractured hip bones by means of the flannel bandage, which I consider better and more comfortable than a simple band, and for the purpose of supporting the limb and the prevention of motion, which might cause dislocation of the fractured bones. Two sand bags, the longer, external, reaching from above the pelvis below the foot; the other, shorter, reaching from a little below the external genitals on the inside of the limb below the foot. These arrangements appear to meet the desired ends better in my own experience than any other.

THE TREATMENT OF FRACTURES OF THE SHAFT OF THE FEMUR.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY LEWELLYN ELIOT, A.M., M.D.

SURGEON TO EASTERN DISPENSARY; CONSULTANT TO ST. ANNE'S INFANT ASYLUM, ETC., WASHINGTON, D. C.

Our chairman having paid the high compliment of assigning the subject of the "Treatment of Fractures of the Shaft of the Femur" to me, I shall, within the time allotted, place my views before the Section in the briefest possible manner.

The causes, the symptoms and the diagnoses of fracture of the femur being entirely foreign to my subject, no mention will be made of them. We shall likewise exclude from consideration all fractures of the femur not located between the lesser trochanter and the condyles. Although every variety of fracture is found in this bone, the transverse and the oblique are the most frequent; these fractures may be either simple, comminuted or compound.

Having made our diagnosis, we must have the patient's bed arranged so as to allow permanent and continuous traction to be employed. This traction, in the case of adults, may be effected, after the proper adjustment of the fractured ends of the bone, through the employment of the apparatus of either Liston, Desault, MacIntyre, Thomas, the Smith anterior, the Hodgén suspension, Buck, Boyer, Neill or the double inclined plane of Esmarch, Gross, or others, the foot of the bed being raised so as to insure counter extension. In infants, either Hamilton's apparatus or vertical extension will give satisfactory results. To enter into a description of the various devices employed in the treatment of fractures of the femur would be of no interest to you, since all are familiar with them. The employment of permanent dressings, plaster-of-paris, silicate of soda or others of a like nature, I do not think justifiable before the third week, when union is sufficiently strong to warrant their application, although many surgeons employ them from the start, and I would hesitate quite a while before I would use any of them previous to the establishment of union of the fragments. Objections will readily present themselves. Should a compound fracture present itself, I should be still slower in applying a permanent dressing.

The question of suturing or pegging fragments in cases of compound fracture, and of amputation, may be settled in a few words. Where the fragments can be properly and accurately adjusted and the blood supply to the limb remains good, the fragments should be sutured or pegged and the wound treated by the open method; where, however, the soft parts are lacerated and the vessels supplying the limb are divided, amputation should be resorted to early, before the patient's strength is wasted through secondary hemorrhage, gangrene or other causes.

The treatment of fractures of the shaft of the femur resolves itself into the following: A suitable bed, accurate apposition of the fragments, the proper application of the splint and extension, good nutritious food, and unless the case is one requiring amputation, the results will generally be satisfactory, although shortening occurs in very many cases.

There is one question in relation to extension in fractures of the femur to which I would like to call attention. This is the matter of the priority of the application of adhesive plaster in extension. The generally accepted opinion is that Dr. J. K. Swift is entitled to the credit of first using it and Prof. S. D. Gross, in his "The Anatomy, Physiology and Diseases of the Bones and Joints," page 50, published in 1830, puts forth his claim as follows: "In complicated fractures of the leg, it not unfrequently happens that the soft parts about the ankle are so much contused or otherwise injured as to render it impossible to employ the usual extending bands. When this is found to be the case, the difficulty may usually be remedied by applying along each side of

the leg, as high up as the seat of fracture will admit, a piece of strong muslin, about two feet and a half in length, two inches and a half in width, and spread at one of its ends with adhesive plaster. The part which is applied on the limb should be confined by three or four circular strips, so as to keep it firmly in its place, and equalize the extending power. The free extremities of the extending bands should then be tied under the sole of the foot and be secured to the block or bar which connects the lower ends of the splints. This mode of making extension, for which we are indebted to the ingenuity of my friend and preceptor, Dr. Swift, of Washington, will, I am fully persuaded, be found highly useful in practice and satisfactorily obviate the inconvenience to which I have just alluded."

Now, for more than twenty years, I have endeavored to adduce evidence so as to accord the credit to Dr. Alexander McWilliams, of Washington, and to that end have searched books and journals and papers. At the time when success seemed to crown this research I find published evidence which dissipates all contention.

The following appears in "Medical and Chirurgical Observations," as an appendix to a former publication, by Benjamin Gooch, Surgeon, London, published about 1771: "To answer the same purpose I have confined one end of a strong strip of sticking plaster of a suitable length and breadth under a circular piece of the same, about the middle of the side of the foot, carrying it over the heel, up the leg and confining the other end above the calf with another circular plaster. First gradually bring down the muscle gastrocnemius as far as they will readily yield, giving the limb at the same time the position described in my treatise on wounds. On the like occasion I have also fixed one strap by the circular piece about the foot and another by that above the calf of the leg, passing the one through a slit in the other, and using them as the uniting bandages; but then two more circulars are requisite to confine the other ends of the longitudinal strips securely."

That the studies and this publication of Gooch did not receive attention from surgeons and other writers is evident from the fact of so many others afterwards working in the same line of thought, each unconscious of the work of the other. Among those workers was Dr. Alexander McWilliams, who treated in 1827, a case of fracture of the femur by this method of extension, at the Washington Almshouse. Failing to establish the claim of Dr. McWilliams to priority in the application of the idea of extension by means of strips of adhesive plaster, I will present such evidence as I possess, all derived from letters in my possession, to establish his claim to the credit of being the first surgeon in the United States to put into practice this idea. At that time (1827) according to the letter of Dr. Hall, the recognized surgeons of this country knew nothing of this method, and indeed as late as 1836, M. Larray mentions the method only to condemn it, as will be seen in the extract taken from the Minutes of the Société Royale de Médecine of June 21, 1836.

In a letter under date of Jan. 9, 1875, Dr. Noble Young, of this city, writes: "In regard to the matter of the invention and application of adhesive strips for the purpose of extension in cases of fracture of the femur, by the late Dr. Alexander McWilliams, I have to state it is within the recollection of

his family that it occurred prior to 1829; they know this by circumstances impressing it indelibly upon the memory. He sent a model explaining the application to Paris by Dr. Hall, brother of the late David A. Hall, and received a letter from the French Academy of Medicine, congratulating him and thanking him for his valuable contribution. This letter has been mislaid only within the last few years. I may add that Dr. Jos. Barrows remembers its application at the almshouse in this city before 1828, when he was a student there."

Dr. James C. Hall, under date of Feb. 15, 1878, writes: "My evidence as to the application of adhesive strips as a means of extension in the treatment of fractures by Dr. McWilliams must be circumstantial. I came to Washington in October, 1828. After graduating (1827) I was for one year a resident physician and surgeon in the Philadelphia Almshouse, now Blockley Hospital. The visiting surgeons and clinical lecturers were Profs. Gibson, Horner, Rhea, Barton and Harlan. Very many and all kinds of fractures were treated in the House, and I am positive that I never heard McWilliams' mode either mentioned or practiced during my term of service. . . . My recollection is almost positive that my first knowledge of Dr. McWilliams' use of the strips as a means of extension was derived from an article which the Doctor published in a newspaper here, I thought it was the *National Intelligencer*, but Dr. Toner has searched for it and not found it there. This has not weakened my conviction that Dr. McWilliams published in some paper an account of his method of treating fractures of the femur. . . ."

Dr. Joseph Barrows, under date of June 6, 1878, writes: "Excuse my apparent neglect in not answering until now your letter in reference to the use of adhesive plaster in fractures of the lower extremities. In the year 1827, I was one of the resident students in the Washington Asylum or Almshouse, of which Dr. Alexander McWilliams was the attending physician. Dr. McWilliams at that time exhibited and used adhesive plaster for the purpose above indicated."

In the *Archives G n rales de M dicine*, Book ii, p. 247, 1836, I find: Soci t  Royale de M dicine, Paris, s ance du 21 Janv: "Rapport de M. Larray sur un appareil   extension continue pour les fractures des extr mit s inf rieures; par le Docteur Williams de Washington.—Cet appareil est une copie  peupr s enti re de l'appareil de Boyer. La seule diff rence consiste dans une attelle interne qui se fixe   la traverse sur laquelle la vis s'appuie. M. Larray bl me la m thode en g n ral et tous les appareils qui s'y rattachent. Il n'adopte pas d'avantage le double plan inclin , et pr f re toujours son appareil inamovible."

Dr. B. Troutman, of Philadelphia, Pa., at my request called upon Prof. Gross, asking him for some definite data of Dr. Swift's application of this method of extension and he writes under date of June 27, 1879: "I called on Dr. Gross several times, but he always happened to be out of town, but last week I called again and saw him. He told me that Dr. Swift employed adhesive plaster in complicated fractures first in 1829."

The record of the Almshouse shows in the morning report of July 18, 1827: "Admitted P. Boady, 40 years. Report of July 21, 1827: Fracture femur."

This is evidently one of the cases to which Dr. Joseph Barrows refers in his letter.

In no work on surgery of this date—1827 to 1836—have I found any reference to this method of extension, so it is very evident that there had been no published development of the idea until Dr. McWilliams sent his model, a doll baby with the apparatus applied, to Paris. Dr. J. F. May was present at the presentation and verbally testified to the favorable reception accorded it.

To my satisfaction, I have established the following facts: 1, Dr. Gooch was the first to employ adhesive plaster as a means of extension in fractures; 2, the idea was allowed to pass into oblivion; 3, Dr. Alexander McWilliams, of Washington City, was entirely ignorant of the work of Dr. Gooch; 4, Dr. McWilliams developed and put in practice the idea in 1827; 5, the claim of Dr. Swift is too vague to carry weight with it; and 6, the published report of the Soci t  Royale de M dicine is the first published account of the method after its revival by Dr. McWilliams.

TREATMENT OF OPEN OR COMPOUND FRACTURES.

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY HENRY H. MUDD, M.D.

ST. LOUIS, MO.

An open wound communicating with a fractured bone is a serious complication. Every effort is directed to its closure by sound healing. Its importance and the difficulty of its management is determined largely by the amount of injury inflicted upon the soft tissues about the fracture, and by the extent of the comminution of the bone. This open wound is usually determined by the violence which inflicts the fracture, but may result from ulceration. An oblique fracture where the skin has been torn by the sharp angling of the bone, with or without impact against an external object, offers a good opportunity to convert a compound into a simple fracture.

Fractures by direct violence which is not crushing, even if the bone is comminuted, present often good opportunity for the immediate closure of the wound. The soft parts are not necessarily much injured by such a fracture. This is especially true where the bone is superficial.

Extensive lacerations and contusions of the soft parts with a small or a large wound of the skin preclude an effort at immediate closure of the skin wound. They demand drainage. Even in such conditions a compound fracture may occasionally be promptly converted into a simple one by the agglutination of structures contiguous to the fracture, though the skin opening may remain free for drainage.

Absolute cleanliness is the first requisite in an attempt to convert a compound into a simple fracture. A razor, soap and water, are essentials, and must be well used in order to cleanse the skin. The purity of the water used in washing the wound is of first importance. The removal of extraneous matter from the wound may be accomplished by a wash of hot water, but where grease, cloth, and dirt of various kinds are adherent to the raw surfaces, the fingers, forceps, etherial soap, turpentine, and sublimated washes may fail to accomplish perfect cleanliness,

though the wound may be rendered aseptic and heal readily. A fairly perfect adjustment of the fragments is a requisite of early healing. Maintenance of the adjustment by a well adapted splint which does not provoke engorgement and pain by undue pressure, is a most important item in the treatment. Many compound fractures where the local conditions would permit primary union of the wound, fail to progress favorably on account of the injudicious application of an apparatus, which is good in itself but is imperfectly applied.

The external wound may be hermetically sealed by suture and collodion, if it is small and the soft parts are not extensively bruised. Where the skin wound is extensive, that portion of it which overlies the fractured bone should be closed by suture, if a point favorably situated for drainage can be found somewhat removed from immediate contact with the bone.

If bone is protruding and has been contaminated by clothing, by a dirty skin, or by external objects, it must be thoroughly cleansed by careful picking and sponging, and then washed with an antiseptic solution, in order that aseptic conditions may be obtained. If the protruding fragment is not essential to solid union, the difficulty of cleansing its surface and the doubtful vitality of sharp long points of bone, which are denuded of periosteum and bruised by violence, justify its removal by bone nippers or saw. In the more extensive injuries, where direct violence has crushed the soft tissues, comminuted bone, and driven foreign matter into the wound, the cleansing of the parts and the removal of dead tissue will very often require an enlargement of the wound, or an incision to give free access to the injured parts. Fascia and muscle if irretrievably damaged must be cut away with the scissors. Loose fragments of bone are to be removed, and a complete knowledge of the extent of the injury to the bone and to contiguous parts, including joints must be obtained. Blood clots should be washed out, and after thorough cleanliness has been obtained, efficient drainage must be provided. The original skin wound may be closed and drainage be secured by special incision, or through an opening made for the inspection and cleansing of the wound. Every effort is to be made to avoid suppuration, as it will destroy still more tissue. It should be remembered that it is difficult to maintain a perfect asepsis about a wound which is slow in healing, hence even where the skin opening can not be closed, it is important to so arrange bone and soft tissues as to favor the agglutination of soft tissues about the line of fracture, in order that it may be shut off from the external wound at the earliest possible moment.

Fragments of bone, or the sharp ends of the fractured surface must not be permitted by malposition, to exercise undue pressure upon the soft parts. Angling at site of fracture must be corrected; and if the tendency to shortening is marked and not easily controlled, as it is not infrequently, where the ankle joint is involved in the fracture, the shortening of the limb by excision of the fractured end is proper and is a conservative measure. The adjustment of the compound and comminuted bone may not be perfect, but it must be practically so good that undue pressure on the soft parts will not produce ulceration, and must be such as to give a good outline and a useful extremity.

Extension and lateral support are the two chief

agencies in maintaining apposition of fragments. Wiring of bone and the use of ivory pegs are occasionally necessary and can be used to advantage in isolated cases. They are, however, rarely necessary, and are an obstacle to rapid and solid union, except where they overcome the greater danger of persistent and obstinate displacement.

A solid union will often result without serious constitutional disturbance, even where the fracture remains an open one. The exposed bone will develop granulations, and if a part of it is necrosed, separation by granulation along the line of junction of the dead and living bone will occur, even while new bone is forming at other areas in the line of fracture.

Cleanliness, an easy and comfortable position for the fractured member, free drainage, and a good constitutional condition will generally insure solid union, though it may be long delayed. Union of bone in a compound fracture is much slower than in simple fractures, or than it is in the compound fractures which are promptly converted into simple ones.

Delayed union should be tolerantly dealt with; a persistent maintenance of the conditions which favor the nutrition of the injured leg will very generally be rewarded by a good recovery.

A thorough appreciation of the extent of the injury to the different structures of the extremity, must be obtained in cases where the judgment wavers between an effort to save the limb and an amputation. Amputation should be immediate,—that is it should be promptly enforced, as soon as the shock has passed, or postponed until the acute inflammation has subsided. A so-called secondary operation is safer than an immediate one.

The perfected technique of aseptic surgery enables us to save many extremities, where suppuration with its attendant damages must have supervened and destroyed the limb, before the details of antiseptic and aseptic methods were well understood. No less important is the selection of a splint which permits cleanliness, and at the same time insures the rest and the undisturbed position of the fracture, which is so essential to the rapid repair of the soft parts, and the union of the broken bone. The suspension splint of Dr. John T. Hodgen with its extension and free motion is a most important adjuvant in the treatment of compound fractures of the leg and thigh.

AFTERNOON SESSION, JUNE 6.

Dr. Graham, Chairman of the Nominating Committee, presented a verbal report, recommending for Chairman Dr. Joseph Ransohoff, of Ohio, and for Secretary, Dr. R. H. Sayre, of New York. The gentlemen nominated were elected by a unanimous vote.

Dr. LEVI C. LANE, San Francisco, read a paper on "Concussion of the Brain."

A paper by Dr. OSCAR H. ALLIS, Philadelphia, on "Treatment of Fractures of the Lower End of the Humerus," was read by the Chairman, Dr. Roberts, its author being absent.

Dr. P. S. CONNER's paper on "Treatment of Fractures of the Lower End of the Radius" was read by title.

Dr. BEDFORD BROWN's paper on "Treatment of Fractures of the Neck of the Femur" was read by title; also the paper of Dr. LLEWELLYN ELIOT, Washington, D. C., on "Treatment of Fractures of the Shaft of the Femur;" also the papers of Drs. H. H. MUDD, St. Louis, Mo., and JOHN B. HAMILTON, of Chicago.

DISCUSSION.

The discussion was opened by Dr. R. H. SAYRE, who said—I would just like to put myself on record as differing in some particulars with that paper which has just been read, and which, unless some remarks are made about it, would

probably go down as the unanimous consensus of opinion of the Section. It seems to me that there were a good many cases in which fractures of the lower end of the humerus are better treated in a flexed than in an extended position, and I think that the reason possibly that we get the various bad results which Dr. Allis has mentioned, of loss of function on account of the destruction of the normal angle between the humerus and the ulna, is on account of their using, as he says, arbitrarily manufactured splints. I think you must adapt your splint to the patient, and if you take an arbitrary rectangular splint and tie a broken arm to it, you will probably get a worse result than if you let the arm hang in a straight position and put a board on the front of it. But it seems to me that neither of those methods is as rational or scientific as placing the arm in a position of right angles, and then adapting the splint to the particular shaped arm that you have to deal with; and not only that you should come down to the wrist, but that you should come down and include the wrist in the splint. I turn the hand with the palm upward, and as the splint is being applied for this purpose I prefer plaster-of-paris rubbed into the meshes when it is put on, rather than to put on a bandage and pepper it over the surface with a plastic substance, as Dr. Allis suggests. And while you are putting on this you put the arm in a position so that the forearm is in a normal position, and then when you get a final recovery you will not have lost the carrying power, you will not have destroyed the relation of the external and internal condyles to one another, and you will have an arm which if you should have the mischance to get ankylosis, which is very improbable unless it is a very bad case, is in a more useful condition than if the arm is straight. I think that except in cases of exceptional severity, fractures of this kind should be so treated that the man is able to go about his business, and if he is a professional man he can attend to a good deal of work and not suffer this loss.

DR. L. C. LANE, San Francisco—As Dr. Sayre has said he wishes to put himself on record, not entirely upon the side of Dr. Allis, that is in favor of the flexed position, I wish, on the contrary to be on record as in favor, wholly, unconditionally, and forever in favor, of treating in the straight position. I have treated over one hundred cases of fracture of the elbow of different kinds, and have never had a bad result when I treated in the straight position; we have a great deal more muscularity in the front than behind. In the fracture at the elbow, the joint is usually torn, or some of its muscles are torn, and if you put the arm in this position (illustrating) these torn muscles here about the blood vessels, here about the nerves, heal, and with the cicatricial contraction of the vicinity, fix and hold those blood vessels so that there is danger. When the arm is kept in the straight position the several irregular surfaces or hollows, that is, the concavities or convexities one fills the other; but when you bend it in this way (illustrating) you leave hollow spaces, into which cicatricial or neoplastic growth will come in and interfere greatly with your passive motion. The only point on which I disagree with Dr. Allis is in regard to passive motion. He would defer it for some three or four weeks. I would have it a great deal earlier. I would say in regard to Dr. Allis, he is really the author of this method of treating in the straight position. That credit is given to him in some of the foreign authorities, you will find it in Billroth's "Surgery." He has the credit of recommending that position, and he has fought for it. When he began he was almost the only man in the United States in favor of it. As I say, I agree wholly with the plan of Allis, except I would commence passive motion earlier than he does.

DR. BERGSTEIN, Nevada—It is almost unnecessary for me to add anything now that Prof. Lane has robbed me of my thunder. And it is not surprising, considering that he taught me. But I can add this, that while dressing the arm in a flexed position may be more scientific, the proof of the pudding is in the eating thereof, and for twenty odd years I have treated a large number of cases of fracture, extending into the elbow joint, in the straight position without a single failure or a loss of a particle of the usefulness of the member. I have generally made my splints from that magnificent material known as a shingle, and have padded it with cotton. I have begun passive motion in three weeks, and have never seen bad results follow it.

DR. KURTZ, California—I only add a few words to what has been said already, and that is this: Whether we get ankylosis, or partial ankylosis from the extended position, or from the flexed position, it is immaterial; if you get that far, you will have great difficulty to remedy the evil by

simple passive motion. It has been my practice for many years to add to passive motion, massage. I think that no fracture should be treated without massage. But fracture in the neighborhood of the joint, and fractures of the elbow most particularly, leading so often not only to ankylosis but to suits for malpractice, I would suggest to you never to omit to practice massage, say from two weeks after the occurrence. It can be just as easily practiced as the passive motions themselves.

DR. C. A. WHEATON, St. Paul, Minn.—I would like to occupy the attention of the Section for only a moment to express my gratification at the position taken by Dr. Sayre. The title of the paper, it seems to me, is decidedly ambiguous. It speaks of fractures at the lower end of the humerus. The gun-stock deformities of fracture at the elbow joint, as a rule, result from fracture of the internal condyle. If we have a fracture of the lower part of the humerus, involving the elbow joint and we attempt to put that fracture in position it seems to me that there is a very strong liability of the overriding of those fragments and the impairment of the ultimate usefulness of that joint. I do not know Dr. Sayre's position exactly, but it seems to me that the anterior angular splint, such as I was taught to use, applied to the anterior surface of the forearm, bringing the fulcrum of the lever at the apex of this splint at the elbow joint, tends to mold these fragments into bad position. Such a fracture can not be molded into position and held there, with the expectation of getting a useful joint, unless it is put in an anterior angular splint, such as we were taught to use in our earlier days; consequently it is my belief that these fractures ought to be treated in the rectangular position.

DR. HORTON, Texas—I have but one or two remarks to make with reference to the discussion and the position of the gentlemen on the two sides of this question. In the first place we should recall the principles laid down in all questions of fracture; first muscular relaxation, afterward the position of the broken fragments. I understand that that underlies all questions of treatment. So far as we can judge of the questions which have been presented to us in the management of practice, it would be about this: That they rely upon the splint, whatever may be used, a straight one or an angular one, for the accomplishment of the entire cure. I do not so comprehend it. This is a principle which I want to impress upon our minds; that unless there is relaxation of the muscle and adjustment of broken surfaces, I care not what the treatment may be, you will certainly not secure a good result. And I ask you to think of that proposition a moment. After that has been accomplished I care not, so far as I am concerned what principle you may use; you may use a straight splint, and I have also used the angular splint as well. I have had a reasonable experience of forty-five years, and I have never had a bad result on the lines of that practice when I secured the principles laid down.

DR. THOMAS, Pennsylvania—If the fracture is above the condyle, a transverse fracture, I think a right angle splint is probably as good a splint as we can use, but if there is a fracture of one or the other condyle, as Dr. Allis says in his paper, and we put on the right angle splint, by removing the bandage and attaching the arm to that splint and the forearm, and pulling up the forearm, you take up the fractured condyle with it, and so long as you keep the forearm in the rectangular position it looks very pretty, but when you change it you find it can not be pulled up. Now you may talk about the relaxing process of the muscles, but in a fracture of one or the other condyles by placing it in such a position the condyle, itself, keeps the fragments in position. My experience is that my cures are almost perfect in that manner, while in the rectangular cases they are not.

The paper of Dr. S. E. MILLIKEN, New York, on "Tendon Grafting for the Deformities following Infantile Paralysis" was read by title, the author being absent.

Evidence of Appearances will not Discredit a Post-Mortem.—The fact of a number of persons meeting another from time to time, and observing nothing in his appearance to indicate ill health, the Supreme Court of Indiana holds, in the case of Sharpe v. Commercial Travelers' Mutual Accident Association, decided April 25, 1894, raises no conflict upon the evidence of a post-mortem examination, for example, as to the existence of fatty degeneration of the heart and brain.

DIAGNOSIS AND TREATMENT OF PROSTATIC ENLARGEMENT.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY WM. T. BELFIELD, M.D.
CHICAGO.

The prostate of mammals in general is a purely sexual gland, often separated by a considerable space from the bladder, and entirely independent of this organ; in some animals (*e.g.*, the ram) the prostate is lacking; in others (the squirrel) it is entirely suburethral. In some mammals, notably man, the prostate presents an intimate anatomic relation with the bladder; its muscular fibers completely encircle the urethro-vesical orifice, and perform the function of a vesical sphincter. The human prostate lies at the junction of the genital and urinary channels, and it is intimately associated in function with both; it, moreover, almost includes that vestige of the Müllerian duct, the prostatic utricle; through it and around it courses the blood to and from the bladder.

While the etiology of prostatic enlargement still remains a matter of speculation, it is certain that the earliest clinical symptoms are due to vascular engorgement of the prostate and by consequence of the bladder. The actual increase in the size of the gland should not obscure the other factors in producing the symptoms, which may be out of all proportion to the perceptible enlargement. The factors contributing to the familiar symptoms associated with prostatic enlargement are:

1. Venous congestion and edema of prostate and bladder.
2. Fibroid thickening of the vesical (prostatic) sphincter, often extending to the detrusor and to the prostate.
3. Suppuration in the prostatic urethra (glands and utricle).
4. Hypertrophy of the prostatic elements (glandular or muscular or both).
5. Chronic retention of urine, due to any one or all of these four antecedent conditions.

The most important as well as the most difficult task in diagnosis, is the differentiation among these various morbid states; for the prognosis as well as the treatment is determined by the predominance of one or another of them. For example a prostatic patient complains of frequent and painful urination; the chief trouble may be an aggravation of the usual venous congestion, in which case a brisk laxative, suppositories of ichthyol and ergotin and strychnin internally will secure speedy relief. Again, the symptoms may be due to prostatic suppuration, in which event irrigation of the deep urethra with hot water containing hydrastin or silver nitrate is needed; or the frequent urination may be simply the overflow of a distended bladder, which is relieved by the cautious daily use of a clean catheter.

It would far transcend the allotted limits of this paper to discuss the differential diagnosis; I can only emphasize the statement that the symptoms clinically associated with prostatic hypertrophy depend upon several distinct morbid conditions, of which the mechanical impediment to the exit of urine may be the least; and that no routine treatment can be prescribed—the requirements varying with the case.

Our resources for meeting the needs of different patients may be thus summarized:

1. *Medical*—*a.* Improvement in the circulation through prostate and bladder is favored by proper diet and exercise, avoidance of constipation, massage of prostate between a sound in the bladder and finger in rectum, and by the daily use of a clean catheter; internally, ergotin and strychnin are certainly useful.

b. Suppuration in the bladder neck requires irrigation of the prostatic urethra with hot water, solutions of hydrastin, silver nitrate, etc., in addition to the measures already mentioned.

c. Induration and distortion of the bladder neck may be improved by dilatation with large sounds or a special dilator.

In a certain percentage of cases the time arrives, sooner or later, when these measures fail to relieve, and more efficient and immediate aid must be rendered.

2. *Surgical Methods*.—*a.* The simplest is a puncture of membranous urethra from the perineum, and introduction of a drain which is permitted to remain for a couple of weeks. The subsidence of congestion and edema, the cleansing of the bladder thus induced, sometimes makes an apparent cure for many months. Puncture with a trocar through the prostate (Harrison)¹ or drainage of the bas fund behind the organ (Belfield)² is even more desirable.

b. By a perineal urethrotomy the surgeon can secure not merely drainage but also thorough digital stretching of the prostate, and the incision or excision of obstructions at the orifice of the bladder.

c. More satisfactory excision of prostatic obstructions has been accomplished by a combination of suprapubic cystotomy with perineal urethrotomy—now a standard operation.

Within the past year there have been reported attempts to relieve the sufferings of the prostatic by securing atrophy of the enlarged prostate; by Bier,³ through ligation of the internal iliacs, and by Ramm,⁴ through castration. Bier reports three cases; in one, death from septic peritonitis occurred; in the remaining two, marked reduction in the size of the gland and decided improvement in symptoms are reported. Castration alone is said to have caused the same results in Ramm's two cases.

It would seem that, however efficient either of these dubious operations might be as a preventive of prostatic hypertrophy, their success as curative measures must be limited; for while they may be expected to induce atrophy of the gland proper, it seems questionable whether they would cause absorption of the new growths, arrest of suppuration, removal of the fibroid degeneration, and complete evacuation of the diseased bladder—any or all of which may be essential to a cure. However, clinical experience rather than speculation may decide these questions.

Two new operations upon the enlarged prostate itself have been recorded—one by Nicoll,⁵ who made a submucous removal of the entire prostate from the perineum in two cases with good result. The other, by the present writer,⁶ combines the removal of any part or all of the prostate with perfect drainage of the bladder and deep urethra. By incision into the ischio-rectal fossa, the prostate and trigone are laid bare and incised in the median line; each half of

¹ Surgical Dis. Urin. Organs, 1893.

² Jour. Am. Med. Assn. 14, 1894.

³ Wien. Kl. Wochenschrift, 32, 1893.

⁴ Cbl. f. Chir. 17, 1894.

⁵ Lancet. 15, 1894.

⁶ Jour. Am. Med. Assn. 14, 1894.

the prostate can be enucleated to any desired extent. A suprapubic incision—robbed of its danger by the perfect drainage secured through the posterior wound—can be made if required for freedom of manipulation. This operation seems to meet all the indications of all cases—perfect drainage, excision and enucleation not only of prostatic outgrowths but also of the entire gland if required.⁷ It is undoubtedly too severe for feeble patients to endure; but so, unfortunately, are most operative procedures. Like the measures of Bier, Ramm and Nicoll, its clinical value must be determined by extended experience.

Such are our resources, medical and surgical, for relieving the distress and preventing the fatal consequences of prostatic enlargement; and probably no other disease of the genito-urinary organs tests to an equal degree the knowledge, judgment and art of the surgeon. The day has long passed when the sole treatment for prostatics was the routine, sometimes careless and bungling, use of the catheter. While these patients commonly exhibit the impaired vitality of age and often the added effects of renal insufficiency, yet as a class they are far more amenable to treatment than our standard literature leads us to suppose.

SYMPTOMS AND TREATMENT OF TUMORS OF THE BLADDER.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY JOHN B. DEEVER, M.D.

PHILADELPHIA, PA.

The earliest and most constant symptom of tumor of the bladder is hemorrhage; this usually appears before irritation of the bladder.

When vesical tenesmus and frequency of micturition precede hemorrhage, malignancy should be suspected.

Hemorrhage from the bladder occurs towards the end of micturition. The first urine passed is clear and as the bladder empties itself it becomes blood stained, while the last urine passed is of a bright red color due to the presence of fresh blood. Following exploration of the bladder, the first urine passed is uniformly blood stained. Confusion may arise in cases of hematuria as to the source of the hemorrhage.

When the hemorrhage is from the kidney and of idiopathic origin, the blood is intimately mixed with the urine giving it a reddish brown color, while if traumatic in origin the blood is passed as clots which assume the shape of the ureters, being passed in whole or in parts. Clots from the bladder are irregular in size and shape. The hemorrhage is usually intermittent and irregular, and particularly so in the more solid tumors.

Pain, as a rule, is an unimportant symptom except in the advanced stages of the malignant forms of growths, and then usually accompanies the increased micturition. In some cases, however, there is pain referred to the loins and hips.

Characteristics of the Urine.—The urine in vesical hematuria shows the presence of red and white blood corpuscles. Shreds and cells of the growth may be found in the normally voided urine. By forcibly

⁷ I have since modified this as follows: supra-pubic incision, perineal urethrotomy, division of prostate in median line from capsule upwards to urethra; large drain and tamponade of iodoform gauze in lower wound, suture of upper.

washing out the bladder, particles of the growth are more likely to be found. The evacuator which is used in the crushing operation for stone is a more reliable means of securing a specimen of a growth. The lithotrite may be used to confirm the diagnosis. The stream of urine, as a usual thing, is not altered, yet in the pedunculated forms of tumors, especially when situated near the mouth of the bladder, it may be interrupted, thus simulating stone. The sensation communicated to the fingers upon the introduction of the sound frequently gives valuable information, also a digital examination per rectum or vaginam; by these means the growth may both be located and its approximate size made out. The most valuable instrument in the diagnosis of tumors of the bladder is unquestionably the cystoscope. I have repeatedly been able to diagnose the situation, size and character of bladder growths by means of this instrument, and afterwards confirmed it by operation. Digital exploration through a median perineal cystotomy, formerly a common practice, has been displaced by the cystoscope. In the female, digital exploration through the urethra will usually suffice to establish a diagnosis, but does not offer the same advantages as the cystoscope.

Treatment.—The treatment resolves itself simply into the choice of operation. Suprapubic cystotomy offers the greatest advantages in the majority of cases. By the suprapubic route more room is gained for manipulation, the interior of the bladder can be illuminated by the electric head light, thus permitting the growth to be dealt with to the best advantage, and the hemorrhage can be more readily controlled. In sessile growths, curettement is the method or removal. The pedunculated growths are best removed by the wire *serre-nœud* or the cautery scissors. In the latter variety of growths, if situated near the mouth of the bladder, in the absence of great prostatic enlargement, median perineal cystotomy is the preferable operation.

I report the two following cases which illustrate the different operations:

Case 1.—Papilloma of the Bladder (Perineal Cystotomy).—C. L., age 45 years. For some months prior to admission to the German Hospital, he suffered from painful urination. The urine had frequently been charged with blood. There was present a constant dull pain in the hypogastrium. Cystoscopic examination demonstrated the existence of a sessile lobulated growth on the antero-lateral surface of the bladder. Median perineal cystotomy was decided upon as the most suitable operation. The bladder being filled with a boracic acid solution, the staff was introduced into the urethra and a median incision made from the central point of the perineum down to the staff, and thence along its groove into the bladder. A growth about the size of a small egg was revealed and thoroughly curetted from the mucous membrane. A soft catheter was passed into the bladder through the perineal wound and stitched in position. To the end of the catheter was attached a long rubber tube serving to carry off the urine into a vessel under the bed. Convalescence was uninterrupted. The perineal wound closed rapidly. The patient was discharged two weeks after the operation.

Examination of the growth showed it to be a simple papilloma. It weighed scant two ounces.

Case 2.—Suprapubic Cystotomy for Papilloma.—Perineal Cystotomy for Recurrence.—Death from Exhaustion.—G. W., age 45 years. was admitted to the German Hospital, April 15, 1893. Personal and family history good. Six months before, he suddenly developed an attack of hematuria, with dysuria. All symptoms then subsided. About a month before his admission to the hospital, the patient noticed a return of the original trouble; his condition became steadily worse, the hematuria and dysuria being alarmingly severe. The act

of voluntary micturition became very difficult and finally impossible, and repeated catheterization had to be resorted to. The urethra finally became so sensitive that the passage of the catheter occasioned much suffering. The urine was always rich in blood and small clots. He was admitted with the diagnosis of a probable papilloma with blood clots in the bladder. Suprapubic cystotomy was performed. The surface being thoroughly prepared, the abdominal incision was made and the bladder exposed. The bladder was picked up with tissue forceps and a silk thread passed through its wall for the purpose of making traction thus facilitating the next step in the operation—the incision into the bladder. This was now opened by a longitudinal incision. Examination revealed the condition suspected; the bladder was practically filled with blood in a more or less advanced stage of coagulation. Fully two handfuls of clotted blood, part of which was quite firmly organized and closely adherent to the mucous membrane were removed. After it was thoroughly emptied of its contents, a close inspection of the lining membrane of the bladder revealed the existence of a small papilloma on the posterior wall.

The little growth was cut away and the bladder thoroughly irrigated with boracic acid solution. A rubber drainage tube was introduced into the bladder through the abdominal opening, and the latter closed. The patient reacted well, and convalescence was uninterrupted. At the time of his discharge, May 17, the suprapubic fistula had entirely closed, and the urine was passed without difficulty through the normal channel.

On June 30, the patient returned, giving a history of several attacks of hemorrhage since his discharge from the hospital. He now sought relief from an existing attack that had baffled all attempts made to check it. The usual stypitic methods failing, it was decided to perform a perineal cystotomy. Thorough drainage was effected by the reestablishment of the original suprapubic opening and the newly made perineal incision. One week afterwards, a violent hemorrhage took place, but was easily controlled. A growth gradually developed involving the whole bladder wall, and ulcerating through the abdominal wall.

At the autopsy, August 11, the growth, a carcinoma fully as large in size as a fetal head was removed.

SYMPTOMS AND TREATMENT OF TUMORS OF THE BLADDER.

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1894.

C. F. BUCKLEY, M.D.

SAN FRANCISCO, CAL.

The original intention which I entertained relative to this paper had to be abandoned, owing to the vastness of the subject. I considered it must involve too much of the Society's time, and lead in the main to rather inhospitable results, as the question of tumors of the bladder in their extensive bearings and differentiations is one affording more than the ordinary amount of learned and unlearned expressions of opinion to the gentlemen who devote their attention to this branch of medicine. Take, for example, the small matter of the cystoscope alone, and the opinions as to its value in diagnosis are certainly as diverse as the colors of the spectroscope, while such careful observers as Guyon of Paris, and Thompson of London, represent the extremes of divergence.

There is one very conspicuous fact, however, in relation to this whole subject, and that is a complete absence, among all the most prominent observers, of anything like a consistent or intelligible effort at an explanation of the etiology of tumors of the bladder. Hence I have decided to term this paper, "Papillomata of the Bladder," arising from external injury, and while I do not claim that such is always or even commonly the cause of such tumors, I offer a few cases which appear to me very significant and worthy of consideration in this, that they may lead to a line of inquiry in a direction hitherto unnoticed. In one

of the three cases which I shall report, the relation of cause and effect is very definite, and almost unmistakable, while in the other two, there may be room for some doubt though a strong presumptive evidence in favor of my views:

Case 1.—In the summer of 1875, while on a visit to Europe, a gentleman friend of mine thought proper to consult me regarding his health. He was a fine healthy specimen of manhood, about 45 years old, stout and robust of frame and general constitution. A generous liver but not a glutton; accustomed to spend most of his time in the open air, a great deal of it on horseback; and for nearly twenty years prior to this time he followed hounds quite frequently. He married early in life; had a large and healthy family. He never had any form of venereal disease. He never knew anything about ill health until about November, 1873, when he had a partial fall—so to speak—from his horse in hunting. The horse stumbled over a fence, and, to use his own expression his "crotch came heavily down on the pommel of the saddle." For a little while he felt faint and had some disturbance of the stomach. In about half an hour after the fall, however, he was able to ride home, and for ten days afterward was confined to bed, complaining of considerable pain in the pelvic region, and passing urine very frequently, which at intervals had some blood mixed in it. His bowels were also kept quite free during this time, but this he considered due to the medicines prescribed by his attendant. After two weeks he was able to move around again, but from the time of that injury he had more or less discomfort from the frequent passage of water, but not very much pain. The necessity of passing it had grown to become very urgent, and as a consequence a great source of annoyance, owing to its indelicacy. His medical adviser told him he passed some blood in the water but he never observed anything of that kind himself. On passing a No. 7 English sound into the bladder I found a rough gritty sort of substance, which felt very like a stone, but did not give the clear ring which a calculus usually does when the metal strikes against it. This was in the inferior or posterior portion of the bladder, not far from the neck. I then advised that he should go up to London and have an operation performed, as it was the only method of effectually removing the difficulty. There were some doubts as to the nature of the difficulty, but these would be speedily decided by an operation, and at the same time the disease could be readily removed. My advice—like most gratuitous ones—was temporarily ignored, but a year or more later it was followed, and my friend then wrote in a cheerful way—"I have at length done as you advised; a tumor nearly as large as a pigeon egg has been removed from my bladder and I feel almost as well as ever I did." This improvement has remained, and writing not long ago he remarked: "I never since had any trouble with the bladder, but of course I do not enjoy the saddle as I used."

Case 2.—In February, 1888, a young gentleman 19 years old was brought to my office in a perfect state of collapse, unable to raise his head or talk, though evidently not unconscious. He was reported to have fallen from a buggy. While examining him with some care he revived sufficiently to inform me that he was employed by a real estate firm, that he was out posting bills on various premises, and on one occasion, having to reach high, he stood on one of the buggy wheels to achieve his purpose. While in this position, unfortunately, his horse moved, and he fell heavily—for his legs were rather long—astride of the wheel, his perineum thereby receiving the whole brunt of the fall. Around this region there was general diffused ecchymosis and on passing as ound per urethram, there seemed to be much difficulty in reaching the bladder. The sound more easily got around the organ than into it. After withdrawal of the sound which had been used without any force, a copious hemorrhage followed. Recognizing that I had to deal with an intra-cystic hemorrhage from some source, I determined on an operation to control it as soon as possible. I had the youth removed to his home as quickly and safely as possible, and shortly after, by the median operation for lithotomy, discovered the offending ruptured bladder.

I was amazed at the extensive injury beneath the surface without any laceration of the skin, and this fact may have a very extensive application in a medico-legal direction. I ligated six good-sized blood vessels—three on each side—and brought the sundered edges of the bladder together with fine sutures of catgut, placed a gum elastic catheter in the bladder, and subsequently treated the injury as if the

median operation for calculus had been performed. The patient made an excellent recovery, though his nursing had never been characterized by the highest efficiency; the ligatures and sutures were all carefully counted at the time of the operation, and subsequently correctly accounted for. This young man never had any form of venereal disease.

About three months after he left his room, he consulted me about an irregular difficulty of passing water which seemed to grow worse. "At one time he could pass water quite freely, but lately it seemed to grow worse and it acted strangely. Sometimes he noticed no difficulty whatever, but on other occasions it seemed to be suddenly obstructed, and this occurred most commonly as the last portion of the water was about to leave the bladder. Something seemed suddenly to close the passage." In passing a sound I noticed a distinct contraction of the membranous urethra, and considered I had to deal with a common spasm due to stricture. I proceeded to dilate this with the daily use of sounds and, after ten days of treatment, on passing a No. 12 English sound with a sharp curve into the bladder, I noticed a rough but yielding mass that reminded me very forcibly of the prior experience. In this case, however, I considered that the sensation yielded by the sound may be due to a neglected suture or ligature, for, as I remarked, the nursing was not of the most efficient character. I felt that some foreign body had entered his body, and at once the lithotrite suggested itself to me as a judicious means of removing it.

These three cases contain many points of interest. In the two former, of the lobulated variety of papilloma, I think the evidence is quite clear that they were directly due to injury of the perineum; and furthermore, they were both unaccompanied by any hemorrhage at any stage of their development except, probably, at the outset, and both were covered by a calculous deposit. In the third case, there was no history of venereal disease—a complete immunity from all bladder symptoms, up to a short time prior to death, and no hemorrhage, though the disease was evidently of long standing.

The lithotrite suggested itself as the proper appliance to remove this foreign body, as I regarded it. I accordingly used it, and after careful manipulation succeeded in grasping a substance that was rough and quite gritty, offered little or no resistance to crushing, but when withdrawing the instrument an unpleasant resistance was offered, so much so that I was obliged to separate the blades, change their direction and withdraw the lithotrite without any substance in its grasp. An unpleasant hemorrhage followed and kept up for three days with such persistency that I determined again upon a median operation in the old cicatrix to the offending vessel. To be brief, I discovered in the bladder near the line of the incision a tumor larger than a good sized pea and covered over with an incrustation of calculous deposit. I removed it without difficulty, by a fine wire *Crasenur*. I experienced little or no trouble from hemorrhage, again treated the patient as one who had undergone a median lithotomy. Recovery was speedy and natural, and since then, a period of over six years, I have not heard any complaints touching his urino-genital system from this young gentleman who at the present time seems in splendid health.

A gentleman of 55 years old, plethoric and fleshy in appearance, consulted me in April, 1889. He complained of all the general symptoms of cardiac degeneration, of the presence of which the lithoscope immediately left no doubt. Of late he also "suffered a good deal from frequent desire to pass water, and quite often had passed little particles like flesh from the bladder, which he did not understand." He had never passed blood from the bladder. Had practiced law in Nevada in earlier life; had frequently long rides in the saddle; did not remember any one particular hurt or injury while riding, but had frequently some "hard knocks," and hurt a testicle badly more than once. Nephritis and cystitis, both in an advanced degree, forbade any instrumentation, and so with general tonics I recommended a sojourn in a warm country place. This advice was adopted. In the middle of May the patient died suddenly and to subserve a great many purposes a careful autopsy was made. The heart was fully the size of the ordinary ox heart; the kidneys were both large and waxy, and the bladder was one mass of papillomata of the fimbriated type.

TREATMENT OF URETHRAL STRICTURE IN THE MALE.

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held in San Francisco, June 5-8, 1894.

BY JULIUS ROSENSTIRN, M.D.
SAN FRANCISCO, CAL.

To give you an elaborate description of all the different devices to relieve suffering man from strictures of his urethral canal would be very tiresome indeed. Fortunately, the ten minute limit precludes any such wild desire on my part, and I shall give you simply a brief aphoristical record of my personal views and conclusions, drawn from a rather ample experience. Urethral strictures are attacked either by gradual dilatation, rapid dilatation, divulsion, electrolysis, internal or external urethrotomy or both combined, either the perineal or high section or urethrectomy with or without urethroplasty. The treatment of strictures varies according to their size. Strictures of large caliber as over No. 14 or 15 French, (a French measure that is the only rational one and should be universally adopted) should nearly always be treated by gradual dilatation. Metallic sounds are the best for the purpose. Use antiseptic precautions. Clean the glans and prepuce well with soapsuds, then with ether and alcohol, finally with solution of 1 to 1,000 bichlorid or 5 per cent. carbolic acid. Wash out the urethra through soft catheter with solution of Condy's fluid 1 to 50, then cocainize urethra with 5 per cent. solution. Sterilize your sound, lubricate with 10 per cent. borated glycerin, and you are ready for introduction. Never push the sound into the bladder but stop at the membranous part.

I had a good many troublesome cases of cystitis come to me where the patients dated the commencement of their suffering back to the first introduction of an urethral sound. I leave the instrument in ten to fifteen minutes, to stimulate absorption of products of inflammation in the urethral wall by pressure massage. After two or three days' rest during which time, in irritable cases, salol, salicylate of soda, boric acid or quinin can be given in full doses, night and morning, you introduce the same size again and will be able in most instances to use immediately afterwards the next size. For some strictures of large caliber in the pendulous portion of the urethra of older date and unyielding in character, internal urethrotomy is recommended. I have not often in my own experience found it necessary, and believe it is well to remember that a vast majority of these so-called large calibered strictures are physiologic narrowings and ought to be left severely alone. Another exception must be made for true stricture of the meatus and fossa navicularis, which can be quickly and safely cut at the floor by a short convex blunt pointed tenotome. I underline here true strictures, for as Keyes says, meatotomy and anterior urethrotomy have run riot in the profession and have led to much unnecessary surgery and some positive injury. Strictures of small caliber, that allow the passage of a sound, should also be treated with gradual dilatation. I rarely try the introduction of metal sounds below No. 7 or 8. Injuries to the urethral walls and false passages are in the majority of cases traceable to such attempts. Flexible bulb-tipped bougies should be used. If even the smallest size does not pass readily, a prolonged pressure can be exercised by fixing and holding it against the stricture for several hours.

If that does not succeed, the filiform whalebone bougies should be tried, either the straight, angular or screw-tipped. Sometimes by introducing successively several filiform bougies, side by side, one is made to pass. If one should only enter the stricture and not pass it, the bougie can be tied there and left twenty-four hours *in situ*, after which time it often passes. Should no pressing symptoms exist at the time, you can leave the filiform bougie for one or two days, after Lefort's method of "dilatation—immediate progressive," with the certainty almost, that other bougies can be passed alongside and may be used as a guide for a tunneled catheter or for soft and metal bougies. If expediency is necessary the introduction of a tunneled catheter can be tried over the guiding filiform at once, or the whalebone bougie may be used for a guide to perform external urethrotomy. Every careful and persevering effort should be employed to succeed in gradually dilating even these refractory strictures. Internal urethrotomy of the posterior urethra with the *Maisonneuve* or *Teevan's* instrument from before backward, or from behind forward with the old *Civiale*, or *Sir Henry Thompson's* modification, or *Roser's* urethrotome and our own *Otis's* instrument is an operation I most heartily dislike. I consider it dangerous and unsurgical and believe it will be abandoned like the dissection of the cervix uteri by the *nterotome*. I used it formerly, also, in the few strictures of the anterior urethra that resisted dilatation, where I now leave a bougie *a-demure* for about twenty-four hours with antiseptic washings and obtain excellent results; and in the exceptional cases where in spite of the most careful asepsis, rigors and urethral fever followed each and every introduction of a dilating instrument, the patient refusing external urethrotomy; or in cases with multiple strictures where I performed external urethrotomy on the most central one, cut the others internally and plugged the urethra in front of the opened part for several days with iodoform gauze. Fortunately, I never met with a serious accident from internal urethrotomy, but the possibility of infecting the deeper strata of the wounded urethra, the danger of uncontrollable hemorrhage always gives me a feeling of uncomfortable insecurity when I am forced to undertake it.

External urethrotomy with *Symes's* staff and *Teale's* probe gorget as described by *Treves* in his admirable book, should be the operation of choice in all strictures of the deeper urethra where gradual dilatation is impossible. Perineal section takes its place where no instrument, however small, can pass the stricture. I performed it twice after *Wheelhouse's* method, the urethra being divided over the end of his staff, the urethral walls held apart by long threads drawn through it, the central opening found either by the eye or probing, and cut into on the probe gorget. I prefer this method to *Cook's* operation, where "you go it blind," having as a guide only your index finger in the rectum pressed against the apex of the prostate gland. With all these manipulations and operations the strictest asepsis and antiseptics must be exercised, together with internal administration of drugs for rendering the urine sterile or even give it some antiseptic properties. For external and internal urethrotomy, as well as perineal section, the introduction of a full-sized metal bougie immediately after the operation and at regular intervals of a few days afterward, till dismissal, must not be neglected.

It insures better than anything else the healing and closing of the wounds. I was forced on one occasion to apply retrograde catheterization. Four years ago the son of a dear friend and colleague, out hunting, dragging his gun after him, received its entire load of shot into the perineum and adjoining parts, lacerating the scrotum and penis in a frightful manner. The boy remained on the ground six or eight hours before he was found; there was retention of urine relieved only by puncture of the bladder and aspiration, until I arrived about two days after the accident. It was impossible to see anything in the swollen and lacerated parts. I opened the enormously distended bladder and drew a soft rubber catheter from behind forward carefully through the remnants of the urethra and united the lacerated parts over it. It was done easily and should be practiced in all cases where after a thorough search the posterior opening of the urethra can not be found. Urethrectomy, excision of parts of the urethra on account of very callous and fibrous indurated urethral and peri-urethral tissue has been successfully practiced after *Guyon* by quite a number of European and American operators. In cases of traumatic stricture, *Guyon* excises the hardened peri-urethral tissue, and insists upon the removal of the entire circumference of the indurated part of urethra, in opposition to others who leave the upper wall. He deems it unnecessary to unite the cut ends of the urethra, but sews the surrounding parts with a double row of buried continuous catgut sutures and adds an external row of deep and superficial silkworm-gut sutures. He leaves a permanent catheter for three or four days; the results are excellent.

Urethrectomy has been combined with urethroplasty; the substitution of the removed part of the urethra by transplantation of some other piece of mucous membrane. Pieces from the inner layer of the prepuce, after *Meusel*, have been used most frequently, but various other sources are made to serve, from the prolapsed uterus of lovely woman down to the esophagus and bladder of the guinea pig. The methods of divulsion or forced catheterization are most reprehensible and unsurgical. They possess all the faults of internal urethrotomy with the additional ones that the wounds made by the operation are rough and lacerated and unknown in their extent.

No general definite conclusions have been arrived at as to the therapeutic value of electrolysis. My own experience would not justify as great an enthusiasm as most of its advocates demonstrate, or as severe a condemnation as comes from the members of the opposing faction. In a few cases a very careful employment of this method seemed to ease and hasten the progress of gradual dilatation; in a great many others no effect could be attributed to its application. I have not as yet used *Deno's* water electrode for this purpose, an instrument that is reported to permit the application of forty to sixty milliamperes without pain and with great success.

The surgeon called upon to treat stricture of the male urethra will be impressed with the fact that the great therapeutic maxim of our craft, *nil nocere*, should be foremost in his mind.

Gradual dilatation is always a safe method and should be employed whenever feasible, although it lacks the great desideratum of permanency in its curative effects. I doubt very much that internal urethrotomy is any more lasting. I have seen a

great many relapses after this treatment which, together with its many objectionable features, gives external urethrotomy or one of its allied modifications the decided preference in all instances unsuitable for gradual dilatation.

THIRD DAY, JUNE 7.

The following papers were read by title, their authors being absent: "Effects of Obstruction in Urination upon the Bladder and Kidneys," Dr. J. William White, Philadelphia, Pa.; "Diagnosis and Treatment of Enlargement of the Prostate Gland," by Drs. Hunter McGuire, Richmond, Va., and William T. Belfield, Chicago, Ill.; "Symptoms and Treatment of Stone in the Bladder," Dr. William T. Biggs, Nashville, Tenn.; "Symptoms and Treatment of Tumors of the Bladder," Dr. John B. Deaver, Philadelphia, Pa.; "Treatment of Stricture of the Urethra," Dr. Julius Rosenstirn, San Francisco, Cal.; and "Carcinoma of the Urethra, with a Report of Two Cases," by Dr. H. O. Walker, Detroit, Mich.

DR. C. F. BUCKLEY, San Francisco, Cal., read a paper on "Symptoms and Treatment of Tumors of the Bladder."

DR. HAUGHTON, Texas, read a volunteer paper of "How Best to Treat Wounds To-day."

DISCUSSION.

DR. R. H. SAYRE, New York, opened the discussion of the topic of the session, saying: It seems to me very unjust at this stage of medical science to attempt to detract from the immense progress which has been made in consequence of the views advanced by Prof. Lister. Carbolic acid, creosote, balsam of Peru, and various anti-bacterial agents have been used for a long time, but they were used simply because the people found out that the wounds did well when they were employed; but the great underlying principle of infection was not understood generally before that time. And certainly to James Lister belongs the credit of forcibly impressing it upon the minds of the profession to-day. And the reason that we had suppuration was because the wound was contaminated by substances introduced from the outside, and although in the beginning he made statements which very likely he was afterward very willing to retract, further investigations since his first experiments have shown that many appliances which were first thought necessary are by no means so. The principle which underlies the whole subject is still the same, and it is simply by increased experience that we have learned to arrive at the same results by means of simpler processes, because our knowledge of the subject is greater than it was when he first opened the door to us, and showed us how practically to put into execution the great principle of antifermentative surgery.

DR. HAUGHTON, Texas—It is not my intention to detract from anybody, but simply to give a historical *résumé* of this whole question so as to bring it fairly to our view. I think if the gentleman had heard the balance of the paper he would find out exactly where it leads.

DR. C. F. BUCKLEY, San Francisco, Cal., exhibited to the Section some specimens obtained in his own practice, including a slate pencil five and one-half inches long removed from the male bladder, and a series of gall-stones perfectly white, removed from the gall-bladder in life, by surgical operation.

DR. J. D. GRIFFITH, Kansas City, Mo.—I think that it is very little use to make rules with reference to the particular position in stricture of the urethra, divulsion, for cutting for rapid dilatation and for gradual dilatation; we make positive rules as to where these things should be done. Van Buren and Boulay (?) taught these things years ago, Guion is teaching them now, that is: It is easy to so dilate that cutting can be done internally in the urethra under the pendulous portion. Divulsion can be done on the deeper portion. Rapid dilatation can be done on the deep portion of the urethra, and gradual dilatation can be done on the pendulous portion. Those rules are safe. But if you divulge in the pendulous portion of the urethra, or rapidly dilate, either one, which almost amounts to divulsion, then you are very apt to either kill your patient—I have seen one death in eight hours from it—or to inflict a very severe shock. You can cut in the pendulous portion of the urethra, but if you go deep and cut then you are apt to have dangerous hemorrhage. I must say that I have not experienced the same amount of trouble in introducing the sound into the bladder, as some of these gentlemen speak of. If your sound is clean and if your

urethra is clean back of the cut off muscle as well as in front of it, then I think you can safely introduce your sound. But this thing of a guide that the doctor was speaking of in his paper, the whalebone guide, I think is a dangerous instrument if it is not carefully watched. I know of but one way to find out whether my guide along the canal is too deep. That is after searching the urethra thoroughly with guides, say eight or ten or fifteen, you have got in each a lot of false passages, one of them slips through somewhere; how do you know it is in the bladder? That is the point I wanted to speak of particularly. I think it is very easy to determine that question. If the guide is in a false passage anywhere from the cut off muscle back and not in the bladder—because you want to be certain before introducing the instrument that it is in the bladder—holding the guide with your right, pass the forefinger of your left hand high up into the rectum and behind the point around the prostate, above it, and then if your guide is in the center line, in the bladder, you will be able to retract it easily. If it is in a false passage it will slip just as easy as it did before.

As to the cutting instrument, the gentleman has spoken of Bodice's (?) instrument, and mentioned Bank's most estimable instrument. There is no instrument to-day I know of that is equal to W. F. Fleure's instrument for large caliber strictures. It is the most complete and thorough that I have ever seen for this purpose.

DR. JOSEPH RANSOHOFF, Cincinnati—With regard to the danger of internal urethrotomy, in the olden days when Maissoneuve's instrument alone was used, when we could not with it get the instrument to hold a urethrotome larger than the 18 or 22 French, it was not uncommon to find that the operation, in the first place, was not permanently successful, nor was it rare to find a death following from septic fever. But with the dilating urethrotome those dangers have been practically removed, and I think that one of the safest operations we perform is internal urethrotomy as done with the dilating urethrotome. I do not advise what has been recommended by the essayist here, the use of the catheter. The reason I do not like to let the catheter remain more than three or four hours, or at the very furthest a day or two, is that I have seen some disastrous results from the use of catheters for a long time in the bladder. I know that in cases of enlargement of the prostate, catheters, soft in character, have been introduced into the bladder, and on account of the difficulty in finding the bladder the catheters have been allowed to remain. But the most violent and dangerous results will sometimes occur from the use of the catheter, allowing it to remain six or eight hours, even, and it is absolutely dangerous to let it remain more than twenty-four hours; whereas, internal urethrotomy is an operation which can be quickly performed. It has not the advantages that external urethrotomy has. It is an easy matter enough to make an internal urethrotomy. It is an easy enough matter to make external urethrotomy if you can get anything through. And here comes, to my judgment, the important point, and that is to get something through the channel. I confess that I lack the patience which belongs, I think, or ought to belong to the man who does a good deal of urethral work. Most of my friends, as well as myself, lack that patience which is so essential to pass things through the urethra. For that reason I dare say there is scarcely a year passes but that I have three or four or five catheteral operations that have to be done without a guide. In the hands of those who have great patience the practice of external urethrotomy without a guide would be materially increased. It is without question as has long been stated, the most difficult operation in surgery, and I am glad to see that the essayist spoke very kindly of an operation which has been practiced quite extensively on the continent of Europe, but has not yet found a footing on this continent that I think it is entitled to. I refer to catheterization from behind. Just before I came here I saw a patient who had been on the table two hours and a half and the surgeon was trying to find the deep urethra through an external examination. The region looked as if it had been passed through a sausage machine. I helped the gentleman out, and I had no difficulty in getting my finger under the arch of the pubes; I could get around behind the bladder and around the prostate, and between the prostate and the rectum. The man had lost his bearings and had simply looked around blindly for the urethra. That may happen to any one, for there is scarcely a surgeon of experience who has not failed to find the urethra. If I fail to find the urethra after what I think sufficient search, or if I have failed to make a Cox operation, which has given good results sometimes, I open the bladder and get at the difficulty from behind. There is no question

among those who have tried it with the introduction of the finger into the bladder, to introduce an instrument into the bladder from behind. It is an operation that I think will come into favor here, as it has on the other side of the Atlantic. I am glad to see that there has not been a man on the floor, in the discussion of this subject, who has spoken of urethral stricture who has referred to permanent cure of strictures. After all, it is a pretty sad lot that falls to the patient after the operation. Ordinarily a man will have to use an instrument at times all the rest of his life. All strictures are not alike; some will yield readily to simple dilatation; if we have this form of hard strictures that are tougher than any cartilage we can conceive of, no simple dilatation is going to effect a permanent cure.

DR. JULIUS ROSENSTIAN, San Francisco, Cal.—Although I have been attacked on all sides, still I am very glad that my paper, at least, has given foundation to so many able remarks on the subject. I have not been convinced altogether that I have made an error. That there can be urethrotomies made, internal ones, in the deeper part of the urethra, without danger or with success to the patient I do not doubt. I believe it is our great statistician, Harris, who has shown that Cesarean operation has been done by Bull, who has opened by accident the uterus of a woman; most of those so opened do recover; still I do not believe anybody would recommend that as a safe and proper way to perform that operation. I do not believe that urethrotomy in the deeper portion is a safe method, because we can not guard against very dangerous hemorrhages; there is danger in this method, in spite of the assertions of the very able gentlemen here on the floor. I must say that if in such hands as those of De Aul (?) the mortality from urethrotomy is 8 per cent. I believe nobody can say that it is an indifferent operation. Such are the records of his hospital and his clinics. It is all very well to say, perfect asepticism protects against the immediate results of the operation. It may be for the time, but who will guarantee us that the deeper parts of the urethra opened may not be infected, and if there is infection on that urethral tissue, general infection may follow? I believe wounds that can be laid open with safety, can be accurately watched, should be treated in that way, and we should not rely on chance, as we have to in most cases of internal urethrotomy. In the pendulous portion, in cases, as was said here, of recurrent and hard and calloused strictures I have been perhaps more fortunate. I have not found very often the necessity, except when urged by patients where they are very anxious to get rid of it, to use the internal urethreter. I have gotten on very well with gradual dilatation, and I must say I have had no desire to try a method or apply what I consider a dangerous practice where I can get around it with absolutely safe methods.

As to electrolysis, that has been mentioned here by one gentleman; he seems to misunderstand my statement. I have not recommended it; I have said that I believe that in some cases it seemed to do some good; that in a great many cases I had no effects whatever. But certainly, although I have tried it a few times lately, I have not made it a practice to give it a trial in every circumstance from the result of my experience, and I do not believe I have expressed in the paper any great enthusiasm for it.

As to the catheter of A'Demeure, I have also mentioned in my paper that Guion uses it, but I myself do not use it. I have used a drainage tube in external urethrotomy cases for twenty-four hours, as long as I found it necessary, but I have rarely used the catheter of A'Demeure, except in those cases where the entire urethra was torn and the urethra united over the body of the catheter that was introduced through the open bladder.

I was asked to explain my idea of absorption in introducing a catheter and leaving it lie there for ten to fifteen minutes. I believe that just as we can by pressure and massage remove some exudations in the exterior parts, so we can by the same means do something similar in the interior organs. We think that by exciting the lymphatic glands and the vascularity of the parts, that absorption is stimulated by the taking up of inflammatory products in the surrounding tissues; that they are made more amenable to absorption. And it certainly seemed in the cases I treated that by thorough continuous introduction of a sound and leaving it to lie there for some time, that hard strictures cure swifter under the treatment by stretching and by absorption, and that is the explanation and the idea I had, by saying that, leaving the catheter or leaving the bougie for some time in the strictured parts stimulated absorption of the inflammatory products in the urethral canal.

THE PATHOLOGY AND SYMPTOMATOLOGY OF HEMORRHOIDS, ANAL FISTULA, AND ANAL FISSURE.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1904.

BY DAVID POWELL, M.D.

MARYSVILLE, CAL.

HEMORRHOIDS.

Although anatomically divided into external and internal, and presenting some pathologic features peculiar to their situation, hemorrhoidal tumors are essentially similar in structure, whether located in the rectum within the sphincter muscles, or about the margin of the anus. Pathologically considered they are identical, and composed primarily of the same morbid elements—enlargement or varicosity of the venous hemorrhoidal plexuses, and infiltrated connective tissue.

Within the dense areolar membrane which enters into the structure of the lower part of the rectum and verge of the anus, is a network of tortuous veins, the inferior or external, and the superior or internal hemorrhoidal plexuses. From the former, the blood finds its way into the general venous circulation through the middle and inferior hemorrhoidal veins which communicate with the internal iliacs; from the latter, through the superior hemorrhoidal vein into the portal system. The absence of valves in the hemorrhoidal veins; the dependent position of the parts; man's erect position; distension of the rectal ampulla from fecal accumulation; obstruction of the portal circulation; pressure by the gravid uterus or any abnormal tumor upon the inferior vena cava or iliac veins, tend to produce the pathologic conditions which favor the development of hemorrhoidal tumors, viz: The varicosity of the veins, and the extravasation of their contents into the surrounding peri-vascular tissues.

In their incipiency, hemorrhoids, both external and internal, are merely a dilated or varicose condition of the veins of the submucous areolar tissue in the region affected, without intumescence or any appreciable tumor. But as the disease progresses a constantly recurring congestion and inflammation, from various irritating causes, produce very characteristic changes and modifications in the vessels and tissues involved. The veins become more and more expanded; their coats become thickened; the surrounding cellular tissue is infiltrated and indurated; the investing tissues hypertrophied by plastic deposit, and sooner or later a well defined swelling or tumor is developed. If external to the sphincter it appears as a rounded venous-looking tumor, purplish in color with an ill-defined base, just at the verge of the anus, running up into the bowel and covered with the thin sensitive skin of the part. During the straining accompanying forced defecation the veins become greatly distended, finally give way and the blood is extravasated into the surrounding connective tissue, forming a large, tense, globular, painful hemorrhoidal tumor. Upon section an external pile is found to be composed of hypertrophied integument, infiltrated areolar tissue, and one or several dilated veins containing coagulated blood. The presence of coagulum in the distended veins and surrounding cellular tissue is an important pathologic feature of an external hemorrhoidal tumor, and is of much prac-

tical moment when considering the application of remedial measures.

Internal hemorrhoids differ in form, situation and structure, and are accordingly divided into venous, arterio-venous, and capillary. The venous internal pile differs from the external in being covered with mucous membrane instead of integument and having a tendency, from slight irritating causes, to bleed. The arterio-venous pile as described by Hamilton "consists essentially of hypertrophy of folds of mucous membrane surrounding the anal opening, the so-called pillars of Glisson. They have a red, almost vermilion color, elongated form, and contain within them one of the descending parallel branches of the superior hemorrhoidal artery."

Capillary hemorrhoids are small sessile tumors usually situated high in the rectum, exceedingly vascular and in structure consist chiefly of small arterial ramifications and hypertrophied connective tissue.

Symptoms.—The symptoms of hemorrhoids vary with the location, progress of the disease, and size of the tumors. A non-inflamed external pile does not cause much distress—merely a sense of fullness after defecation, with local heat and slight itching. But as the disease increases and the tumor becomes enlarged and inflamed the suffering is often intense. A deep seated, dull, aching, throbbing pain is experienced, radiating from the anus through the perineum into the nates, which is much increased by walking or standing. The spasmodic contraction of the irritated sphincter and levator ani muscles increase the patient's suffering and often produce general systemic disturbances, manifested by malaise, rise in temperature and anorexia. Pain, sensation of foreign body in the rectum, an uneasy feeling and smarting about the anus, increased during defecation and accompanied with or preceded by more or less hemorrhage, are among the first symptoms of internal hemorrhoids. Later the bleeding becomes a more urgent symptom, is more frequent and profuse, sometimes leading to extreme anemia and exhaustion. The pile-tumor protrudes during the expulsion of feces, is caught by the sphincter, becomes inflamed, sometimes strangulated, and the pain is excruciating. Constitutional and sympathetic disturbances ensue, evinced by fever, weak rapid pulse, languor and extreme restlessness. In many instances, too, irritation of the genito-urinary organs, producing frequent desire to void urine and difficulty in micturition with the accompanying tenesmus, add greatly to the patient's sufferings.

ANAL FISTULA.

Quite opposite opinions have been advanced regarding the exact pathology of fistula in ano. It has by some been contended that the fistule originates in an ulcer of the mucous membrane of the rectum, and that the "suppuration in the neighboring textures was subsequent to, and dependent upon this ulceration." In support of this view it has been suggested that the semilunar lacunæ, small valves or pouches, found in the mucous coat of the rectum, in which seeds and other foreign substances might readily find lodgment, may be frequent factors in the causation of ulceration resulting in fistulæ. While, furthermore, it can not be doubted that ulceration of a tubercular focus and traumatism may cause perforation of the rectal wall from within, through which

fecal matter may escape, and thus excite suppuration in the surrounding loose areolar tissue, yet the frequency with which fistulæ follow ischio-rectal and other abscesses about the rectum, indicates that the first pathologic manifestation of the disease, in a very large majority of cases, is an "inflammation and suppuration of the cellular tissue external to the bowel, and that the abscess subsequently opens into the gut" (or through the integument or both) "and thus constitutes the fistula." There is perhaps no surgical disease a clear appreciation of the pathology of which is of more importance than is that of fistula in ano. If therefore, periproctical suppuration is, in most instances, the cause and not the effect of the disease, the fact is of much practical significance; for successful preventive measures must rest upon a correct theory of the steps in its formation.

Symptoms.—Anal fistule is not usually accompanied by severe or urgent symptoms. Among the weak, debilitated and strumous who are the most frequent sufferers, other symptoms and conditions often divert attention from the local trouble. During the inflammatory stage, however, there is often much pain and considerable general systemic disturbance. But where the suppurating tension is relieved by free sinuous openings the symptoms subside, and the only inconvenience resulting may be slight tenesmus and pain in defecation, the passage of flatus and pus, if the fistula is complete, and the annoyance of soiled linen from the constant escape of a purulent, fetid, sanguineous discharge.

ANAL FISSURE.

Anal fissure is an affection of much practical importance and interest, not so much on account of its pathologic relations, but because it is often attended with extreme local pain, and frequently gives rise to grave constitutional disturbances. Beginning in an excoriation of the skin and mucous membrane to the extent of exposing some of the nerve filaments of the anus, the reflex irritation and spasm of the sphincter muscles thereby induced, lead to the formation of painful and oftentimes very obstinate ulcers. Fissures are usually of traumatic origin and in the great majority of cases are situated at the posterior commissure of the anal opening. They form suppurating grooves with inflamed indurated edges running parallel with the axis of the bowel, and may extend into the rectum above the sphincter. They are often associated with hemorrhoids, and the external termination of the fissure is frequently found concealed under a small external pile or fold of integument.

Symptoms.—The symptoms of anal fissure and ulcer, both local and constitutional, are characteristic. Among the former are a dull aching pain extending into the loins and thighs, aggravated by an evacuation of the bowel, and continuing with increased severity for several hours after each visit to the closet; morning diarrhea; spasm of the sphincter muscles from irritation of the peripheral nerves causing excruciating pain; and more or less loss of blood or muco-purulent discharge at stool. Continued and annoying irritation of the genito-urinary organs is also a common symptom, sometimes inducing spasmodic stricture of the urethra, frequent micturition, a sense of fullness and tenderness about the prostate, loss of sexual power, and seminal emissions.

The constitutional disturbance, too, is often greater than the pathologic conditions would seem capable of producing. There is a marked perturbation of the nervous system which is seemingly in intimate sympathy with the local affection; and if the disease continues unrelieved, "the countenance becomes pale, anxious and careworn, and the patient's expression is indicative of constant suffering."

TREATMENT OF ANAL FISTULA.

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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PART I.

For a proper understanding of the principles underlying the management of anal fistule, it is requisite to present some data connected with the rectum.

Morton and Witherill state that the rectum in its upper and middle portion is derived from the internal and middle layers of the blastodermic membrane, while its lower third with the anus, like the buccal cavity, is formed by the external and middle layers. The rectal veins like the rectal arteries are divided into three sets; superior, middle and inferior. They form two distinct venous systems, the rectal emptying into the portal system, and the anal terminating in the internal iliac.

The throat and rectum have many points of correspondence in their structure, being supplied with circular fibers, which make them the counterparts of each other, by opening and closing their respective orifices. There are two sets of muscular fibers encircling the lower part of the rectum, known as the outer and inner sphincter, by which it is automatically closed except when dilated voluntarily for the release of flatus or the discharge of fecal matter. There is also another distribution of circular contractile muscular fibers at the upper limit of the rectum, which constitutes the division between it and the sigmoid flexure of the colon. This may be appropriately designated the recto-colic sphincter, and forms an effective barrier ordinarily to the descent of the excrement into the rectum. This annular muscle has not received from anatomists or physiologists the consideration which its rôle in the intestinal functions warrants. It is a veritable constriction from muscular contraction by which the colon is normally closed against the descent of the fecal mass into the rectum. When the excrementitious matter reaches the sigmoid flexure of the colon it is deprived of all nutritious properties and after this desiccated mass passes the muscular division between the colon and rectum, and is deposited in the lower reservoir it contains only effete matters.

The fecal deposit acts then as a foreign body, and stimulates this canal to expel the *débris* by the anal orifice, or by remaining there becomes a source of trouble and even of disease. If the indurated mass remains in the rectum for an undue period, it induces more or less local disturbance and extends an erethism to the general system, through the nerve supply to this portion of the organism.

The rectum is a pouch or depository consisting of contractile tissue and capable of great distension under the accumulation of fecal matter within it. While its proper function is that of a temporary res-

ervoir with the property of contraction for the expulsion of its contents, it may fail to perform the office of a waste pipe and become shut off as it were by the sphincters above and below. These annular muscles are provided with somewhat similar means of opening and closing at each extremity of the rectal canal; and being composed of tissues in their walls, which are alike subject to induration and thickening, with constriction of the passage.

Zeigler qualifies proctitis as an inflammation of the rectum, resembling in many points inflammation of the vermiform appendage. The exciting agents are frequently foreign matters and stagnating feces; but disturbance of the circulation in the hemorrhoidal veins may likewise end by inducing inflammatory change in the bowel. When the inflammation and ulceration extend deeply into the tissues of the wall of the bowel, the surrounding connective tissue becomes infiltrated and hypoplastic or breaks down into abscesses containing fetid pus.

Thus it occurs that the rectum becomes a seat of disease and among its disorders fistulas are not uncommon, either as sequelæ of peri-rectal abscesses or resulting from abrasions and ulceration of the inner coat.

Apart from fecal concretions and enteroliths lodged in the rectum and becoming sources of irritation and inflammation to its mucous coat, there are foreign bodies which pass through the alimentary canal and find their way into the rectum to cause trouble in the surrounding structures. Fish bones, spiculæ of chicken bones and other bony fragments have frequently been found in peri-rectal abscesses after having perforated the rectal wall. Very recently I removed a spicula of bone over an inch in length which had become lodged just within the external sphincter, and one extremity had perforated into the mucous membrane of the rectum. This would have ultimately effected an opening through which the fecal matter could have penetrated the tissues and set up a suppuration process. The incautious introduction of a syringe pipe or other solid substances, may also induce abrasions of the mucous membrane of the rectum, which will terminate in ulceration and perforation of the rectal wall.

The attempt to remove hardened fecal matter with a scoop or with the fingers may lead to a like bad result. But there are sources of disorder from injuries inflicted in the parts immediately around the anus, which set up inflammation of the deeper seated structure. Violence of any kind, by a kick, sitting down upon a projection or being thrown upon the pommel of a saddle, may lead to a peri-rectal abscess, which calls for considerable skill in its treatment to abort its termination in a fistulous outlet. The early recognition of such a purulent collection and its discharge by a free incision, with the subsequent use of a drainage tube and light tamponage with antiseptic gauze, are usually attended with a radical cure of such traumatic abscesses. But there will occur cases which resist treatment or which fail to be properly managed that result in fistula.

There is a class of tuberculous abscesses in the peri-rectal tissues which are of strumous origin, and independent of any mechanical injury, that are accompanied by fistula of the most aggravated type. This form calls for constitutional as well as local treatment.

It is not a legitimate inference that the drain of a

fistula upon the adjacent rectal structures has a salutary influence upon tubercular diseases of the lungs. The evidence is conclusive to my mind that the general debility and constitutional irritability, resulting from the constant wear and tear of fistulas involving the tissues around the anus, are in most cases aggravating circumstances in the progress of other diseases and the more effectually they can be cured the better is the result. There was a period when the names of distinguished members of the medical profession were arrayed against operating for fistula in ano when it occurred in a tubercular subject. But the weight of authority is now favorable to operative interference for eliminating the local disorder and arresting the drain upon the system.

Instead of the chronic cure by a slow treatment for fistula in ano, with oft-repeated temporizing applications, in subjects of tubercular disease, it is decidedly preferable to secure the prompt effect of a speedy and radical operation in cutting short the evil.

The openings may occur at distances from the anus varying greatly, both internally and externally. Where there is a sulcus forming a semi-circle around the lower portion of the rectum it is recognized as a horseshoe fistula, and may have the opening in the skin on the opposite side from that in the wall of the bowel.

The usual division of complete and incomplete is based upon the existence of an external and internal opening in the former, and either one or the other in the latter. Those having but one opening are known as blind fistulas and we may have a blind external or a blind internal fistula, as the opening occurs in the skin outside of the anus or in the mucous coat within the anus.

The cases in which the two openings in close proximity to the anus are presented usually involve only the external sphincter, and have the internal orifice between this and the internal sphincter, in the depression which exists in the space between the two muscles. This is accounted for by Allingham in the following manner: "The abscess forming, in most cases just outside the anus, does not burrow deeply but passes close under the external sphincter; it then is prevented from ascending higher up the bowel by the thick band of the internal sphincter, and consequently is turned inward and makes its way through the lax areolar tissue." This explains those cases in which the primary abscess is outside of the rectum; but a large proportion of fistulas have their origin inside, and by perforation of the rectal wall admit the fecal matter which works its way by suppuration out through the skin beyond the border of the anus forming a complete fistula.

When the abscess commences in the ischio-rectal fossa it burrows deeply, according to Allingham, and then most usually passes beneath the internal sphincter and opens, if at all, high up in the rectum. There may be more than one aperture in the rectal wall communicating with different fistulous tracts, leading out through the skin at varying distances from the anus. When the openings occur high up in the wall of the rectum, and the suppurating process extends from these into the surrounding tissue of the buttock, several external orifices may be found in the skin of the hip even at a distance of six or eight inches from the anus. Comparatively few of these cases have been noted in this country, but

quite a number of them came under my observation during my sojourn in South America. Some of these extensive fistulas will be referred to in connection with the surgical measures adopted for their relief.

The foregoing pathologic indications have not included a distinct recognition of what constitutes a fistula, and it may be defined as the ulcerated outlet of a suppurating tract through the subcutaneous tissues. This irregular and often tortuous channel is surrounded by a pyogenic membrane, bounded by a fibrinous deposit, which imparts a sense of induration to the touch by palpation. The object of treatment in any form should be the obliteration of this canal and the apertures connected with it, whether internal or external.

PART II.

As a preliminary step toward any measure of treatment for fistula in ano, whatever may be its form, it would be desirable to have the bowels freely evacuated for two successive days and to use an enema of warm soap water during the morning of the day fixed for an operation. After this procedure the patient should be placed upon the side, with the hips projecting over the edge of the bed so that the fistulous opening shall be uppermost, and a speculum introduced into the rectum with a view to open moderately the anus. A syringe with a small beak may now be employed to pass a 50 per cent. solution of the peroxid of hydrogen from the external aperture through the fistulous canal and out at the inner aperture, leaving it to escape through the dilated anus. This should be followed with an injection into the fistula of a mixture of one drachm of the concentrated Lugol's solution with four ounces of warm water, letting it escape by the anus, as in using the other wash. Lastly a stream of sterilized warm water should be passed through the fistulous tract and the patient is ready for whatever operation may be indicated.

Various processes have been employed for the cure of anal fistule, some of which look to the correction of the conditions involving the use of injections into the tract, while others by mechanical devices procure its obliteration, and again the more radical measure of a cutting operation is held to be the most effective treatment. It is evident that different modes of procedure are requisite, according to the nature of the case, and that which is applicable to the superficial complete anal fistule can not be adopted in the deep-seated anal fistule with one or more apertures in the bowel communicating by fistulous tracts with several outlets in the skin at varying distances from the anus.

When there is an external orifice within an inch or less of the margin of the anus, and an internal opening within an inch or less of the aperture of the anus, the knife may be safely employed. A grooved directory being introduced at the external opening is carried gently along the tract of the fistule until it emerges from the internal opening into the lumen of the bowel, when the index finger of the left hand is passed into the anus and up to the end of the directory.

If from any cause the directory is not found protruding it should be guided by the finger into the aperture, and then passing the end of the finger beyond the point of the directory it should be brought outside of

the anus. The tissues lying between the external and internal openings of the fistule are now resting over the directory and entirely exposed to the view of the operator. At this point I have found a departure from the custom of using a curved bistoury to give satisfactory results, and would advise the broad straight bistoury to be placed with its back in the groove of the directory and thrust through this intervening structure, which includes the external sphincter muscle. If the fistulous tract is not located at a right angle to the border of the sphincter, the directory should be forced into a position to make the cut transverse to the fibers of the sphincter muscle.

The next step is scraping out or curetting thoroughly the fistulous tract so as to remove the pyogenic membrane, and thus place the bottom of the wound in a favorable condition for the process of granulation. Packing the line of the fistule from the external to the internal opening with iodoform gauze, and filling up the incision with loose gauze over this, a compress may be secured with a T bandage to keep the dressing in position.

There is usually so much sero-sanguinolent oozing after this operation as to soak the dressing and require re-dressing within twenty-four hours. When fresh dressing with iodoform gauze is thus applied no further change is requisite for three days. Unless a movement of the bowels should take place there can be no object in removing the dressing, but if a fecal evacuation occurs, the parts should be thoroughly washed with carbolyzed water from a syringe and the dressing re-applied as previously. So soon as the bottom of the incision along the fistulous tract is found to be studded with granulations the packing should be discontinued and the sides of the wound brought in contact to secure union of granulation in all parts.

The practice of former times, in keeping the sides of the incision separated by lint or gauze until the wound fills up with granulations from the bottom is a fruitful source of protracted suffering to the patient and conducive to that loathsome result of inability to retain the feces and intestinal gases. If the curetting is done efficiently at the outset and the packing applied properly in the bottom of the wound for one week the granulating process ought to be so developed in this time as to warrant the closure of the incision. By the use of firm compresses on either side, held in place by strips of adhesive plaster or bandages, an operation of this kind should not require the attention of the surgeon more than two weeks. The union secured in this way between the divided parts of the sphincter obviates all inconvenience afterwards from fecal incontinence.

The attempt to dissect out the tract, when a fistule is laid open, has not been attended with results which should encourage the immediate closure of the incision after an operation and hence need not be dwelt upon here.

In regard to those cases in which the internal opening of the fistule is found above the internal sphincter, but within two inches of the anal orifice, while the external opening is something over an inch from the margin of the anus, the knife may still be employed with safety. But in view of the difficulty or even impracticability of turning the point of a grooved directory out at the anus, the process may be modified by introducing a concavo-convex wooden guard into the rectum to receive and

support the point of the directory when it emerges from the internal opening of the fistule.

An assistant should hold the directory firmly while the operator secures the guard and makes the incision with the broad straight bistoury, by thrusting it along the groove of the directory until the guard is reached and then cutting inward so as to divide all the intervening tissues. The subsequent management of the case corresponds very much to that above described, except that the packing must be carried higher up in the rectum to reach the end of the incision.

In this class of cases the elastic ligature has been employed with satisfactory results by some operators. It certainly has at least the recommendation of lessening the liability to hemorrhage which attends a cutting operation that extends above the internal sphincter. There is a decided advantage in using the elastic ligature instead of silk or other material which only cuts through a limited portion of the inclosed tissue, as the latter must be tightened from time to time, whereas the former continues the constriction until all the tissue is divided. In either case, however, there must be considerable delay in the process of cutting through the structures involved; and there is suppuration continuously, not only along the original fistulous tract, but from the entire surface left behind the ligature as it cuts its way out. Under these unfavorable conditions it is very desirable to adopt another procedure which may accomplish the end in view more expeditiously, without hemorrhage and without suppuration. All these requirements are fulfilled completely by employing the chain *écraseur*. This is suited not alone to the fistules having an external and an internal opening within an inch to two inches from the anus, but to those opening high up in the rectum and at a distance of several inches outside of the anus, through one or a number of apertures in the skin of the buttock. Having treated some cases of deep-seated extensive fistule in ano by this process during my sojourn in South America, which were reported in the *American Journal of the Medical Sciences* of July, 1881, I will present a few of the points recorded in that paper, to which members are referred:

If the source of the fistula is high up in the rectum, the route of the discharge may be in the direction of the sacrum or through the muscular fibers of the gluteus, and there may be several lines of communication with the surface. When the tract penetrates to such a depth as to cause apprehension of hemorrhage by cutting with the knife, the tissues may be divided without any risk by the chain of the *écraseur* of Chassaignac. The essential conditions which indicated this operation have been observed in four cases of extensive fistula in ano.

The internal opening in each case was high up in the rectum, and the fistula extended from this aperture deeply into the surrounding tissues, so that the line of communication between the internal orifice and the external outlet of these fistules exceeded six inches in length, involving the structures on a large scale.

As the space allowed for this paper does not admit of details and the record of the treatment with two chains at the same time is given in the report of the last case, it may be quoted verbatim from the *Journal*. Chloroform anesthesia was used in all cases: "Case 4 had two deep fistulas, whose external outlets were

nearly equi-distant from the junction of the sacrum and coccyx on either side, having each a communication with an opening about midway up the rectum. The channels being tortuous could not be traversed by a metallic probe or director, yet they were explored by a flexible bougie, to which the chain of the écraseur was attached, and thus loops were thrown around the intervening parts. Two instruments were used so as to encircle the tissues on either side and divide them at the same time. As the chains included a portion of the buttock containing no vessels that could yield any considerable amount of blood, the tightening was done rather too fast, and as a consequence there was some sanguineous oozing from the divided surfaces of the muscles. This, however, ceased upon the application of a strong aqueous solution of phenic acid, which has proved in my hands an effective hemostatic, even when small arterial twigs are divided by the knife.

"The usual dressing of fine strips of old linen saturated with carbolized oil was kept up for some weeks, and the cure was completed within two months, so that the negress went about her duties on the farm."

The most remarkable feature in connection with these extensive divisions of the deep-seated fistulas, involving the cellular tissue with the muscular fibers surrounding the rectum, is the comparatively slight effect produced upon the general system. There has been little febrile excitement and the restorative process has progressed satisfactorily after all these heroic operations.

TREATMENT OF ANAL FISTULA.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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In a very interesting article, occurring in the *New York Medical Journal*, on the history of anal fistula, Bodenhamer shows that this disease was well known and well treated in very ancient times. He says, in fact, that the ancients "possessed all the indications in the treatment of this disease, as well as the numerous measures and methods of putting them into execution. They had incision and excision with the bistoury; they had the ligature: and they also had cauterization in all its many forms; indeed, we are indebted to them for almost all we know upon the subject of anal fistula."

In the absence then of any particularly new ideas concerning this subject, there would appear to be no sufficient reason for taking it up. But in the face of the frequent failures attending its treatment, we are often driven to examine the subject afresh, in order to reassure ourselves concerning the ground principles of treatment.

Simple anal fistula is generally considered one of the easiest things in surgery to deal with; but the fact is that the majority of fistulæ are not simple. There are two factors complicating nearly every case, which must be understood and borne in mind in the treatment of the disease. These are the cicatricial walls of the canal and the frequent existence of collateral sinuses.

Mathews gives it as his opinion, that fistula in ano is invariably preceded by or is the result of an abscess. The importance attached to this proposition is that

the character of the abscess influences the character of the fistula resulting from it. Every abscess whether due to pyogenic or tubercular microorganisms, is lined by a new-formed membrane; and every fistula resulting from an abscess is lined by a similar membrane. In the pyogenic abscess and fistula the wall consists, in the first stages, of simple granulation tissue; but if the abscess lasts any length of time, the granulations gradually organize into tough, resisting cicatricial tissue, which forms an impermeable lining and really acts as a protective to the healthy tissues behind. In tubercular abscess and fistula, the lining membrane consists of fibrin or cicatricial tissue, which has been softened by the infiltration of numerous degenerating tubercles. This tubercular membrane is of a grayish color and may be easily stripped off in fragments by the finger or curette.

With such membranes present within a fistula, all efforts at healing are retarded; for the membrane of the first kind, through its thick tough walls, effectually suppresses granulations, and the membrane of the second kind, through the presence of the bacilli and degenerating tubercles, constantly dissolves away the granulations that may form. Consequently, in order to cure a fistula, the necessity of getting rid of its lining membrane is obvious.

The second factor to be considered in reference to any mode of treatment, is the likelihood of a collateral sinus, diverticulum, or pocket being present. Such a sinus would present the same characteristics as the main canal and should receive the same treatment. Otherwise the lining membrane will, in the majority of cases, prevent healing.

In considering what course to pursue in treating a fistula, the above mentioned conditions must guide the choice. The methods commonly adopted are four in number. They are by injection, by ligature, by the fistulotome, and by the knife. The first three are obviously not radical modes of treatment, and probably would be resorted to by the surgeon but rarely, were his judgment influenced solely by the local indications.

The methods by injection and ligature are well known and need no special consideration.

Mathews' fistulotome is an ingenious instrument and has been used with success by its inventor in a number of appropriate cases. Dr. Mathews himself, however, distinctly states that the instrument can only be deemed an expedient to be used when the patient refuses to undergo a radical operation. The instrument contains two concealed blades which, after insertion into the bottom of the fistula, may be disclosed and caused to cut through the walls of the fistula while being withdrawn. As the cutting is subcutaneous there is little or no pain. Mathews precedes the device by enlarging the whole course of the canal with laminaria tents. The method cures by cutting through the opposite cicatricial walls of the fistula, which allows granulations to spring up and fill the canal.

It is generally acknowledged that the most rational method of treating fistula in ano is by the knife; the reason being that by laying open the canal completely, the whole of its surface may be treated and nothing overlooked. But the dangers of cutting through the sphincter, no matter how carefully done, are real and the procedure is often followed by bad results. Accordingly, any reasonable attempt to

avoid this danger by less radical means than the knife is justifiable. Tuttle believes that in the majority of cases the sphincter should not be severed. He formulates his ideas as follows: "Convert the fistula into a cone-shaped cavity with its external opening for a base; scrape it out thoroughly; cauterize the surface and paralyze temporarily the sphincters and gut as high up as the highest point of the fistula by stretching." He believes that there is no excuse for converting a blind external fistula into a complete fistula until after this method has been given a fair trial. In blind internal fistulæ, however, his practice is to convert them into complete, by making an external opening, and then converting the canal into a cone-shaped cavity. Where practicable Tuttle's operation should always receive a fair trial in order to avoid the dangers of causing incontinence.

In the operation by the knife the consensus of authority agrees that the main steps of the operation should be somewhat as follows: 1, the insertion of a grooved director to the bottom of the canal, and even pushing it through into the bowel if the inner opening be not readily found; 2, the end of the director protruding into the rectum is brought out through the anus; 3, the tissues lying on the director are incised; 4, the membranes lining the canal are scraped out or dissected away, and any pockets or collateral diverticula are treated in like manner.

It goes without saying that strict cleanliness and antiseptics are in order. In addition, however, there are several factors, collateral to the above mentioned steps which will bear discussion.

Manley states that the sphincter ani is the key to the treatment of all ano-rectal maladies, and shows that nearly all rectal affections are favorably influenced by dilatation. In fistula the sedative effect of dilating the sphincter is of special value, for as the contractile tissues are put at rest, healing is allowed to go on undisturbed. Accordingly, thorough dilatation of the sphincter should precede the incision. Again, the external sphincter, which controls the escape of gases from the rectum, is generally completely severed in the radical operations; for the internal opening of complete fistulæ is usually found between the external and internal sphincters. The importance, therefore, of insuring its union is obvious. Experience teaches two facts with reference to cutting the sphincter, namely: That the muscular fibers unite better if they are cut at right angles to their course, and secondly that if the sphincter be divided in more than one place, incontinence will very likely follow. So much for the sphincter.

In tuberculous fistulæ the lining wall can not as a rule be cut out owing to its soft nature. The curette must be thoroughly used. The question of operating at all in a tubercular subject depends entirely on the physical condition. If the patient can stand the operation he will be better for it.

In reference to the inner opening of a fistula Gerster says: "When the internal orifice can not be found, or a burrow extends upward beyond it, the grooved director should be inserted as high up as the cavity or sinus permits, and thence should be thrust through the mucous membrane into the gut." The procedure quoted is logical, and is the modern practice. Formerly, entirely too much stress was laid on finding the inner opening, under the superstition that a fistula could not be cured unless the bowel opening were found.

In fistulæ that have very little tissue intervening between the canal and the rectum, it will be found after the incision is made, that the edges of the wound are thin and have a tendency to become inverted. In order to prevent inversion these edges should be quite freely trimmed off.

As a final proposition with reference to completing the radical operation for fistula, the question of the use of sutures in appropriate cases comes up. Suturing the raw surfaces in order to procure primary union was probably first thoroughly tried by Lange. The method has the further approval of Gerster, Mathews and Jenks. In suitable cases it undoubtedly hastens the cure. Lange and Gerster unite the walls by buried catgut. The sutures do not include the mucous membrane, but are inserted close to the edge on one side and brought out in the same manner on the opposite side. The object of burying the sutures is to prevent infection from fecal contents. The edges of the mucous membrane may be further drawn together where necessary. The external or cutaneous part of the wound should be only loosely sutured to allow for drainage.

AFTERNOON SESSION, JUNE 7.

The following papers were read by title: "The Pathology and Symptomatology of Hemorrhoids, Anal Fistula and Anal Fissure," by Dr. J. M. Mathews, Louisville, Ky.; "Treatment of Hemorrhoids," Dr. Charles B. Kelsey, New York; "Treatment of Anal Fistulæ," Dr. J. McF. Gaston, Atlanta, Ga.; "Treatment of Anal Fissure," Dr. Lewis H. Adler, Jr., Philadelphia, Pa.

DR. DAVID POWELL, Marysville, Cal., read a paper on the "Pathology and Symptomatology of Hemorrhoids, Anal Fistula and Anal Fissure."

DR. G. B. SOMERS, San Francisco, Cal., read a paper on "Anal Fistula."

DR. THOMAS W. HUNTINGDON, Sacramento, Cal., read a paper on "Treatment of Anal Fissure."

DISCUSSION.

DR. GEORGE G. SHIELS, San Francisco, Cal.—I came in time to hear the paper of Dr. Somers, and I want to point out the fact that he uses the term membrane, pyogenic membrane, in connection with anal fistula. New the sooner we condemn the use of this term the better. There is no membrane in fistule; there is no such thing as a pyogenic membrane. It is not a membrane in any sense of the term. It does not secrete pus, and I think it is wrong to use it. It is simply going backward to use it, and no man should allow himself to drift into the use of the term, pyogenic membrane. I want individually to condemn that very strongly.

DR. SOMERS—What would you call it?

DR. SHIELS—A mass of unhealthy granulation due to either one or the other condition. The point that I want to make is this, that a membrane is a secreting structure, it is a physiologic structure. You do not find membranes in the physiologic condition like fistule. It is merely the result of a chronic unhealthy condition leading to the formation of unhealthy granulation tissue. The term, pyogenic membrane, has passed out of the vocabulary of the scientific surgeon and is only retained in some of the older descriptive books. And I think it very wrong to use it.

DR. JULIUS ROSENSTERN, San Francisco, Cal.—I would like to make a few remarks on the paper of Dr. Somers regarding the treatment of fistule. I believe that the underlying and emphasizing thought in connection with the treatment of fistula is that it ought to be complete and not left incomplete. As a fact the membrane, as Dr. Somers called it, or rather as I find with Dr. Shiels in condemning the word, the granulations of the tissue ought to be excised and the wound united with buried catgut sutures, and afterward silk-worm gut tissues to unite the mucous membrane in the rectum. I believe that that is the only surgical method of treating fistula in ano. And I do believe that modern surgeons can not do any better than make a radical method of dealing with long standing wounds of that character and long standing fistula in ano, and they should not be satisfied with palliative measures that certainly do

no credit to the operative surgeon and do not relieve his patient very much.

DR. G. B. SOMERS, San Francisco, Cal.—In reference to the term, pyogenic membrane, I do not think that any of us understand it in the old meaning of the term. The old meaning of pyogenic membrane was the secreting membrane that secreted pyogenic matter, the source of pus. In the absence of any better term, in the absence of a substitute for it, that is for the term describing the lining of the canal, it appears to me that this appellation may be retained. I notice that in condemning the use of the word, membrane, the same word was used by the party in describing the structure.

Now in reference to cutting through the sphincter, the statistics, if statistics may be brought into the discussion, show that more than half of the operations for anal fistule in hospital practice result in failure, and it is for this reason that such men as Tuttle have been very anxious about cutting through the external sphincter and have attempted to devise some means of getting around this part of the operation. And in appropriate cases where fistula—say an external fistula may be formed into a conical-shaped cavity it appears the best method to pursue is make the external opening as large as possible, to scrape out the canal, and allow the cavity to granulate from the body.

DR. PRATT, Oakland, Cal.—If Dr. Huntington is present I would like to ask him a question. I notice that he emphasized especially the necessity of thorough dilatation. He said that it would be necessary to dilate several times. I want to know if he meant exactly what he said, or if he meant to say that we would have to dilate several times at that time, or several times on several different occasions. I did not understand his meaning.

DR. HUNTINGDON—What I intended to say and what I think I did say was to this effect, that if the method by dilatation simply was the resort, that in the large majority of cases several attempts at dilatation will be required for the relief of anal fissure. However, it is well known that they have been cured by a single dilatation, and occasionally I believe by a simple dilatation of the anal fissure has a cure been effected. That has occurred in my own experience, and as a rule, with the deep-seated affairs which we deal with more ordinarily than others, I believe that if dilatation be the method of treatment we shall have to dilate more than once; that is, we shall have to make more than one dilatation, and perhaps half a dozen.

DR. KUTZ, California—The statement was made here a little while ago that the best method of treatment was the true surgical proceeding of suture, after laying a fistula open. I hope the gentleman has not reference to all cases. If he practiced in the country where I practice, I think he would let the majority of them alone. I think all tuberculous cases should not be sewed up, for they will not unite. I have tried that in earlier days, and I have corrected my measures. I sewed up none of the tuberculous cases. They never will unite. Other fistulas, non-tuberculous fistulas, if divided thoroughly, may be sewed up, and with excellent results, but tuberculous may be treated openly, by packing with iodoform gauze or some of the other antiseptic gauzes.

DR. JULIUS ROSENSTERN, San Francisco, Cal., read a paper, omitted at the morning session, on "Treatment of Stricture of the Urethra."

DR. THOMAS, Pennsylvania—There are some things in the paper with which I am well pleased, and there are some others to which I take exception. In regard to the numbers of the sounds used in the treatment of the urethra, I think the French numbers should always be used, because the American numbers, as well as the English, are arbitrary; they mean nothing, while the French numbers always mean exactly what they enumerate.

The gentleman spoke of the use of cocain on the urethra before the use of the sound. My experience shows that the use of cocain before the use of the sound in the urethra is of very little value. Where you wish to make an incision in the mucous membrane of the urethra, cocain is then a very serviceable and useful medicament, for this reason, that in excising the mucous membrane the cocain has benumbed the sensibility, and you can cut the mucous membrane without producing pain; but in the introduction of the sound, the sensation of the sound goes far beyond the mucous membrane, and you will derive no benefit from the use of cocain in the introduction of the sound. I have observed this time and time again, so that I have discontinued the use of cocain before the use of the sound, which is always used before incising.

The gentleman is not apparently in favor of internal

urethrotomy. I agree with him, however, in the view that you can attain this by continual dilatation, and more particularly so if the stricture is of small caliber. My experience is that you can gain space for a certain distance much better, that when you get up near the circumference of the urethra your sound does not have as much effect in reducing it as it does early in the structure, for this reason, that you simply press that tissue in the sphincter, and hence you do not get the absorbing effect of the sound in these strictures of smaller caliber that you do in the case of the larger strictures. And again there are strictures that will not absorb, that may pass a sound to-day, and in three days you may fail to pass the sound which you first passed. And we can keep that up for weeks, and if we so treat our patient we are doing him no good. Now in these cases internal urethrotomy is absolutely necessary, and I do not think you can cure the patient in any other way.

With regard to divulsion of strictures of the urethra, the general opinion of the profession is against divulsion in stricture of the urethra. I never use divulsion in the anterior urethra myself, but I do wish to express a favorable opinion with regard to divulsion in certain cases, and I do this from experience. If we can relieve a man of trouble of that kind as safely, as surely by divulsion as we can by cutting, then in those cases why not divulge? I am sure that the consensus of opinion of urethral surgeons to-day is that divulsion is not a safe operation. But it is a safe operation if carefully done, and we could do it just as satisfactorily as cutting.

With regard to electrolysis, some few years ago I wrote two or three articles upon that subject for the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, because I had not entered into the subject of electrolysis with a good deal of enthusiasm, and I went into it by reading the articles of those who pretended to treat in that way. I experimented for one year upon the treatment of strictures by electrolysis. And as I have said I can not see the philosophy of treating the strictures in the deeper portions of the body and curing them, when you can not cure them on the surface, the same with fibroid tumors on the deep parts of the body, when you can not cure them on the surface. So I think that in treating strictures by electrolysis the effect is absolutely *nil*.

DR. THOMAS W. HUNTINGDON, Sacramento, Cal.—I have been accustomed for a long time to state to my patient and to his friends that I was thoroughly convinced no operation was trivial to the patient. I believe we surgeons should add to that, that no operation should be considered trivial to the surgeon. Following out this idea, and applying it to the subject which has been introduced to us this afternoon, I am just as certain that no procedure which involves a dealing with the male urethra is ever trivial. I care not what it be. We have records of deaths from the passage of the catheter. We have records of very serious trouble from the introduction of the ordinary steel sound. There is no operation which can be regarded as perfectly safe when you come to deal with the male urethra. I have been, and am yet an ardent advocate of internal urethrotomy under many conditions, not under all, and I certainly hope that it will not go out from this meeting and from this Section as its opinion, that internal urethrotomy has lost its function and has passed into oblivion. I believe that as long as any of us live, as long as surgeons operate at all, internal urethrotomy will be a resort of every surgeon, or many surgeons who are doing excellent and efficient service.

The question arises in dealing with a stricture, Why are we called upon to deal with it at all? And I think that the answer may be divided into two parts, or it may be dealt with under two heads: 1, to relieve the retention of the urine; 2, to relieve a nasty, persistent and almost incorrigible discharge. I think that covers the ground mainly of the necessity for dealing with the male urethra under those conditions. It goes without saying that where there is retention with a minimized stricture that something radical, something immediate is the requirement, and under those circumstances I should certainly have no particular choice as to the method of immediate relief from the patient. If it can be obtained by gradual dilatation, dilatation which is done in such a manner as to render efficient service within a comparatively short time, I should certainly have no objection to that method; but where we have a minimized stricture, a stricture of small caliber which has once caused retention of the urine in a patient of medium age, I believe that just so sure as we deal with it otherwise than by very radical methods we shall have a return. And I mean by very radical methods, either persistent, long-continued dila-

tation by sounds or internal urethrotomy. I say nothing of divulsion because I do not practice it, and I can not speak with any authority upon that subject. I should in these cases regard myself as subject to rules of gradual dilatation or immediate incision, and I chose the latter. I chose it for this reason, that the stricture once thoroughly incised, then placed upon stretch, watched for a period of from ten days to two or three months succeeding that operation, can be placed in a condition where it will probably never become a narrow stricture again. I do not wish to advance the doctrine that cutting a stricture is a cure absolutely, but it places it in better condition to be handled by the sound.

In regard to the second cause for the use of treatment in this diseased condition with continuous diseases, I have found repeatedly that where we have a stricture of comparatively large caliber, a stricture that may readily admit from 18 to 22 of the French sound will maintain obstinately a discharge when it has been dilated up to a 32 or 33 French measurement, and I find that it is in many cases absolutely essential to do something else than gradual dilating; that these cases are amenable to the cutting process. I have cured quite a number of cases; I believe I have a record of sixty odd cases of internal urethrotomy, and they have proved almost without exception exceedingly satisfactory.

DR. THOMAS, Washington—I was taught only a few years ago that it was never wise to pass the sound into the bladder when sounding the urethra, as Dr. Rosenstirn said in his article. About a year ago a young man consulted me with stricture in the anus and I used Post's (?) method, and followed it by dilatation until I could pass a French sound. I kept that up for several months, until I was sure I had made a permanent cure and told the young man so. Lately I was called to treat the same man for appendicitis, and I found that the stricture was there yet and in the shape that a No. 9 catheter will not pass through. I mention this to show, in deep strictures the necessity of being sure that your treatment is complete.

DR. W. T. DODGE, Mich.—I wish to say that my experience has been so satisfactory in internal dilating urethrotomy that for the past five years I have used no other methods. I have seen more severe reaction follow the passage of the sound than I have ever seen follow the use of internal urethrotomy. In the same patients I have on first examination passed a sound and had hard chills, fever and very severe symptoms follow in a few days. I have done internal urethrotomy, and no reaction has occurred. After urethrotomy the sound should be passed, the patient should be furnished with the sound, and he should be expected to use it. If the surgeon expects to effect a permanent cure by his operation of urethrotomy and does not give his patient proper instructions as to the passage of sounds thereafter he will meet with disappointments, for these strictures will return. But if the proper directions are given for the use of the sound and they are properly carried out it is impossible for a stricture to return. The sound should be passed at least once a week, and the patient to be instructed to pass it at intervals of a month for the first year, and always occasionally to pass a sound and be sure that the constriction is not returning. In strictures of the deep urethra I have used divulsion with considerable satisfaction. I have been so well satisfied that I hesitate to make use of any of the old methods of gradual dilatation, and I have never experimented with the electrical treatment.

ADDRESS.

THE ADDRESS OF WELCOME

AT THE GRADUATING EXERCISES OF THE FOURTEENTH
ANNIVERSARY OF THE COLLEGE OF PHYSICIANS
AND SURGEONS, BOSTON, MASS.,
JUNE 20, 1894.

BY AUGUSTUS P. CLARKE, A.M., M.D., DEAN.

It now becomes my pleasant duty to extend, in behalf of the College of Physicians and Surgeons of Boston, a hearty welcome to all who have come here to witness the graduating exercises of the class of 1894.

It is upward of fourteen years since this College was founded and took up the work of its noble mis-

sion in thus offering to men and to women, alike, opportunities of pursuing a regular and systematic course of practical training in the science and art of medicine and surgery which had gradually been developing, and which have come as a priceless heritage from the great masters of this beneficent profession adorning the ages and generations preceding us.

Our ever accumulating wealth and increasing population, our closer intimacy in the varied relations of life and our adoption or employment of so many inventions have tended to multiply in no small measure, dangers to life and limb and to scatter broadcast the seeds or germs of disease that are everywhere prolific in the earth, in the water, and in the air round about us.

That we should have at hand, to employ with the greatest dispatch, the means and remedies for overcoming these diverse factors adverse to our health and to our soundness of being must be obvious to all. So far as our own school is concerned, it gives me much pleasure to say that it is fulfilling its share of the work intrusted to its charge and that it is giving promise of a brilliant future.

Co-education in the profession of medicine is no longer in its elementary stage, but its trial has long since demonstrated the fact that its adoption can be of the greatest advantage to both sexes, and that the percentage of attainment by the female student, even in the most difficult branches to master, is often indicative of great industry and of original powers for observation.

The corporate capacity of our College is strong; the members of its Faculty are learned, able and earnest; they will compare favorably with those in schools of the best appointment. We are also fortunate in having on our list of active professors the names of lady physicians and surgeons of exceptional ability and reputation. Furnished with such equipments who will say that we shall not continue our service?

There is no more noble profession than ours; the student can be engaged in no higher mission than that of preparing himself for rendering relief to his fellow creatures. To whatever branch of the healing art he may turn his attention he will there find an abundance of evidence that the ground has already been pressed by the footsteps of the great and good.

There is always an innate satisfaction and exceeding joy, or I might rather add there is an immediate fullness of fruition that flows into one's whole being when a real attempt is made to scan the heights and depths of research and achievement accomplished by the men of genius who have gone before. The wise sayings of Socrates, as portrayed by his pupil the immortal Plato, are no more replete with life-giving principle than are the aphorisms of his contemporary, Hippocrates, the father of medicine. The rapturous perorations of Cicero when addressed to our understanding and common needs bespeak no more helpful strains than do the writings of the good physicians, Celsus and Galen. Newton's discovery relating to the celestial spheres and Bacon's philosophy by induction and the demonstrations of the whole galaxy of the lesser lights in their work in this direction, though most important as mile stones set to mark the onward progress of human thought, have not been more efficient in ministering to our necessities than has been the discovery of the circulation

of the blood by the celebrated Dr. Harvey, and have been by common consent of infinitely less moment in intrinsic value than has been the discovery of the anesthetic properties of ether as first demonstrated by Dr. Morton in this our metropolis of New England.

The medical student in advancing upon his professional studies, will have for contemplation the mighty achievements left as abiding witnesses of the zeal and industry of such savants as Eustachius, Vesalius, Malpighi, Boerhaave, Albinus, and Williams and John Hunter, and a host of others, to say nothing of the great workers who have given possibility to results not heretofore obtained in obstetrics, gynecology and abdominal surgery.

I refer to the invaluable contributions by McDowell, of Kentucky; by Sims, by Emmet, by Peaslee, by Dunlap, all in our own country, and to the deductions and demonstrations of M. Lemaire and of M. Pasteur, of Paris, and to those of the elder Simpson and of Lister, of Scotland, and to the long list of contributors who have worked on German soil and whose names will ever shine in more resplendent glory than will the names of the greatest European kings.

I should not detain you longer with such recital and with further remarks of my own; but my official position prompts me to extend to you again a most cordial welcome, and to add to this our warmest salutation the following German sentiment which I trust may not be deemed inappropriate:

"Möge jeder Tag mehr dazu beitragen, volles Verständniss und Wahre Freundschaft, unter uns allen zu fördern." (May each day be helpful in advancing us to a full understanding, and in establishing among us true friendship.)

SOCIETY PROCEEDINGS.

American Surgical Association.

Annual Meeting held in Columbian University Building, Washington, D. C.

FIRST DAY—TUESDAY.

The Association was called to order by the President, Dr. J. EWING MEARS, of Philadelphia, who delivered the President's Address. In this was considered only matters of interest to the Fellows of the Association, referring to the previous work of the Association, and the methods of best carrying on the work of the society.

The Secretary, Dr. J. R. WEIST, on behalf of the President presented the Association with a gavel which had been made from a portion of the office chair of Professor S. D. Gross, the founder of the Association. This was accepted with the thanks of the Association.

The first paper was entitled,

THE SURGICAL TREATMENT OF EMPYEMA,

by Dr. JOHN ASHURST, JR., of Philadelphia.

The following summary was presented:

1. No operation is justifiable unless the presence of pus is certain; unless thorough treatment by medicinal agents, blisters, etc., has failed; or unless the symptoms, dyspnea, etc., are so urgent as to demand immediate relief.

2. The first operation should consist of simple aspiration, with antiseptic precautions.

3. When the fluid has partially re-accumulated, as it almost certainly will do, if purulent, incision and drainage should be practiced.

4. Drainage is best effected by making two openings, one at the lowest point, and carrying a large drainage tube through the cavity from one opening to the other.

5. Drainage should be supplemented by washing out the cavity with mild antiseptic fluids; when the lung has expanded and the discharge has nearly ceased, the tube should be shortened, the upper opening being allowed to heal, and

the tube then being gradually withdrawn through the lower opening.

6. When the lung is so bound down by adhesions that it can not expand, resection of two or more ribs should be practiced (Estlander's operation, so-called) in order to allow collapse of the chest wall and to promote healing by bringing the costal and visceral layers of the pleura into contact.

7. The more extensive operations of Schede and Tillmans, while probably justifiable in exceptional cases, are not to be recommended for general employment.

Dr. CHAS. B. NANCREDE of Ann Arbor—did not see the advisability in cases where pus was shown to be present by aspiration, of limiting the treatment to this operation. It is held that in a few cases this will be followed by cure, but he had never seen such a case. Where pus is present he preferred to immediately provide for its permanent evacuation. He called attention to the danger of the drainage tube becoming occluded by the pressure of the ribs and he believed that in empyema of long standing some form of excision of the ribs should be employed.

In irrigation, if the pus is not too much contaminated, sterilized water is sufficient, but if necessary an efficient antiseptic solution may be used and if there is fear of absorption, the chest can afterwards be flushed with sterilized water.

If provision is made for the free escape of pus, he had seen no necessity for the removal of large segments of ribs.

Dr. T. F. PREWITT, St. Louis—thought that the rule that no operation is justifiable unless the presence of pus is certain, needed modification. As a rule, we can now determine only that fluid is present and can not be sure that it is pus. He thought it advisable to aspirate even when serous fluid is present. If thorough antiseptics is maintained this can do no harm. He had never seen it result in the formation of pus, and this method greatly shortens the duration of the disease. In empyema in children he had seen several recoveries follow aspiration but never in adults. In children the pus does not seem to possess that thick clotting character so common in adults, and which requires a free opening. In empyema in adults he invariably resects a rib, sometimes two ribs.

Attention was called to the great necessity of caution in the administration of anesthetics in cases of this affection.

As to washing out the cavity, he always does that, using a weak solution of bichlorid of mercury.

Dr. DEFOREST WILLARD, Philadelphia—It seemed to him that the whole question was one of thorough drainage of an abscess cavity. Whether or not the ribs should be excised is to be determined by the question of securing free drainage. In children the ribs are so close together that removal of a portion of ribs is usually required. In the early treatment he favored the use of a clean aspirator rather than to compel nature to cause the absorption of a large quantity of fluid. Such operation does no harm and saves several weeks in time. He believed that washing as a routine measure did more harm than good. If the pus is decomposing it indicates that freer drainage is needed. If strong antiseptic solutions are employed there is danger of renewed inflammation.

Dr. JOHN E. OWENS, Chicago—called attention to the necessity when evacuating pus from the chest, or washing out the pleural cavity, of changing the position of the patient during the process in order that all the pus may be removed.

Dr. CHRISTIAN FENGER, Chicago—considered that there were certain cases in which Schede's operation was required. Its place was after milder measures such as incision, drainage, and Estlander's operation. He reported a successful case where this operation was performed after other measures had been resorted to during seven years.

Dr. ROSWELL PARK, Buffalo, N. Y.—thought that the treatment of empyema should be based upon the same principles as are applicable to other abscesses. In acute cases where we have to deal with streptococcus and staphylococcus forms of suppuration, it may be sufficient in a few instances to simply aspirate. A large proportion of cases of empyema, however, are essentially cold abscesses—tubercular abscesses. In these cases free incision, free drainage and excision of a rib is required. In certain cases he had resorted to scraping with the sharp spoon, and in some had cauterized the diseased surface with 50 per cent. solution of chlorid of zinc. He reported several cases where death would have occurred had it not been for some such radical operation.

Dr. W. H. CARMALT, of New Haven, Conn.—asked how far it was justifiable to go in the way of resection of ribs in these cases? He reported a recent case in which he had

removed portions of five ribs, the longest piece excised being four and one-half inches. In these cases, it is necessary to remove enough of the chest wall to permit of obliteration of the cavity. He had also used the sharp spoon in order to secure a fresh surface.

DR. M. H. RICHARDSON, of Boston, Mass.—said that the questions that arose in the treatment of empyema were different from those in ordinary abscess, for in the former condition we have an abscess with rigid walls. With regard to drainage, he had used double tubes provided with valve, but considered them inapplicable and liable to cause increased trouble, for when air or pus is forced out through the tubes by coughing, a vacuum is established and the valve is held against the chest wall, preventing drainage. He believed that Estlander's operation was applicable only to certain forms of cavity and that there were certain cases where the cavity involves a large portion of the thorax, in which the operation of Schede is the only one applicable after a failure of Estlander's operation.

DR. STEPHEN F. WEEKS, of Portland, Me.—thought that the rule of Dr. Ashurst to aspirate, especially in children, was a good one. Sometimes that will result in cure. The tuberculous cavity is to be treated differently than the cavity where this condition does not exist. Thorough drainage is sufficient in many cases. He called especial attention to drainage by packing the cavity with sterilized gauze. In twenty-four hours he removes the gauze and washes out the cavity.

DR. L. McLANE TIFFANY, of Baltimore, Md.—considered that the treatment of acute empyema was of more importance than that of the chronic form, as it was the more common. The most important point as bearing upon treatment and prognosis is the character of the pus and its bacterial cause. The reason that the child's empyema often yields to aspiration is that in many of these cases the pus is simply a pure culture of the pneumococcus. In the adult we rarely have the pneumococcus form. Here we have a mixed infection. If the empyema is of the amœbic form the patient dies. If empyema is due to the streptococcus, the odor is offensive and the cavity needs to be carefully washed out. If empyema is due to the staphylococcus washing out is not required. When there is time he prefers to withdraw some of the fluid with the hypodermic syringe and have it submitted to bacteriologic examination.

While he uses ether in general work, in these cases he prefers the use of a few whiffs of chloroform, which appears in these cases to have a peculiarly happy effect. Only a very small quantity is employed.

The employment of respiratory gymnastics is of much benefit in favoring the expansion of the contracted lung.

DR. JAMES McFADDEN GASTON, of Atlanta, Ga.—referred to the natural tendency for the empyemic cavity to open spontaneously in the anterior part of the chest. He reported two cases in which this spontaneous opening had occurred, followed by recovery.

DR. W. W. KEEN, of Philadelphia, read a paper entitled:

AMPUTATION OF THE ENTIRE UPPER EXTREMITY (INCLUDING THE SCAPULA AND CLAVICLE) AND OF THE ARM AT THE SHOULDER-JOINT, WITH ESPECIAL REFERENCE TO METHODS OF CONTROLLING HEMORRHAGE; WITH THE REPORT OF ONE CASE OF THE FORMER AMPUTATION AND FOUR OF THE LATTER.

In this paper were considered: 1, those amputations which allow of simple disarticulation at the shoulder-joint itself; 2, those cases in which the axilla is invaded, yet to such an extent as to allow of its being thoroughly cleaned out, followed by amputation at the shoulder; and 3, those in which removal of the entire upper extremity including the scapula and clavicle is required.

Simple amputation at the shoulder-joint: Here the control of hemorrhage is the key to the situation. The methods for the prevention of hemorrhage are first, those applicable to the subclavian vessels, and second those applicable to the axillary. Most text-books recommend compression of the subclavian by the thumb or well-padded key. Dr. Aldis has modified this method by substituting a stick eighteen inches in length with a pad of sterilized gauze at its extremity. This obviates the danger of slipping and can be applied without fatigue on the part of the operator. The author had suggested compression by means of a solid pad held in position by an Esmarch bandage passing over the perineum, but on trial in the case of a child this had proven unsatisfactory. A third plan consists in ligation of the subclavian artery. This is objectionable on account of the necessity of

resecting the clavicle in order to ligate the vein, and if the vein is not ligated there is danger of the entrance of air.

Axillary methods: 1, those in use prior to the introduction of Esmarch's tubing; 2, different methods of using Esmarch's tubing. Under the first head we have: *a*, compression of the inferior flap by the fingers which seize the vessels before they are cut; *b*, Harvey's method by compression of the vessels by means of a padded ruler thrust into the axilla; *c*, ligation or seizure of the vessels with hemostatic forceps before they are cut; *d*, Gross' compressor, but practically this is never used; *e*, Furneaux Jordan's method by making a circular amputation at the surgical neck, securing the vessels as in a hip-joint amputation, the blood vessels having been compressed by an Esmarch band or other method, followed by disarticulation of the upper end of the humerus.

Under the second head are: *a*, after making the antero-external flap, a stout pin is passed through the postero-internal flap between the vessels and the bone and elastic tubing wound over the ends of the pin. In this method there is danger of the vessels retracting above the constricting band; *b*, Esmarch's method in which an elastic tube is placed in the axilla and drawn tight over the shoulder, where it is grasped by the hand of an assistant. This is open to the danger of slipping of the bandage after disarticulation of the bone; *c*, Morre's method. In this method the tubing is applied as in the Esmarch method, but is held in place by a bandage passing around the chest and under the tubing in front and behind; *d*, Wyeth's method by pins and elastic tubing. In this method the operation is performed as follows: The arm is held at a right angle to the body. The sharp-pointed cylindrical pins, eleven inches long and one-fourth of an inch in diameter, are used. The anterior pin is introduced through the middle of the anterior axillary fold at a point a little nearer the body than what may be called the center of the fold transversely. The point of emergence is of much greater importance than the point of insertion; this should be one inch within the tip of the acromion. The second pin is introduced at a corresponding point through the posterior axillary fold, emerging an inch within the tip of the acromion. The point of emergence is of importance, for if the pin emerges near or at the tip of the acromion, the moment the head of the humerus is removed, the tubing is apt to slip downward and compress the two flaps against each other, thus hiding the cavity and permitting the vessels to retract. The pins being in position a piece of rubber tubing is wound around the axilla and shoulder on the hither side of the pins. The disarticulation having been effected, the main vessels and all visible vessels are tied and the tubing removed, the vessels spurting being grasped with hemostatic forceps. The author considers this the most satisfactory method of controlling hemorrhage, and he felt confident that any one who adopted it would abandon all other methods in its favor except, possibly, in emergency cases.

Amputation at the shoulder joint in cases in which the axilla is invaded so high that Wyeth's pins can not be used. In 1812, Dalpech proposed to make "an oblique incision extending from the external third of the clavicle to an inch above the inferior border of the great pectoral muscle. We thus discover and can cut near to its origin on the coracoid process of the scapula, the lesser pectoral. The index finger is then carried through the cellular tissue along the serratus magnus, then the subscapular, and is used as a hook in order to draw outward the mass of vessels and nerves. The artery is found in the anterior portion of this mass. The artery and vein are then ligated. The advantages of this method are that it gives wide access to the axilla, that we can determine with ease how far and how great is the invasion of the axilla, and if thought advisable, the operation can be abandoned at this point, or if it is decided to proceed with the operation the incision already made serves as the inner part of the deltoid incision. The author had employed this method with great satisfaction in a case where a sarcoma of great size had invaded the axilla nearly to the clavicle.

As a rule, recovery from this operation follows in from two to three weeks. The mortality in the more recent operations has been extremely low,—one in fourteen. Again by this method we can often amputate wide of the disease in consequence of the relative smallness of the flaps required. In view of these facts the author urged that in all cases of malignant disease of the upper end of the humerus, or even of the lower end when it is already diffused, we should not content ourselves with mere amputation at the shoulder joint, but should at the same time extirpate the scapula and clavicle.

The author reported a case in which the arm, scapula and clavicle were removed for myeloid sarcoma, occurring in a woman aged 20 years. The operation was done Nov. 20, 1893. The patient recovered and is still perfectly well.

DR. ROSWELL PARK, of Buffalo, N. Y.—said that he had had two cases of total removal of the upper extremity both of which had been successful. One was for railroad injury and the other for extensive epitheliomatous ulcer. In the first case the clavicle was already broken and the subclavian vessels were secured at the point of fracture. In the second case the clavicle was divided and the vessels tied.

DR. CHAS. B. PORTER, of Boston, Mass.—as an illustration of the rapidity with which malignant disease may advance, reported the case of a patient with sarcoma of the radius where the arm was amputated above the elbow. The disease soon recurred and amputation at the shoulder-joint was made and again the disease (sarcoma) recurred so high up that no operation could be employed. The whole history of the case extended over only one year after the first operation. A case was also reported where the arm had been torn off in a railroad accident where he had subsequently removed the scapula and outer portion of the clavicle by an osteoplastic resection and the sound was closed by skin grafts. Three months later a hard plate of bone had formed very similar in shape to the scapula.

DR. JOHN ASHBURST, JR., of Philadelphia—said that he had once used the Wyeth pins satisfactorily in an amputation at the shoulder-joint. Another device to which he had resorted in several cases was to make the incision in the lower flap from without inward and secure the vessels in the wound.

SECOND DAY—WEDNESDAY.

The first paper read was that of DR. J. S. BILLINGS, Surgeon U. S. A., on

METHODS OF TEACHING SURGERY.

There are two classes of students: 1, the average medical student who is presumably to become a general practitioner; and 2, those who wish to specially fit themselves for surgical work. For the first class the work should be divided between the professors of pathology, of surgery, of clinical surgery and demonstrations. Such students should be taught diagnosis and the best methods of treatment of the injuries and surgical diseases which the general practitioner is most often called upon to treat.

Taking up the question, "How are these subjects to be taught?" we find that there are five principal methods: Didactic systematic lectures, recitations, demonstrations and practical instruction by means of manikins, cadavers and animals, theoretical clinical lectures in the amphitheater, and practical clinical instruction in ward classes.

In the old-fashioned type of medical school, the professor of surgery taught the principles of surgery, gave considerable attention to surgical anatomy and was as well the teacher of clinical surgery. At the present time in a large medical school, the subject of surgery is subdivided among a number of teachers, and under these circumstances the difficulty is to avoid useless repetitions and embarrassing contradictions, and at the same time cover the whole field of surgery. There should be a professor of pathology and the relations between him and the surgeon should be intimate and friendly, while each should be independent of the other. As regards the teaching of surgical anatomy by a teacher distinct from the professor of surgery and the professor of anatomy, there is considerable difference of opinion.

Clinical teaching is the most attractive to the average student and is often the most useful to him because he remembers it better, but as a rule clinical material is not available to cover the whole field and it is therefore necessary to add some systematic didactic teaching. This didactic teaching may cover the whole field, the clinical teaching illustrating the didactic lectures. In this way the student has the benefit of the repetition. Undoubtedly the more clinical instruction of the right kind that can be given, the better for the student and for the school. There is no doubt as to the great utility and popularity of teaching to small sections or ward classes. In employing this method care must be taken that the people do not get the idea that in a teaching hospital the interests of the patients are not as fully consulted as they should be.

Recitations and quizzes are excellent methods of teaching for the majority of students, but are only well adapted to small classes. It appears more desirable that these should be applied to the clinical teaching than to the didactic lectures.

In the clinical and didactic lectures too much of the history and literature of surgery should not be included, but every school should have a course of lectures on these subjects including bibliographical methods.

The man who intends to be a surgeon should not only make a special study of surgical anatomy but should do a considerable amount of practical laboratory work in bacteriology, pathologic histology and experimental pathology and physiology. Much of the operative technique can be learned on animals, but much of it requires work on the cadaver with frequent repetition. Of great importance is residence in a hospital.

The author suggested that perhaps too much time was devoted to embryology and morphology as a basis of the study of anatomy. The study of anatomy should be kept up throughout the course and made a part of the final examinations.

In concluding, the author asked: "Would it not be good policy for a first-class popular medical school to limit the number of pupils which it will accept to its capacity to give them proper instruction in laboratory work in practical anatomy and in clinical medicine and surgery?"

This was followed by a paper by DR. JOHN CHIENE, of Edinburgh, on

THE TEACHING OF SURGERY.

In discussing this subject one must begin with a warning: The personal equation relating to himself and the traditional equation relating to his school must be allowed for and discounted. The teaching of surgery resolves itself into two heads:

1. Systematic consideration of general principles illustrated by clinical examples.

2. A clinical—bedside—opportunity given to observe, to use and to educate all the faculties, physical and psychical.

Under either head the teacher must be a learner; the student must be a teacher. The teacher has constantly to warn the student against a blind belief and at the same time he has to speak most decidedly in giving his opinion. The practice of surgery to be successful must be dogmatic. It has been objected to systematic lectures that now that we have books there is need of a hundred lectures on every subject. Those who hold these views can never have known the stimulus of speech; can never have felt the electrical impulses passing between hearer and speaker.

The method of teaching surgery in Edinburgh was then described.

In conclusion, the writer wished to add a word with reference to the teacher of surgery. He believed in a fallow time, in a time of rest from mental activity. The best rest is change of scene. He suggested the advantages that would accrue from an interchange of chairs in the great English speaking educational centers. In this way once in seven years a teacher would for a session leave his alma mater and speak to the students of another school. Or the fallow might take another aspect; give a teacher a session off every seven years and let him do in it what seems to him good.

The discussion of these papers was participated in by Dr. J. Collins Warren, of Boston; Dr. W. W. Keen, of Philadelphia; Dr. Hunter McGuire, of Richmond, Va.; Dr. Chas. B. Nancrede, Ann Arbor, Mich.; Dr. P. S. Conner, Cincinnati, Ohio; Dr. W. S. Forbes, Philadelphia, Pa.; Dr. Robert F. Weir, New York, N. Y.; Dr. T. F. Prewitt, St. Louis, Mo.; Dr. John E. Owens, of Chicago, Ill.

SURGERY OF THE KIDNEY.

By DR. L. McLANE TIFFANY, of Baltimore. The subject was such a large one that the author considered only those points which offer opportunity for difference of opinion. In the human body, bilateral organs are more than sufficient for the carrying on of life; not only may one such organ be removed without impairing existence, but even the remaining organ may be more or less damaged and yet life be carried on. Any paper on surgery of the kidney at the present day must take into consideration the influence of disease of the kidney on various operations on general surgery. The influence of anesthesia on the healthy kidney should be considered. In 150 cases of operation where healthy kidneys were present, albumen was found only in 2 per cent. of the cases after operation. Every case of railway accident and in some other cases where the patient had been exposed for a certain time, showed albuminous urine on admission to the hospital. In these cases operation has not been deferred on this account. Cases of advanced diabetes have not been operated on. In cases with healthy kidneys the amount of urine passed in twenty-four hours following operation is

diminished in quantity, the specific gravity usually being a little higher.

In the early stages the difficulty of diagnosis is great; especially is it difficult to recognize whether the trouble affects one kidney or both. Here it is that the cystoscope offers great opportunity. A moderate amount of urine, with a low specific gravity and an habitual low temperature independent of the condition of the pulse are danger signals more important than any other. In the recognition of the kidney affected we have to rely on pain, pressure and the cystoscope. The treatment before operation consists in exciting the kidneys to secrete by means of infusion of digitalis, acetate of potassium and infusion of buchu. Acid urine and pus suggest pyelo-nephritis very strongly. It is the author's habit not to operate until the patient's kidneys are acting well. After operation strychnin hypodermically is a useful addition to the previous treatment. The hot air bath has proven unsatisfactory in chronic cases.

When an operation on the bladder is called for and there is evidence of disease of one kidney or decided pain in one kidney suggesting disease, that kidney should be operated on at the same time as the bladder. Twice the speaker had done lithotomy in stone in the bladder, the lithotomy being done and the kidney opened at one and the same sitting. All went well. In another stone case, within two weeks acute suppurative inflammation took place and was followed by death. In a second case there was a similar occurrence.

SURGICAL TREATMENT OF SURGICAL KIDNEY.

This paper was read by DR. ROBERT F. WEIR, of New York. Suppurative pyelo-nephritis, suppurative interstitial nephritis and surgical kidney are the ordinary names given to a disease which originating as a rule in the bladder generally affects both kidneys. In this affection the kidneys are congested and studded with foci of pus. Dr. Delafield states that: "So far as I know all cases die."

It is difficult to say how often the affection is limited to one kidney, but this may not be infrequent. Even where both organs are involved it may be that something may be done for the relief of tension and the egress of pus by means of free incision made into the kidney substance.

With the happy experience of this case, the reader considered it hereafter justifiable, if the patient's general condition would warrant it, in a case of acute septic invasion of the kidneys, to make on one or both sides an exploratory incision not only in the hope of relieving the acute interstitial invasion, but also of perhaps encountering a larger and well defined focus of pus—which pathologic condition can not always be readily discriminated from the more dangerous lesions of the veritable surgical kidney. Should the symptoms point, as in the case narrated, to one kidney only, or should a double exploratory incision show the same result, a nephrectomy may with some hope be resorted to.

SURGERY OF THE URETERS.

By DR. CHRISTIAN FENGER, of Chicago. Accidental wounds and subcutaneous ruptures of the ureter have not as yet been objects of direct surgical procedure, upon the ureter at the seat of lesion.

Catheterization of the ureters from the bladder for the purpose of diagnosis has given valuable information. The procedure is reasonably practicable in the female. In man catheterization is practicable only through epicystotomy.

Catheterization of the ureter from the bladder as a curative measure for the evacuation of hydro- or pyonephrosis, has occasionally been performed. This is more difficult and uncertain than nephrotomy and the attempt to find and remedy the stenosis of the ureter from the pelvis of the kidney.

Dilatation of strictures of the female ureter by elastic bougies has been tried from the bladder with temporary success, and from the pelvis of the kidney successfully.

Permanent catheterization of the ureter from the bladder, a fistula or an implanted ureter is often tolerated only for a limited time and must be employed with caution.

Uretero-lithotomy is a safe operation by the extra-peritoneal method.

Intra-peritoneal ureterotomy should be done only when access outside of the peritoneal cavity is impossible, and should be completed by careful suturing, covering with omental or peritoneal flap and drainage.

Opening of peritoneal cavity to locate the seat of stone may occasionally be necessary, but when the diagnosis is once made ureterotomy should be done by the extra-peritoneal method.

In valve formation or stricture of ureter causing pyo- or hydronephrosis or a permanent renal fistula, nephrotomy

should be followed by exploration of the ureter. This is to be done by a long flexible silver probe or an elastic bougie. The size of a bougie that will pass a healthy ureter is from No. 9 to No. 10, French scale.

Loss of substance of the ureter too extensive to permit of uretero-ureterostomy or too high up to permit of implantation into the bladder may be treated by implantation in the skin or into the bowel. Implantation into the bowel is objectionable. Implantation on the skin in the lumbar region may have to be followed by secondary nephrectomy, which, however, is much less dangerous than the primary operation.

The discussion of these papers was postponed until Thursday morning.

EXECUTIVE SESSIONS.

THIRD DAY—MAY 31.

Officers elected: President, Dr. F. S. Dennis, of New York. Vice-Presidents, Dr. J. R. Weist, of Richmond, Ind.; Dr. J. B. Roberts, of Philadelphia; Secretary, Dr. M. H. Richardson, of Boston; Treasurer, Dr. N. P. Dandridge, of Cincinnati, Ohio; Recorder, Dr. DeForest Willard, of Philadelphia; Member of Council, Dr. T. F. Prewitt, of St. Louis, Mo.

The next meeting will be held in New York City. Dr. Dudley P. Allen, of Cleveland, Ohio, was elected to membership.

The following were elected to honorary membership: Sir Spencer Wells, F. R. C. S., London, Eng.; Dr. William MacEwen, Glasgow, Scotland; Dr. M. H. E. W. Schede, Hamburg, Germany; Prof. Ernst v. Bergman, Berlin, Germany; Prof. Karl Thiersch, Leipzig, Germany; Prof. Theodor Kocher, Bern, Switzerland; Prof. Jules E. Péan, Paris, France.

DISCUSSION ON PAPERS ON RENAL AND URETERAL SURGERY.

DR. M. H. RICHARDSON, of Boston—emphasized the importance of examination of the urine prior to all operations. In regard to the method of performing nephrectomy, he dwelt upon the abdominal method, the incision being made in front laterally. This enables the operator to control bleeding which is the chief source of danger in the operation. In this method the surgeon is able to determine the presence or absence of the other kidney. He believed that by this method the mortality of nephrectomy would be greatly reduced by so providing for hemorrhage that it could not be an element in the mortality.

DR. H. H. MUND, of St. Louis, Mo.,—agreed with Dr. Tiffany that in traumatic lesions of the kidney, even gun-shot and stab wounds it is not always necessary to do nephrectomy. He had seen such cases recover. He had also met with a number of cases of extensive laceration of the kidney from contusion, in which there was no external evidence of such injury. In many of these cases recovery without operation. Where operation was needed he believed that partial nephrectomy was justifiable. If necessary a secondary operation can be done. The removal of kidneys so injured, as a primary operation is apt to be disastrous.

In pyelo-nephritis and renal lithotomy the first operation should be tentative, consisting of incision and evacuation, the kidney being allowed to remain; a secondary operation being performed if necessary. He did not favor the abdominal incision for the removal of the kidney on account of the risk of infecting the abdominal cavity in suppurative conditions of the kidney, and because the lumbar incision was usually sufficient and if necessary it could be extended and the abdomen opened.

DR. T. F. PREWITT of St. Louis—called attention to several cases of renal stone, laceration, etc., coming under his observation. One of these cases was that of a man who had passed scales of stone by the urethra and in whom operation showed a stone in the pelvis of the kidney, with several small detached particles. He was unable to offer an explanation of this separation. With regard to diagnosis, he held that a large amount of pus, with a small amount of mucus in the urine indicated that the trouble was in the kidney rather than in the bladder.

DR. STEPHEN H. WEEKS, of Portland, Me.—reported a case of a man who developed an abscess in the groin after having had symptoms of renal colic some months before. On opening this abscess, pus was discharged and subsequently a small calculus was passed. No urine was discharged through the abscess at any time. The sinus has since almost healed.

DR. WILLIAM H. CARMALT, of New Haven, Conn.—reported the case of a woman on whom it was thought nephrectomy might be required. On preliminary examination through an abdominal incision only one kidney could be discovered.

The patient died three years later and autopsy showed that the second kidney was located in the pelvis.

THE TREATMENT OF MALIGNANT DISEASE WITH THE
TOXINES OF ERYSIPELAS

was read by DR. WILLIAM B. COLEY, of New York—The author had in a previous paper reported ten cases treated by the injection of living cultures of erysipelas. The first case was one of an inoperable recurrent sarcoma of the tonsil. The injections were continued some time without causing an attack of erysipelas, but finally a culture from a virulent case of the disease was used and caused erysipelas. The tumor ceased to enlarge, the general condition improved and the patient is still living, three years after the beginning of the treatment. Six of these ten cases were sarcomata and four carcinomata. In only four of the cases was erysipelas produced. Those cases in which the disease was not induced seemed to be as much benefited as those in which it was, and this led to a trial of the toxic products instead of the living cultures. The effect also of a combination of the toxines of the bacillus prodigiosus with those of the streptococcus of erysipelas was also employed and found to be more satisfactory than that of the latter alone. Since December, 1892, thirty-five cases of inoperable malignant disease were treated by the injection of the toxines of these two organisms. Twenty-five were cases of sarcoma, seven of carcinoma and three either sarcoma or carcinoma. Among the cases reported were the following:

A case of sarcoma of the abdomen and pelvis followed by recovery.

A case of recurrent sarcoma of the back and groin with entire disappearance of the tumor and no recurrence four months after cessation of the treatment.

Sarcoma of the iliac fossa with partial disappearance of the tumor, the health of the patient being perfect.

Inoperable sarcoma of the abdominal wall; entire disappearance under treatment.

Sarcoma of the leg recurring after amputation with enlargement of the glands of the groin; marked improvement but still under treatment.

Enormous round-celled sarcoma of the neck and thyroid with marked improvement.

Large pulsating round-cell sarcoma of the ileum and buttock. Marked diminution in size.

In the eight cases of carcinoma treated there has been marked improvement in two, slight improvement in four and no effect in two. In no case has the tumor disappeared.

Of the total number of cases treated there is reason to hope for a permanent cure in five. Nine cases showed a marked improvement, eight showed only slight and temporary improvement, while in two there was no apparent effect. One of these latter was an osteo-sarcoma of the sternum in which only four injections were given. The other case was a sarcoma recurring after removal of the tertir and in which owing to the condition of the patient only small doses could be employed. The spindle-celled and mixed-cell sarcomata seem to be the most susceptible to the action of the toxines, and periosteal and osteo-sarcomata less susceptible.

An important element in the success is the character of the culture employed. Cultures from any but virulent cases have but little effect. With regard to the manner in which the treatment acts, the author was inclined to base the explanation on an acceptance of the micro-parasitic origin of malignant disease. It is only in this way that we can explain the effect of this mode of treatment.

The following conclusions were presented:

1. The curative action of erysipelas upon malignant tumors is an established fact.

2. Its action is much more powerful in sarcoma than in carcinoma.

3. It is chiefly due to the toxine of the erysipelas streptococcus which may be isolated and used with safety.

4. Its action is greatly increased by the addition of the toxine of the bacillus prodigiosus.

5. The toxine to be of value should come from virulent cultures and should be freshly prepared.

6. The results obtained from the use of toxines without danger are so nearly if not quite equal to those obtained from an attack of erysipelas that inoculation should never be resorted to.

VENOUS TUMOR OF THE DIPLÖE.

This paper was read by DR. LEWIS S. PILCHER, of Brooklyn. The case reported differed from others which had been described, in that the tumor did not communicate with the

longitudinal sinus, but was essentially a large venous cavity into which numerous diplöic veins opened. The patient was a girl aged 15 years. When 5 years of age she fell and struck the top of her head. Within a few days a small soft swelling was noticed at the site of injury without pain or tenderness. This gradually increased in size. At the end of five years, it was lanced and a small quantity of clotted blood extruded. It immediately refilled. It was repeatedly opened with the same result. She came under the observation of the author in 1894. At this time there was a prominent tumor over the site of the anterior fontanelle, about two and a half inches in its largest diameter. Over the convexity of the tumor the skin was thin without hair. In the right anterior quadrant of the base an elevated plate of bone could be felt. The tumor was soft and could be diminished very slightly in size. It was gradually enlarging. March 14, the author operated for the relief of this condition. The tumor was opened. In the anterior part of the base, the cranial bone was wanting and over a space of two and a half by one and a half centimeters the dura mater was exposed. Certain venous channels of the diplöe were seen to be opened and from these free bleeding took place. The overhanging bone edge was cut away with bone forceps, the base of the cavity was well curetted, and the cavity packed with iodoform gauze, and as far as possible the wound was sutured. No complication disturbed the after course of the case.

FOURTH DAY—FRIDAY.

Paper of DR. GASTON, of Atlanta, on

MOOTED POINTS AS TO FRACTURES OF THE ARM, WITH NOTICE
OF AN IMPROVED SPLINT.

The purpose of the paper was to ask attention to practical considerations touching the treatment of fractures near the articulations of the arm. In cases of fracture complicated with dislocation, the author saw no advantage in first setting the fracture, but preferred to reduce the dislocation before treating the fracture, and efficient means should be taken to prevent the recurrence of the dislocation.

With regard to fractures at the wrist, the only one in which there is any notable diversity of opinion is the Colles fracture, which occurs from half an inch to one inch from the carpal articulating surface. After considerable experience with the double pistol-handle shaped splint in the treatment of Colles fracture the author had never seen a case in which there has remained any permanent impairment of the use of the fingers or the wrist joint, nor has any material deformity followed the treatment.

Fractures above and below the elbow. Dislocation of the head of the radius or the upper part of the ulna is frequently observed in connection with fractures of the lower extremity of the humerus. These require correction before the fracture is treated. In considering whether the arm should be dressed in the extended or flexed position, we should investigate thoroughly the bearings of tending into the axilla with a crutch-like termination, and the lower branch reaching the wrist.

In the treatment of fractures near the elbow, the author applies a roller bandage from the fingers to above the seat of injury, and with the arm in a flexed position pasteboard splints are molded to its inner and outer surfaces. These splints extend from the wrist to the shoulder. An internal angular splint is applied to the outside of the dressing until the pasteboard has become thoroughly dry. This dressing has all the advantages of plaster-of-paris and can be removed daily if it is so desired. The results of this method have been entirely satisfactory.

Fractures near the head of the humerus. These may be intercapsular or may only implicate the tubercle outside of the capsule. The most frequent seat is through the surgical neck. It is for this class of cases that a special splint has been devised by the author, the object being to effect extension and counter extension and keep the fragments in place and at rest.

THE REMOVAL OF STONE IN THE BLADDER, WITH THE
PRESENTATION OF A NEW LITHOTRITE.

By DR. W. S. FORBES, of Philadelphia—The points considered were:

1. The measured crushing resistance of vesical calculi.
2. The lithotrite from a mechanical point of view.
3. The measured strength of the lithotrite.
4. A new lithotrite.

A table was given of the size, displacement, specific gravity and measured crushing resistance in pounds and ounces of 183 human vesical calculi. The strongest calculus in this group took on the testing machine 406 pounds to crack it.

Several took upward of 300 pounds to crack them. In testing the strength of the lithotrites on the testing machine, the strongest lithotrite, No. 33 F., made by Tiemann & Co., had the female blade bent at 650 pounds. A Thompson lithotrite, No. 29 F., made by Weiss, London, bent badly at 333 pounds, on the same testing machine. The practical bearing on these observations is that the strength of the lithotrite may be tested and stamped on it before it leaves the instrument maker's shop, thus enabling the surgeon to begin his operation knowing the strength of the lithotrite.

The testing apparatus for determining the force required to crush the stone and the strength of the lithotrite was exhibited and demonstrated. The apparatus was the invention of Mr. John S. Forbes, son of the author. Mr. Forbes had also devised a new lithotrite designed to furnish a stronger instrument and obviate some of the defects of former instruments.

EXTIRPATION OF THE LARYNX.

By DR. WM. H. CARMALT, of New Haven, Conn. In this case the operation was done in such a way as to permanently close the opening into the mouth so that there should be no communication with the lungs. He was induced to do this by his knowledge of a case in which the larynx was extirpated and the opening to the mouth subsequently closed. The operation was done two and one-half years ago by Dr. J. Solis-Cohen, of Philadelphia, and the man gained the power of speaking loud enough to be heard in a large room. This was preceded by swallowing or drawing air into the pharynx.

DR. JAAVIS S. WIGHT, of Brooklyn, exhibited a number of instruments including needle forceps, self-threading needle, aneurism needle forceps and a new form of knife provided with a beak, substituting the use of a grooved director.

The following papers were read by title: "The Effect of Erysipelatous Attacks on Tuberculosis," Dr. De Forest Willard, of Philadelphia; "Hernia," Dr. W. T. Bull, of New York; "Cases of Extra-uterine Pregnancy with Remarks," Dr. M. H. Richardson, Boston; "Treatment of Urethral Vegetations by a Circular Cutting Curette," Dr. John B. Deaver, Philadelphia; "Report of Surgical Cases," Dr. Chas. B. Porter, Boston.

Medical Society District of Columbia.
Report on Typhoid Fever.

The committee appointed by the Medical Society to report upon the subject of typhoid fever in the District of Columbia begs leave to make the following report:

The consideration of this subject by the Society is justified and demanded by the very great prevalence of typhoid fever and by the large number of deaths, which gives Washington a most unenviable position among American cities.

It is right that a disease which is known to be preventable, which has been almost abolished in some of the capitals of Europe, should receive here, in the capital of this country, the closest study and attention. If the causes of its persistence are known, if, above all, these causes can be removed, it is our part and duty to make the facts public and to arouse public attention to the necessity and urgency for action. Who is better fitted to speak authoritatively on this subject than the Medical Society of the District, whose members are in daily contact with the disease, and who have every opportunity to study the modes of its diffusion among our population?

The committee has endeavored to present, as briefly as possible, the data upon which an intelligent judgment can be formed. The magnitude of the task of making a complete study of typhoid fever in all of its aspects must be apparent to all, and the committee must ask an indulgence for the imperfection of the report in many of its details. Much could only be touched upon, much had to be omitted. The importance of the subject demands continued observation and study, and it is suggested that the work be continued from year to year in whatever way seems best to the Society.

The committee is indebted for much valuable assistance from the District Commissioners and their assistants, who have all shown great interest in the work of Society in this investigation.

The accompanying report will consider:

1. The prevalence and mortality of typhoid fever in the District.

2. The relations of the dissemination of the disease to the a, public water supply; b, to the pollution of the soil with the leakage from privies, from defective sewers and from the backing up of sewerage from tidal movements; c, to the drinking of well or pump water; d, to contaminated milk and to other causes.

3. The difference in mortality in different areas of the city, with a view to discover the causes.

4. Conclusions based upon the foregoing data, as to what measures should be taken to diminish the spread of the disease.

PREVALENCE AND MORTALITY OF TYPHOID FEVER IN THE DISTRICT OF COLUMBIA.

The following table gives the statistics of typhoid fever in the District of Columbia from 1881 to 1893, the ratio of deaths from all causes and the total deaths based upon the records of the health office of the District:

Typhoid fever in the District of Columbia, 1881 to 1893, inclusive.

| Years. | Popula- tion. | Deaths from ty- phoid fever. | Ratio of deaths from typhoid fever to 1,000 deaths from all causes. | Ratio of deaths from typhoid fever to each 10,000 population. | Total deaths. |
|------------|------------------|---------------------------------------|--|---|------------------|
| 1881 . . . | 188,000 | 67 | 16.2 | 3.6 | 4,186 |
| 1882 . . . | 188,653 | 120 | 26.2 | 6.3 | 4,571 |
| 1883 . . . | 194,980 | 92 | 21.4 | 4.8 | 4,286 |
| 1884 . . . | 200,000 | 76 | 16.0 | 3.8 | 4,814 |
| 1885 . . . | 200,000 | 124 | 25.0 | 6.2 | 4,998 |
| 1886 . . . | 205,000 | 125 | 27.2 | 6.2 | 4,674 |
| 1887 . . . | 210,000 | 116 | 25.0 | 5.5 | 4,685 |
| 1888 . . . | 225,000 | 168 | 38.6 | 7.4 | 5,040 |
| 1889 . . . | 250,000 | 170 | 33.3 | 6.8 | 5,152 |
| 1890 . . . | 250,000 | 208 | 37.7 | 8.3 | 5,564 |
| 1891 . . . | 250,000 | 208 | 36.6 | 8.3 | 5,720 |
| 1892 . . . | 260,000 | 183 | 30.4 | 7.0 | 6,098 |
| 1893 . . . | 285,000 | 186 | 28.6 | 6.5 | 6,452 |

From 1881 there has been an almost uninterrupted yearly increase of the death rate, the highest point being reached in 1890, with a ratio of 8.3 to 10,000 inhabitants. In 1891 the rate was 8.3; in 1892 it had dropped to 7.0, and in 1893 to 6.5. The lowest mortality, 3.6 and 3.8, was in 1881 and 1884. The past nine years show a greater number of deaths, representing a larger number of cases, than at any previous time. In the past two years the ratio has been less than in the previous seven years. An exception should be made to the percentage of 1893, as given in Table 1. It is based upon an assumed increase of 25,000 population in one year. This is not thought to be justified by the actual increase of previous years, and the percentage of 6.5 as the ratio of deaths in this year should be much higher, as high, certainly, as 1892, which is 7.0 to 10,000 population.

The actual number of annual deaths has increased from 67 in 1881 to 208 in 1890 and 1891, both years reaching the same number. In 1892 there were 183 and in 1893 186 deaths.

In Table 2 the ratios of deaths in the white and colored population is given, in the ten years from 1883 to 1893, inclusive. The whites had an average mortality of 5.8 and the blacks of 7.8 to 10,000 population. Here, as in the general mortality statistics, the high death rate is due largely to the greater fatality of typhoid fever among the colored race.

Typho-malarial fever is not included in these tables. If death from this cause were added to those from typhoid fever, as they should be done, the percentage of fatal typhoid cases would be much higher than here given. The present drift of opinion is to abandon this term altogether, as it leads to continued confusion and error. That it is being abandoned may be inferred from the decrease in the death returns from this cause *pari passu*, with increase in the returns of typhoid fever. (See chart.)

Table 3. Deaths from typho-malarial fever and malarial fevers in the District of Columbia from 1881 to 1893:

| Deaths from typho-malarial fever in District of Columbia. | Deaths from typho-malarial fever in Balti- more. | Mortality from malarial fevers in District of Columbia. | Mortality from malarial fevers in Baltimore. |
|--|---|--|--|
| 31 | 50 | 99 | 27 |
| 44 | 44 | 112 | 22 |
| 38 | 48 | 93 | 24 |
| 34 | 66 | 66 | 23 |
| 30 | 75 | 78 | 27 |
| 17 | 58 | 53 | 30 |
| 22 | 55 | 99 | 28 |
| 14 | 41 | 62 | 24 |
| 28 | 33 | 80 | 23 |
| 35 | 54 | 68 | 19 |
| 20 | 39 | 62 | 26 |
| 23 | 33 | 62 | 19 |
| 18 | 31 | 85 | 25 |

The mortality from malarial fevers, as seen in the above table, is still greater than seems possible; the progressive falling off in the number of fatal cases shows either that malarial diseases are on the decrease or that there is a change of opinion as to the nature of many cases of fever.

In order to represent more clearly the extent and fatality of typhoid fever in this city, maps have been prepared which accompany this report.

Map 1 is compiled from the maps of the health office, and is made up of an aggregation of the fatal cases occurring in residences in five years from 1888 to 1892, inclusive, and shows the number of deaths during that period.

There were in the whole city 626 deaths in residences.

The same map shows the number of deaths from the malarial fevers, including the deaths from typho-malarial fever. The actual number of deaths from typho-malarial fever in the five years was 120, an annual average of 24. There were 328 deaths from malarial fevers in the same period in residences, an annual rate of 66. No one can believe that malarial fevers have any such mortality in the District, and we are forced to the conclusion that many of the fatal cases of malarial fevers are also typhoid fevers. In public institutions and in the county the fatal cases of malarial fever numbered 130 in the five years, making a total of 458 deaths from this cause.

The map shows that there is a coincidence in locality of the deaths from typhoid fever, typho-malarial fever and malarial fevers.

Deaths in the public institutions, hospitals and in the county are not represented on this map; there were 201 in the hospitals and 90 in the county.

Map 3 shows the locality of deaths from diarrheal diseases. Here, too, the area of greatest mortality is the same as that of typhoid and the malarial fevers.

Table 4 gives a comparative statement of the mortality from typhoid fever here and in a few of the chief cities of this country and Europe. The average annual mortality in the District to 10,000 population was 6.2; in Philadelphia, 6.3; Chicago, 7.8; Boston, 4.1; Baltimore, 4.1; New York, 3.1; Paris, 6.1; Berlin, 2.0.

Comparative statement of the number of deaths per 10,000 inhabitants from typhoid fever in the cities named during the years 1881 to 1893, inclusive, and the general average therein:

| Years. | District of Columbia. | Boston. | New York. | Philadelphia. | Chicago. | Baltimore. | Berlin, Germany. | Paris, France. |
|----------|-----------------------|---------|-----------|---------------|----------|------------|------------------|----------------|
| 1881 . . | 3.6 | 5.2 | 4.8 | 7.4 | | 5.7 | 4.7 | 8.7 |
| 1882 . . | 6.3 | 5.1 | 4.0 | 7.7 | | 4.6 | 3.0 | 14.3 |
| 1883 . . | 4.8 | 4.6 | 4.7 | 6.3 | | 3.4 | 3.0 | 8.4 |
| 1884 . . | 3.8 | 5.0 | 3.5 | 6.1 | | 4.0 | 1.8 | 7.0 |
| 1885 . . | 6.2 | 3.8 | 2.9 | 6.4 | 7.4 | 4.0 | 1.9 | 6.0 |
| 1886 . . | 6.2 | 3.4 | 3.0 | 6.3 | 6.8 | 3.8 | 1.6 | 4.2 |
| 1887 . . | 5.5 | 4.6 | 2.9 | 6.2 | 5.0 | 3.4 | 1.3 | 6.1 |
| 1888 . . | 7.4 | 4.1 | 2.3 | 7.7 | 4.5 | 3.8 | 1.4 | 3.3 |
| 1889 . . | 6.8 | 4.1 | 2.5 | 7.0 | 4.1 | 4.5 | 1.3 | 4.4 |
| 1890 . . | 8.3 | 3.4 | 2.2 | 6.3 | 8.4 | 5.6 | 1.9 | 2.9 |
| 1891 . . | 8.3 | 3.3 | 2.3 | 6.4 | 16.0 | 3.3 | 0.9 | 2.2 |
| 1892 . . | 7.0 | 2.9 | 2.2 | 4.9 | 10.3 | 4.2 | | |
| 1893 . . | 6.5 | | | | | | | |
| Avg'e | 6.2 | 4.1 | 3.1 | 6.31 | 7.81 | 4.19 | 2.08 | 6.14 |

The large chart adopted from the valuable report of Erwin F. Smith, now of the Agricultural Department, on "The Influence of Sewerage and Water Supply on the Death Rate in Cities," shows the comparative mortality in different cities of this country and Europe. We will have occasion to refer to this chart later.

CAUSES OF THE PREVALENCE OF TYPHOID FEVER.

What interests us most is to trace the cause of the disease as it exists here, and in so doing it is assumed in this report that the question of its etiology is definitely settled, and that the conditions underlying its prevalence are: 1, an impure water supply; 2, the imperfect drainage of a polluted soil; 3, infected milk; 4, and other causes.

1. The water supply of our city and the District comes chiefly from two sources, the Potomac River and the wells which are scattered about the city and county.

By reference to the tabulated list of cities (Table 5) it will be seen that Washington, out of fifty of the largest

cities, stands second in the list, with a per capita and per diem supply of 177 gallons. Only Buffalo, with 196 gallons, is better supplied, while Philadelphia has 111 gallons, Baltimore 92, Boston 89, and New York 74.

Much of our public water supply is used in government buildings and in public fountains.

It is not possible to compare the extent of typhoid fever in cities with abundant water supply with those which have an imperfect supply, or none at all, for cities well supplied with water are at the same time furnished with a good sewerage system, and it is not possible in most cities to separate these conditions so as to discover the influence of water supply alone.

The example of Dantzig, however, shows that an abundant water-supply alone does not diminish the death rate. This city was supplied with water in 1869, and sewered in 1872. No marked diminution in the death rate of typhoid fever occurred until after the introduction of the sewers. Washington, with a daily individual supply of 177 gallons, has an average annual mortality of 6.2, while New York, with 74 gallons per capita, has 3.1 deaths yearly to 10,000 population. Abundance of water alone, as might well be supposed, does not limit the spread of typhoid fever.

There is evidence enough to show that the public water supply may be contaminated with typhoid bacilli, and thus propagate the disease. The epidemic at Providence, R. I., in November, 1888, which was traced to the pollution of the water of the river with fecal matter from typhoid cases, three and a quarter miles above the pumping station, is a case in point. The bacilli were found by Pruden and Ernst in the filters of the Providence houses. It is an admitted fact that the disease has often been originated in this way, but it is a question as to what value this mode of infection has as compared with others. Does the typhoid fever, which is the chief endemic fever of Washington, owe its continued existence to recurring or continued infection from this source? Would we eliminate the disease by purifying the Potomac supply and destroying all its organic life?

Von Pettenkofer and other authorities do not believe in this as a usual mode of infection; it is a popular belief, easily laid hold of, easily understood, but difficult to prove.

The Potomac water has been subject to very careful analyses, and "in general, the water may be said to be in excellent condition and to compare extremely favorably . . . with that of other cities. Its chief defect" is "the presence of suspended clay in the winter" and after heavy rains in any season.

The value of the so-called biologic analyses of drinking water is, as Theobald Smith says (*Medical News*, Philadelphia, April 9, 1887), still very unsettled. As the result of one year's observation made by him, a relation was found between turbidity and the presence of bacteria. Bacteria were most abundant in winter, January and February having the highest average; August, September and October, the months of the greatest prevalence of typhoid fever, having the lowest. Bacteria, most of which were harmless, were most abundant after heavy rains, and their presence in association with turbidity proved the then source from the washing of the surface of the soil.

In the latest bacteriologic report on Potomac water, Theobald Smith adheres to this statement, and says that fecal bacteria and turbidity were coincident—that is, that rainfall carries into the Potomac whatever may happen to be on the surface of the soil; clay, manure from the fields, inorganic or organic matter of any sort. The nature of the country through which the Potomac flows, much of it being mountainous, as well as the absence of large cities on its banks, diminish the risks of infection. As the country comes more and more under cultivation, turbidity and impurity from the washing of plowed and manure-covered land will be more common. The possibility of the introduction into the water of the microorganism of typhoid fever is dependent upon its presence in localities washed by the Potomac and its tributaries. The question, after all, is not whether typhoid fever can be propagated in this way, but whether, as a matter of fact, it is propagated in this way. Before this question can be determined other probable sources of origin must be considered.

It is an unjustifiable conclusion, that because fecal bacteria are found in Potomac water, therefore typhoid fever is usually propagated by the drinking of Potomac water. Bacteriology may lead us astray here, and data of a very different sort must receive due weight before a logical conclusion can be reached.

(To be continued.)

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SATURDAY, JULY 14, 1894.

THE DOCTOR'S HOLIDAY.

The opinion was expressed by the late SIR HENRY HOLLAND, that every physician needs an annual holiday for the recreation and recuperation of his physical and intellectual powers. His own practice was to take a holiday of three months' duration which he would spend in a yachting trip to Norway or on the Mediterranean, or devote to some similar and equally agreeable diversion. He thought that if the profession generally would adopt his advice and follow his example, they would be better physicians and more useful to the community during the remaining portion of the year than if they had kept steadily at work. There is sound philosophy in this teaching. It is a convenient but selfish assumption by their patients, that physicians are superior to the ills that flesh is heir to. In fact, the physician is popularly regarded as the repository of all the secrets of hygienic and therapeutic art, whereby every one might be kept in good health, if, indeed, he might not even enjoy perpetual youth, if he only chose to live according to disciplinary rule and method, and swallow the prophylactic dose of disagreeable drugs in proper season. We know, however, that this is not exactly in accordance with fact. If doctors do as a general rule have better health than their neighbors, it is because their vocation makes them sober, earnest men, who are liable to be called upon at any time, and at briefest notice, and ready to promptly assume the responsibility of life and death, at the bedside of the sick or injured. Plain living and high thinking are probably exemplified more in the ranks of the medical profession of to-day, than in the followers of any other calling. Leading more temperate lives, they may have better health than some who are accustomed to require their services; still, they are but mortal, and they are sometimes unpleasantly reminded by infirmity, or failing health, of their

common humanity when, alas, it may be too late to remedy the evil.

If a holiday will increase the efficiency of the doctor by improving his health, it is a duty which he owes to his patients, as well as to himself and his family, to temporarily lay down his work and to seek, among novel surroundings and unaccustomed scenes, a new stock of impressions and a new store of health. In fact, physicians living at some altitude claim that it is only by descending to the ocean level for a few weeks or months, every year, that health can be permanently maintained, or that cerebral injury can be prevented. Others living upon the plains, find inspiration and health in mountain climbing, while all sedentary workers are benefited by occasionally taking a pedestrian or equestrian tour, or by outdoor sports, such as fishing and hunting. The ancient temples of ÆSCULAPIUS were not placed amid thickly populated scenes; but in localities where HYGEIA could be worshiped in her native home, among the woods and near mineral springs, whose healing waters too readily obtained the credit of therapeutic result. This is beautifully expressed in the following stanzas, which deserve a place in all of our text-books on medicine:

"The murmur of a waterfall
A mile away,
The rustle when a robin lights
Upon a spray,
The lapping of a lowland stream
On dipping boughs,
The sounds of grazing from a herd
Of gentle cows.
The echo from a wooded hill
Of cuckoo's call,
The quiver through the meadow grass
At evening fall,—
Too subtle are these harmonies,
For pen or rule,
Such music is not understood
By any school;
But when the brain is overwrought,
It hath a spell,
Beyond all human skill and power,
To make it well."

Certain it is that great truths seem to find their most fitting expression in metrical phrase or poetic language. The sanitary lesson thus pleasantly brought to our attention is worth pondering seriously on account of the important interests at stake. An ounce of prophylaxis is said to be worth a ship-load of Galenical therapeutics; and, if we take the former in time, it may be possible to fulfil the thought of HOLMES and allow the latter to sink into the sea with all its direful consequences to the fishes, and corresponding advantage to humanity.

A TYPICAL ANTI-VACCINATIONIST.

Time was when the outcry of the anti-vaccination paranoiac against JENNER and his discovery found ready vent through the columns of the daily press, to the disquiet of many a worthy soul. It is among the encouraging signs of an increasing spread of in-

telligence that he has met with so little of editorial favor during the recent smallpox excitement. But the crank still lives and gets an occasional hearing. His latest noteworthy appearance is in the *Boston Globe* of the 22d ult., and it is noteworthy solely on account of the individual—not at all on account of his utterances, which are of the usual stereotyped character. The individual in this instance is one "RUFUS KING NOYES, M.D.," a person who for some months occupied the attention of the medical college faculties, and of the courts of three States some ten or a dozen years ago.

The *Boston Globe* is one of the influential newspapers of New England and in order to enable it to antidote whatever of harm its quasi-indorsement by publication of NOYES' screed may have worked, the following facts in the history of that champion of anti-vaccination are placed at its service:

In 1880, RUFUS KING NOYES, an anti-vaccinationist of some local notoriety in Lynn, Mass., obtained a charter of incorporation for the "Bellevue Medical College of Massachusetts"—a colorable imitation of the title of the Bellevue Hospital Medical College of New York. Two years later a "diploma" of this concern, signed "Rufus King Noyes, M.D., *President*," was presented to DR. RAUCH, then Secretary of the Illinois State Board of Health, and a license to practice medicine was demanded thereon. An investigation of the Boston "Bellevue" was at once set on foot, during which letters written by a young journalist resulted in an agreement by NOYES to furnish for \$150 tickets showing attendance upon two courses of lectures, and a "diploma" of graduation from his "college" to a man whom he had never seen; who had never been in Boston in his life; who only claimed to "hav bin Redin medesin about a year;" but who, having "ben tending on Sick purty Near all (his) life," thought he had a "Purty Good Idee about the Bizness;" and who furnished a thesis on "Vaccination," in which he professed to be ready to make "a Strong kick on the Part of our noble Proffession against the Inseartion into the Pure Blood and Vitle fluid of our Inosent offspring of that Diseas of the animals cow-pox."

This correspondence was begun in October, 1882, and on Nov. 2, 1882, NOYES wrote:

DEAR SIR:—You, as a candidate for graduation, have been favorably considered by the faculty, and your thesis has been examined by the Professor and found to be acceptable. . . . You are correct on the Vaccination question, and I am confident you will meet with continued success. Your diploma will be sent C. O. D, one week from the date of this letter. It will be securely packed in a pasteboard box. Your bill for diploma and two tickets is \$150," etc.

On receipt of the "diploma" it was promptly turned over to the United States authorities, together with the correspondence, as the basis of a prosecution for illegal and fraudulent use of the United

States mails—that being, as it was advised, the only ground upon which a charge could be made. On the trial NOYES and his coparceners pleaded that they were legally incorporated and empowered by the laws of Massachusetts to issue diplomas and confer degrees without any restriction as to course of study or professional attainments. The United States Commissioner held the plea to be valid and dismissed the case, saying:

"The law makes the faculty of the college the sole judges of the eligibility of applicants for diplomas. There is no legal restriction, no legal requirements. If the faculty choose to issue degrees to incompetent persons, the laws of Massachusetts authorize it."

Whereupon the "American University of Boston," the "First Medical College of the American Health Society"—now the notorious "Vermont Medical College" at Rutland, Vt.,—the "Excelsior Medical College," *et al.*, were immediately incorporated and the Massachusetts diploma-selling industry developed into magnificent proportions for a time. But, as MR. KIPLING remarks, that is another story.

"RUFUS KING NOYES, M.D.," the diploma-mill manipulator of 1882 is the typical anti-vaccinationist of 1894, and his diatribes should find no place in the columns of a reputable newspaper.

NOT METHODS, BUT RESULTS.

In a recent issue of this JOURNAL¹ some comments were made upon the remarkable argument urged in an address on the subject of "cramming in our medical schools." The argument was against the higher standard of medical education now in vogue as compared with that of a few years ago, the result of which, it was claimed, has been "to increase the hardships of the medical student."

DR. BAYARD HOLMES has been moved to discuss the same subject and arrives at the conclusion that State control of medical education is the remedy for the defects, abuses and evils in the present system. "It would pay the State," he says, "even if it were not its duty as the only capable corporation and the one most interested, to support, direct and conduct all the medical education of the country. This will be done so soon as we, as a nation, value men above all other products of our clime; so soon as men believe that the Kingdom of Heaven may come here in this world as the *Pater Noster* indicates; so soon as selfish men cease to exploit for their own aggrandizement, the sacred labor of medical education; so soon as our universities apply the same ethical and pedagogic principles to their medical departments as they use in directing their other graduate schools."

Meanwhile it remains to suggest and again urge that the divorcement of the educational from the licensing agency will do much toward bringing about

¹ A Singular Plea for the Udfit. JOURNAL AMERICAN MEDICAL ASSOCIATION, June 23, 1894.

the medical millennium for which DR. HOLMES is so earnestly laboring. Let the consensus of the profession fix the standard of qualification for the practice of medicine and then let the State apply that standard regardless of where or how the applicant obtained the qualification. The welfare of the public and of the profession is not involved, primarily, in the methods of medical instruction, but in the results. In regard to an applicant for the right to practice, neither the profession nor the public is greatly concerned in the question, "Where did he study?"—but rather in the question, "Has he learned?" Not in "How long has he studied?"—but "What does he know?"

LIABILITY FOR PROMISE TO CURE.

The case of *Boscow v. State*, decided by the Court of Criminal Appeals of Texas, May 23, 1894, was an appeal from a conviction, in the Fayette County Court, of obtaining money under false pretenses. The party so convicted insisted that because the information charged, as a part of the false pretenses relied upon, that he was to perform certain acts in the future, to-wit, to cure the wife of the complaining witness, the same could not be made the basis of swindling. It is true, says the Court, that, if the witness had relied on the promise, it could not be swindling; but, it holds, that where the promise is connected with the false pretense of an existing fact, as that the pretender was a physician, and at that very time associated with other physicians known to the witness, and he thereby obtained a credit and influence with the latter that he could not otherwise have obtained, it would support the charge. A part of the false pretenses upon which the money was alleged to have been obtained in this instance was that the party in question was a member of a medical institute in San Antonio, in which there were twelve physicians. One of these, the Court holds, was competent to testify to the falsity of such statement.

SURVIVAL OF ACTIONS FOR MALPRACTICE.

At common law, rights of action for injuries to the person terminate with the death of the wrong-doer. In order to secure their survival, various statutes have been enacted in the different States providing for their maintenance against the personal representatives of the deceased. Michigan has a statute which provides that if any person professing or holding himself out to be a physician or surgeon, shall be guilty of any malpractice, an action may be maintained against such person so professing, whether licensed as a physician and surgeon or not, and another, which provides for the survival of actions "for negligent injuries to the person." The executors for a deceased physician sought, in the case of *Norris v. Grove*, decided May 18, 1894, by the

Supreme Court of Michigan, to secure the vacation of an order continuing an action for malpractice against them. They contended: 1, that by the latter act the Legislature did not intend to include actions for malpractice; and 2, that the amendment to the general statute, relative to the survival of actions, can not be held to be an implied amendment of the statute respecting actions for malpractice. The latter contention is, the Court thinks, without force. Provisions conferring a remedy, and those which limit the time within which such remedy may be employed, and those which relate to survival, are rarely found in the same statute. The statute provides for the survival of all actions for negligent injuries to the person. The word, "person," is evidently used in contra-distinction to the word, "property." It is true that the books speak of wilful malpractice, negligent malpractice, and ignorant malpractice; but the Court does not consider it necessary to determine, in this case, whether all actions for malpractice would survive under the statute in question. Yet it does hold, that unless the injury be a negligent injury, the action will not survive, and that it is the right of an injured party to elect to treat an act as negligent, although it was in fact wilful and malicious. It is no more difficult, it says, to determine the negligence of an injury in an action for malpractice than in any other action for injury to the person. After thus expounding the law, and for the reasons given the Court denies the relief prayed.

CORRESPONDENCE.

Intestinal Putrefaction (Auto-Infection).

It seems remarkable that with all the teliologic acumen of our profession, one of the principal causes of disease has been hitherto almost entirely overlooked—that of intestinal putrefaction, so palpable that it could not have been concealed; and it is more than probable that the largest proportion of fatalities have heretofore resulted, directly or indirectly, from that single cause. The idea is a simple cognition apart from any technical qualification; in other words, we have only to see and believe; for if we observe the natural process of digestion, assimilation and elimination we can not fail to perceive the inevitable morbid influence that must necessarily follow in the wake of delayed defecation. As soon as the mass of chyme emerges from the stomach, the elements of which it is composed begin to change their relations, and as it gradually passes down through the alimentary canal the nutritive combinations are absorbed into the circulation, leaving the remainder constantly tending to putrefaction by retrograde combinations and the addition of intestinal excretions of systemic waste; and when it finally reaches that great filtering reservoir, the colon, the greedy absorbents of that receptacle drink up indiscriminately all that remains in a fluid state, to pass into the circulation and poison the tissues wherever they go; thus crippling the vital functions and establishing disease. It is possible, however, that a part of these elements may be appropriated in some process of metabolism, while the remainder must fall on the kidneys and other emunctories to be cast out as waste. It is evident that these

excretory organs would be sufficient to eliminate the poison if the natural calls for evacuation were promptly obeyed, as happens with inferior animals that labor under no ethical restraint; for it is a fact that those animals, provided with suitable food, pass their lives exempt from disease until they are weakened and wasted by age, though exposed to all the vicissitudes of weather. And so probably might the human escape the pangs of disease by obedience to this law of Nature. During his life the writer has been curious to learn the habits of friends who seemed never to be sick, and as a general rule they have all been accustomed to free evacuations every day, usually in the morning. But we must be aware that a vast majority of our kind are guilty of procrastination, exposing them to all the blighting evils of constipation, more especially among sedentary persons, who compose the larger part of our valued population. On the contrary, those subject to constipation have never been free of some complaint, and many have succumbed to malignant diseases. These are stubborn facts and what do they indicate? They teach the absolute necessity of daily evacuations by the gentlest means and never by active purging, except in cases of extreme obstinacy; surely the great variety of laxative pills and preparations, in easy reach of every one, can supply that want.

As an excuse for this lucubration, it may be insinuated that the scribbler is a veteran of more than three score years of active service, and now claims only the rank of a medical student. "*Verbum sat sapienti.*"

ROBT. HUNTER DALTON, M.D.

Typhoid Fever.

WASHINGTON, D. C., July 2, 1894.

To the Editor:—In the report of the proceedings of the Medical Society of the District of Columbia, June 21, I am quoted as having claimed that many deaths laid at the door of typhoid fever were due to malarial fever. On the contrary, I stated that many of the deaths classed under malarial and typho-malarial fevers (especially in former years) were probably due to typhoid fever.

I did not declare that never had there been any authentic report of a case of typhoid fever resulting from well water, but I did declare that the report of the committee did not show that a single case of typhoid fever had been traced to a single well in this city.

For reasons which were given in the course of my remarks the report was characterized as sensational, contradictory and illogical; a generalization based on the barest possibilities, and fancies stated as facts.

Very respectfully,

B. G. POOL, M.D.

The Status of an Eclectic.

AUSTIN, TEXAS, July 6, 1894.

To the Editor:—If a physician be a graduate of an *Eclectic* Medical College, of the first class in standing, and said physician be, in all respects, an honorable, well-behaved practitioner of medicine, and should apply in the usual regular manner, for *membership* in a local (county) medical society of so-called *regular* physicians, can the physicians—members of said local society—elect said graduate from an *Eclectic* Medical College, a member of said local society, without violating the *Code* of the AMERICAN MEDICAL ASSOCIATION?

I am not able to find any literature giving a clear and plain answer to the foregoing question; hence, I apply to you. Please answer, as you may deem best, as to mode: either through the JOURNAL of the AMERICAN MEDICAL ASSOCIATION or privately.

Yours truly,

Q. C. SMITH, M.D.

BOOK NOTICES.

Manual of Treatment by Active Principles. Concentrations and New Remedies. By WILLIAM F. WAUGH, A.M., M.D. Pp. 248. Cloth. Philadelphia: The Medical Press Company. 1893.

This little volume is a natural outgrowth of the earlier "Outline of Dosimetric Practice" by the same author. The first third of the work contains an alphabetical list of most of our newer remedies as well as the active principles of many drugs long in use and salts of good therapeutic repute. The remaining portion comprises a list of diseases and prominent symptoms with remedies suggested and usually a special explanation regarding each one or each group. A large number of valuable hints, tersely stated, is thus ready for convenient reference, and they merit confidence because culled from standard authorities. No one can fail to realize the advantages to be derived from the wider use of active principles and this work is to be commended as a step in that direction.

NECROLOGY.

SOLOMON R. GORGAS, M.D., died June 30, at Harrisburg Pa., of appendicitis. Laparotomy was performed in Philadelphia, and the diseased appendix was removed, but he died on the third day, from exhaustion. Dr. Gorgas was a member of the Dauphin County Medical Society, also of the State Medical Association and the AMERICAN MEDICAL ASSOCIATION. He was one of the Examiners for the Pension Fund and also Surgeon to the Pennsylvania Railroad Company. He was a graduate of the Jefferson Medical College of the class of 1874.

EZRA M. HUNT, M.D., the distinguished sanitarian and President of the New Jersey State Board of Health, died July 1.—Joseph P. Thomas, M.D., President of the Kentucky Medical Association, at Hopkinsville.—Wallace A. Sackett, M.D., of Dallas, Texas, June 28, aged 25. He was a native of New Albany, Ind., and graduated in medicine at the University of Louisville, Ky., in the class of 1893.—C. B. Ranes, M.D., of Rusk, Texas, June 28. He was born in Virginia on Jan. 17, 1808, and practiced medicine for sixty-two years. In 1835 he settled in Nacogdoches County, Texas, and lived in that county until 1849, when he removed to Dallas. He served throughout the war as regimental surgeon on the staff of Gen. Winfield Scott.—W. H. Ridenhour, M.D., of Toledo, Ohio, June 6, aged 70.—W. G. Austin, M.D., of New Orleans, June 15, aged 80. He was educated at Kenyon College, Ohio, and graduated M.D. at the Washington University of Baltimore in 1836. He began practice in Yazoo County, Miss., and after three years located at Bayou Sara, La. He was married in 1839, and shortly before the war was appointed a member of the State Board of Health. He was Superintendent of the Charity Hospital of New Orleans in 1862 when the city was taken by the Union troops, and he served in the Confederate Army until the close of the war. He was again appointed to the State Board of Health, in 1877, and in 1888 was United States Examiner of Drugs. Governor Nichols appointed him quarantine physician during the presidency of Dr. C. P. Wilkinson. Dr. Austin was one of the best qualified yellow fever experts in the South.—Joseph P. Connelly, M.D., of Williamsport, Pa., died June 23, 1894, aged 35 years. He was President of the Lycoming County Medical Society at the time of his death. He was a member of the Pennsylvania State Medical Society and of the AMERICAN MEDICAL ASSOCIATION. Few men of Dr. Connelly's years have attained the position in their profession that he had. He was always active in all society work, and had the respect and esteem

of all who knew him, and his death was mourned by his professional associates.—Richard H. Isham, M.D., at Louisville, Ky., June 30, aged 62.—W. R. Smith, M.D., at Sioux City, Iowa, July 1, aged 65. He was one of the pioneers of Western Iowa, was a native of New Jersey and educated in New York city. During the war he served the Government in various capacities as examiner of recruits, physician to Indians and was one of the Pension Examining Board. He was very prominent in politics and railroad circles in the last years of his life, and was one of the Commissioners of the State of Iowa to the Paris Exposition.

SOCIETY NEWS.

The members of the Illinois State Medical Society are hereby notified that the Transactions of 1894 are now in type. The Treasurer requests that those in arrears send their checks immediately to him at Springfield.

American Electro-Therapeutic Association.—The fourth annual meeting of the American Electro-Therapeutic Association will be held in New York, September 25, 26 and 27, at the New York Academy of Medicine. Members of the medical profession are cordially invited to attend.

WILLIAM J. HERDMAN, M.D., President.

MARGARET A. CLEAVES, M.D., Secretary.

American Public Health Association.—The twenty-second annual meeting of the American Public Health Association will be held at Montreal, Canada, Sept. 25-28, 1894. The following topics have been selected for consideration at this meeting: The Pollution of Water Supplies; the Disposal of Garbage and Refuse; Animal Diseases and Animal Food; the Nomenclature of Diseases and Forms of Statistics; Protective Inoculations in Infectious Diseases; National Health Legislation; the Cause and Prevention of Diphtheria; Causes and Prevention of Infant Mortality; the Restriction and Prevention of Tuberculosis; Car Sanitation; the Prevention of the Spread of Yellow Fever. Upon all of these subjects special committees have been appointed; and all papers thereon should be presented to the appropriate committee in season to be incorporated as a part of the report of the committee, if deemed advisable. The Executive Committee announces the following additional subjects upon which papers are invited: On the Education of the Young in the Principles of Hygiene; Private Destruction of Household Garbage and Refuse; Disinfection of Dwellings after Infectious Diseases; Inspection of School Children with Reference to the Eyesight.

Indian Medical Congress.—The Indian Medical Congress will be held December 24 to 29, 1894.

The objects of the Congress are to bring together medical men from all parts of the Indian Empire, to discuss medical subjects connected with Indian diseases, and to place on permanent record some of the work which is now lost to science for want of proper publication. This Congress will afford an opportunity, never before presented, for medical men who are in isolated but important positions in the different Provinces of the Indian Empire, meeting and comparing notes with their fellow-workers in subjects of mutual interest; former friendships could be renewed, and men who might never otherwise meet would become acquainted. It is proposed that the work of the Congress should be divided into the following sections:

Medicine and Pathology; Surgery including Ophthalmology; Obstetrics, and Diseases of Women and Children; Public Health; Medico-Legal Medicine and Insanity; Pharmacology, specially Indigenous Drugs.

Although the Congress is primarily an Indian one, invitations have been sent to medical men in other countries, some of whom have already accepted, and it is believed that many more will come.

A special committee has been formed to arrange for the accommodation of visitors and to provide for their comfort. The local secretaries of this Committee are: Surg-Captain H. W. Pilgrim, General Hospital, Calcutta; Dr. Prandhan Bose, M. B., Calcutta Medical School, Calcutta, to whom, or to the honorary central secretaries, applications should be made for rooms. The price of accommodation in Calcutta may be taken from rs. 7 to rs. 14 a day for Europeans, and rs. 3 to rs. 5 for Indians. Tickets of membership may be obtained from either the honorary central secretaries in Calcutta, or from the local secretaries in the different parts of the Indian Empire. An entertainment and reception committee will arrange for visits to places of interest in Calcutta and neighborhood.

Members are requested to notify to the central secretaries, or to the local secretaries of their districts, their intention to read papers and the titles of the same, which should reach the central secretaries not later than Oct. 15, 1894.

The cost of members tickets is rs. 10. Members will be entitled to a copy of the Transactions on payment of an additional rs. 10. Non-members may obtain the Transactions of the Congress on payment of rs. 25. Orders for a copy of the Transactions should be registered early.

A guarantee fund has been started, and all cheques should be sent to the honorary treasurers, Dr. Mohendra Nath Gupta, and Dr. Bolye Chunder Sen, Campbell Medical School, Calcutta.

American Academy of Medicine.—The nineteenth annual meeting of the American Academy of Medicine will be held at the "Waumbek," Jefferson, N. H., on Wednesday and Thursday, August 29 and 30, 1894. The greater part of the time is to be devoted to the discussion of certain problems relating to the Medico-Social Relations of the Medical Profession to the "Dependent Classes." The following papers may be expected:

"The Retrogressives: What Produces Them; Classification." Bayard Holmes, Chicago, Ill.

"Importance of the Study of the Subject to the Profession." Charles McIntire, Easton, Pa.

"The Provident Dispensary in England." H. Webster Jones, London, England.

Title to be announced. J. A. Spalding, Portland, Me.

"Assistance and Care for the Blind." Charles A. Oliver, Philadelphia.

"Prevention of Blindness." Benjamin Lee, Philadelphia.

"Present Status of Legislation for the Prevention of Blindness from Infantile Ophthalmia." Lucien Howe, Buffalo.

"Senile Dementia and Testamentary Capacity." J. N. Whittaker, Cincinnati.

Title to be announced. Gershom H. Hill, Independence, Iowa.

"What Agencies Conspire to Check Development in the Minds of Children?" J. Madison Taylor, Philadelphia.

"The Medical Service of the U. S. Pension Bureau." P. S. Conner, Cincinnati.

"Physical Training for Delinquents." Helen C. Putnam, Providence, R. I.

"Government Commission instead of State License." J. D. Kelly, New Haven, Conn.

"The Relation of Food Adulterations to the Dependent Classes." Henry Leffmann, Philadelphia.

Title to be announced. G. M. Gould, Philadelphia. President's Address.

Title to be announced. F. H. Gerrish, Portland, Me.

Several additional papers have been provisionally promised; if they can be read they will appear in the completed program. Arrangements have been made for a special excursion from New York and Boston and return at reduced rates. A choice is offered of an eleven days excursion, including most of the expenses, or of returning immediately at the close of the meeting, and is open to any one desirous of attending the meeting, whether members of the Academy or not. Any additional information about the meeting or the excursion may be obtained from

CHARLES MCINTIRE, Sec'y, Easton, Pa.

PUBLIC HEALTH.

Boston Board of Health.—The City Board of Health of Boston reprints and indorses the recommendations of the Massachusetts State Board of Health concerning tuberculosis and earnestly recommends their enforcement by the physicians and inhabitants of the city.

The Cholera.—Asiatic cholera is reported to be spreading in Russia with a decided increase in the number of cases and in fatality in St. Petersburg. Elsewhere on the Continent the disease attracts little general attention although sanitary authorities are exceedingly vigilant. On the 6th inst. four more cases of the disease developed among the passengers on an infected steamer recently arrived from St. Petersburg at Stockholm, and nineteen passengers had been removed to quarantine from another steamer just arrived from the same port.

The Plague.—Writing from Peking, June 20, Mr. Frank G. Carpenter gives the first coherent account of the origin and spread of the bubonic plague in China. Previous reports have attributed its spread from Hong Kong to Canton, at which latter place it was said to have made its appearance about the end of April. Mr. Carpenter asserts that the disease came originally from the interior and reached Canton during the last week of February where it speedily caused an average of 200 deaths a day. "This average steadily increased until in March and April it was 500 a day and the mortality at the present time (June 20) is very large." The disease made its appearance in Hong Kong in April, carried thither presumably by the fleeing Cantonese.

Washington Sewage Disposal.—Mr. Richardson's (Tenn.) bill to provide for the sewage disposal of the District of Columbia was discussed at a recent meeting of the Washington Board of Trade and, together with the report of the District Medical Society on typhoid fever, was unanimously indorsed and the action ordered to be reported to Congress. The bill provides for a total expenditure of \$7,500,000, of which sum \$1,000,000 is for the extension of the system of trunk sewers, \$3,350,000 for the completion of the system of sewage disposal and protection against floods, and the remaining \$3,150,000 for the improvement of streets, roads, avenues and reservations.

Hygiene in Medical Education.—At a recent conjoint session of the North Carolina State Board of Health and State Medical Society it was unanimously resolved to request medical colleges to give not less than two lectures a week on the subject of hygiene, and the Board of Medical Examiners was requested to require of applicants for license the same preparation on this as on other branches of medicine specified in the Medical Practice Act. The Secretary of the Board, Dr. R. H. Lewis, says that, while similar action has been taken by the Ohio and other State Boards of Health: "So far as we know, this is the first instance in which the organized medical profession of a State has joined in such action. It is significant of the progressive spirit that animates the profession of North Carolina."

"Scare-Head" Journalism.—The temptation to sensationalizing in matters affecting the public health, is so generally yielded to by the average newspaper that the *JOURNAL* hastens to recognize the value of such an exceptionally level-headed editorial as that in a recent issue of the *Washington Post* under the caption, "Beware of Scare-Heads," in which it advises its readers not to be alarmed because of the plague in China, or the cholera in Europe, or the yellow fever in Cuba. It summarizes the situation substantially as it has been given in this department from time to time and

says, as to cholera: "The interests of the United States in this matter were never so vigilantly represented abroad as they are now and our Eastern seaboard was never so well fortified against the introduction of cholera from Europe." As to the plague in China: "It is gratifying to know that all along the Western coast, from British Columbia down, the authorities both of the Dominion and of the United States have taken every precaution that medical skill could suggest to prevent the introduction of plague germs by ship-board." And, finally: "The symptoms of an epidemic visitation of any sort from any country are too slight to warrant anxiety, still less anything like a panicky sensation. They are just enough pronounced to remind the sanitary authorities all along the line that they have their duty to perform, which admits of no relaxation, and this, we entertain no doubt, they fully realize. The people have also a duty to discharge on their own account in exercising all possible precautions as to their own immediate conditions and the importance of carefully regulating their habits of life and maintaining the cleanliness of their surroundings." Such timely advice, so intelligently given, is in sharp contrast to the startling head-lines, sensational exaggerations, denunciation of quarantine regulations and vilification of sanitary authorities which would follow the advent of the first case of Asiatic cholera or bubonic plague upon our shores.

Sanitary Legislation Urged.—The Louisiana State Board of Health, acting in conjunction with a board of medical experts, has memorialized the Legislature of that State for the enactment of two bills—one providing for the inspection of dairies, milk and milk products, the other for the thorough inspection of meat offered for human food in the State of Louisiana. After reciting some of the general considerations for the enactment of such measures, the memorialists say: "To be brief, we will limit ourselves to the consideration of that most fatal of all diseases, that scourge of humanity, tuberculosis, better known as consumption. This disease causes more deaths than all the epidemic diseases combined. Statistics show that one-sixth of all deaths throughout the civilized world are caused by consumption. It is estimated that there are never less than two hundred existing cases in New Orleans. During the fourteen years, 1880 to 1893 inclusive, there were over twelve thousand deaths from that cause alone. It prevails the whole year round, in every country and climate, respects neither age, sex, social condition nor race, and affects every species of animals. Consumption is now recognized by the medical world to be a germ disease, caused by a special micro-organism, and communicable from man to man, and likewise from the lower animals to man. Perhaps the most frequent and least suspected cause of this infectious and fatal disease is due to the use of meat and milk from animals affected with consumption, to which disease the bovine race is the most liable. We should here notice that those animals which furnish us with our daily food, the cow, the hog and the fowl are precisely the most subject to consumption. Out of 1,058 cattle examined in Germany by Kapp, 738 were found to be consumptive. Among the animals slaughtered at the abattoirs of Berlin during the years 1887 and 1888, 4,300 were consumptive. In the United States the proportion of consumptive cows is from 10 to 15 per cent; in particular parts of the country much higher. In our city there are seven thousand cows in round numbers, and at the lowest calculation three hundred and fifty of these are poisoning our milk supply." The memorial concludes with this note of warning to the Legislature: "The Board of Health of the State of Louisiana, conjointly with the Board of Medical Experts, with due respect to your wisdom and patriotism, being aware of and appreciating its responsibility toward the people of the State, in thus asking and praying for proper legislation in securing a sound meat and milk supply, feels and emphatically so states, that in presenting the foregoing considerations it has done its whole duty in the premises, leaving the responsibility for the passage or failure of the proposed measures to the legislators."

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No. 3.

ORIGINAL ARTICLES

WHAT IS THE PRINCIPLE INVOLVED IN THE TREATMENT OF OPERATIVE WOUNDS— IS IT BIOPLASTIC AND CELLULAR, OR IS IT BACTERIOLOGIC?

SANITARY SCIENCE AND SURGERY FOR THE TWENTIETH CENTURY.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY R. E. HAUGHTON, M.D., A.D.
MIDLAND, TEXAS.

Have we any definite pathology, and if so, is it bioplastic and cellular or not? Dr. Hughes has told us in his paper, "it takes something more than a germ to excite disease." The President, Dr. Hibberd, said in his address: "The progress in medicine in the immediate future, must be along biologic lines, following the lead of Virchow, Beale, Ferrier, Pasteur, Kock, Sternberg and many others." I desire to accentuate this thought, and render more impressive what they have said.

Surgical pathology should be comprehended in the genesis of cells. Transition and relation to the tissue should not be forgotten. That surgical pathology is based upon a careful study of pathogenesis, is the line of progress which has been most successful in developing the rich stores of knowledge in the past, and must continue to do so in the future of conservative surgery. Have we forgotten the discussion of the histologic questions of bioplasm, cellular elements and tissue formation? Have we left behind us the doctrines biologic, views which were in some sense the foundation of the pathologic views of Rokitansky, McCartney, Paget and Virchow? Do we believe that there is such a thing as a generation of living cells from protoplasm or bioplasm, and that degeneration, failure and death of cells and tissues may have origin in causes remote from the influence or presence of bacteria? Do we now comprehend the laws of life force, so that we say all disease springs from their presence? Is it not true that cellular elements are born, live and die as men do, new ones taking their place? If so, do not the laws of life so indicate by succession?

This began to be more fully understood when surgeons began to comprehend the processes of inflammation, and resort to means for immediate union of cut surfaces. I will not go over this beginning of the doctrine involved in such processes. Let us remember, however, the old maxim: "That art is long, experience deceptive and judgment difficult." While we do this, let us gather up the experience of the past and present, so that we may look into the future with an increasing confidence in our art, and a growing reliance upon better and improving methods. Let us test as well as gather up the facts of

results as they come to us in the methods of surgery to-day. There are many factors which enter into this question and a rigid and just analysis of all of them will the better enable us to judge, no matter how intimately and variously may be blended the known and the unknown. Every clinical history carefully recorded is experience made alive and known, and presents to every reader the *dramatis personæ* all absorbing in interest to life and person. It is the great centralization of fact in experience, viz., *the truth*.

We go back to primeval history and with historic certainty record the history and progress of our art through the ages and with contented serenity regard the wonderful discoveries of our own age. We have arrived at the top of some table land, peak or mountain top of observation, from which we look out upon the march of time and progress, observing the advance and recession of the waves of opinion. Stretching away in front we scan the outlying surface of the progress of the future, take in the mountain ranges of difficulty passed and in prospect, and wonder what mountains of difficulty and labor shall loom up before us in the future.

Like Bonaparte, whose ambition took the world for conquest and whose genius was equal to almost all emergencies (save the field of Waterloo), when his army came to the Alps in mid-winter he said to one of his generals: "Is the ascent possible?" He was answered: "Barely possible." Said he in reply: "Let the ascent begin." In this spirit we go forward in actual achievement, in almost herculean labor amid defeat, disappointment and death, yet with evident progress and *esprit du corps*; and this spirit in Europe, Germany and France speaks to America, and America back to these and other nations; while a trans-Atlantic writer having caught the spirit of the age writes this sentiment, viz.: "The medicine of the twentieth century—sanitary science and surgery." It may be surgery with Listerism, but at any rate it will be sanitary science and preventive surgery. I mean less operation and more prevention. Whatever it may be, in the advance of our science and art, it has certainly been demonstrated that cleanliness and surgery is next to godliness in life, and we accept the inevitable and call it progress. Invested with the interest which the discussions, pro and con of the past and present, have given to us, there is no subject which can occupy our minds more profitably.

In fact, from the early history of medicine to the present, no one subject has been of more value than the one we desire briefly to present in the treatment of surgical wounds. The methods have always differed, but perhaps less widely now than ever before. One of the first things to be understood is this, viz.: That there is a vast difference between a sub-cutaneous wound and an open one. In what does this difference consist is a very important question to settle. Hence that method which gives results most nearly

like those following subcutaneous injury, and this means when reduced to its simplest terms (as in algebraic formula) that method best adapted to secure primary or immediate union. Let us stop here a moment to learn what led to this view which is now accepted by the adherents of Listerism. Thanks to the revelations of the microscope, including the investigations of Pasteur, Koch and others, the present generation of medical men were taught that fermentation and decomposition are due to myriads of organisms, and these are found everywhere pervading the air and water and are rapidly multiplied under conditions of heat and moisture, especially in albuminous and nitrogenous compounds. Pasteur also showed that fluids had undergone no change when such germs were excluded and could be so excluded by filtering the air in which they were exposed through layers of loose cotton fiber. What remarkable relation this bears to wound treatment, not known or understood at the time, but applied by the revelations of the microscope becomes applied science on the basis of deduction.

In an article in the London *Lancet*, Vol. 2, page 553, by Jos. Lister, in 1867, "On the Antiseptic Principle in Surgery," Mr. Gamgee says: "On none of my visits to the Hotel Dieu, in former years, had I seen wounds look so well, and there could be no doubt that the old antiseptic practice, with a comparatively new agent had been generalized by Maisonneuve with manifest advantage, in resisting the pernicious influences of an unhealthy hospital." He says further: "The sensational circumstances under which the antiseptic system was revived in London, excited an amount of interest which detracted professional attention from great surgical principles, viz.: Rest, position, pressure and exclusion of air in healthy houses or hospitals are conducive to the healing of the majority of wounds. Pyemia, erysipelas, sloughing phagedena, and their allies are directly produced by unhealthy surroundings in hospitals. In prevention of these, antiseptic agents are of great value, but it must be borne in mind, that their use is not necessary in surgery out of unhealthy hospitals and in the absence of other unhealthy conditions." Van Sweiten advised antiseptic applications in very bad compound fractures quoted in Percival Pott, (op. cit.) Vol. 1, page 451. Burgreave, "Le Genie de la Chirurgie," 1853, page 42, advises "the application of hydrochloric acid and honey as a topical preventive of purulent absorption and hospital gangrene."

Sedillot, "Infection Purulente et Pyemia," Paris, 1849, page 503, recommended the application to suppurating surfaces of aromatic wine, and decoction of bark, with or without the addition of sul. acid, sul. copper, or cor. sub." Boyer "advised the use of the chlorids to counteract the putridity of the blood." Gerdy, (Chirurgie Pract.) Paris, 1853, Vol. iv, page 146, urged that "the treatment of suppurations required amongst other means, disinfectants;" and surgical literature abounds in records to prove that the same principles have been carried out by a variety of means, among which are mentioned "benzoin or benzoic acid, clay, pitch, tar and chloralum. Hence a larger experience since has not yet fully convinced many eminent surgeons of the necessity at all times and places of the use of antiseptics.

"The fact is now, and has been clear that the disturbing influence of the carbolic acid controversy, as the disinfectant *par excellence* has been especially

marked in the treatment of wounds not made by the surgeon, viz., compound fractures; and in these carbolic oil, putty, gauze and spray have served to detract attention from the essentials, viz., air exclusion, rest, position, pressure. Fundamental principles have been lost sight of, while theories have had an ephemeral repute." While this has been true in some senses, and while Lister stands to this question in very much the same attitude as Sir J. Y. Simpson stood in relation to that of anesthetics, let us gather up the present facts and status of the question and see if it be a real progress or is it only seeming progress. We should also remember the history of the question so far as Lister's name is connected with it. It was in the old Edinburgh infirmary, where was ignored all notions of hygiene and healthy surroundings, when Lister began his experimental use of the treatment of wounds by carbolic spray, dressings of gauze, carbolic oil, etc. Since then, having risen into some notoriety he was called from the University of Edinburgh to London to teach surgery in the metropolis of Europe. Yet with his position and commanding influence he has not been able to enforce upon the professional mind the entire acceptance of his teachings. It is well it is so. Governed by traditions of experience and the dogmatism and conservatism which has been the result of our educational systems, the profession in both hemispheres has ever been slow to adopt new methods and new doctrines, and have usually applied with rigorous severity the reason and the facts. The history of surgery for the last decade in all the world shows better results, owing to something. The question is, What is that something? When in cases of fever we observe the temperature and pulse we now know that these are correlated to something, and we now know what that something is. We see the patient emaciating, wasting every day, and the problem is solved in the estimation of the excreta of the body by a quantitative analysis. So we now bring all questions to the *experimentum crucis* before accepting as proved any doctrine or theory. The opponents of antiseptic methods, of whom there are many, claim that the improvement is due to greater care, sanitary regulations, better dressing of wounds, the better comprehension of the nature of inflammation, the better comprehension of the vital forces in each case rather than to any special local dressing, including special antiseptic methods. One thing here, however, must now be conceded, viz.: That the dangers to be overcome in the treatment of wounds lies in those special reasons or conditions which cause a failure of primary union, and that these conditions are due in great measure to the changes, septic or otherwise, which take place in the wound, and these are believed now to be, if not absolutely proved to be, the presence of living germs. Here I am trenching upon the actual groundwork of the whole question, and for the sake of the presentation of the history of the question by observation drawn from the experience of men all over the world, we will admit that germs exist and through air and water and clothing and dressings come into contact with wounds.

All surgeons are acquainted by observation with the rapidity and safety of repair secured in the proper dressing of a simple fracture, and equally well with the dangers to limb and life in compound fractures. What constitutes the difference? It is not now believed to be in the greater severity of the lesion in

the latter above the former, but owing to some element introduced which produces a wide difference, and these are believed to be living germs which occasion septic inflammation and suppurative history. This engenders a poison which affects the entire organism. Pyemic conditions are induced, blood contaminated and poisoned and thus the danger is not so much from the nature of the wound as from the conditions which grow out of it. The demonstration is, I suppose, quite generally accepted that a large number of acute and specific forms of disease are dependent upon the development of various kinds of germs which may be specific to the form of disease produced, and modified by peculiar or special circumstances so as to give definite results.

Recent developments in the investigation of the special influence which seems to be exerted in the causation of disease shows a much more widely diffused agency by germs in the production of disease than had previously been supposed, and now the investigators are asserting that germs exist, only to be positively denied by others who are entitled to equal acceptance. The wide dissemination and existence of pathogenic bacteria at least gives an easy and more satisfactory explanation to rapidly spreading contagious and infectious disease, and that subtle factor which has been so much needed to explain the facts of contagion and infection is believed to be found in the doctrine of germs. "Pasteur's experiments, in which he cultivated the germs, show that certain forms of bacteria which were rapidly destructive and deadly may be so modified as to lose a large amount of virulence though reproduced in a similar manner, and this modification of power is shown to be only in a change of temperature to which they are subjected." The converse may also be true, and ordinarily bacteria which might develop serious difficulties in disease may be rendered harmless, or permitted by circumstances to be fearfully destructive of human life. Apply this thought to cholera and diphtheria, which are now classified in "Ziemssen's Encyclopædia of Practice" as germ diseases. Everybody knows the dangers accruing from the unhealthy wards of long used hospitals to the unfortunate sick or wounded, yet while this is so and while hygienic and sanitary law are constantly being thundered in our ears it is yet a fact that the sanitary condition of hospital and home, and city and town are such as to produce disease and death to many who ought not to die.

In the history of the ever-widening knowledge of our art the relationship of medicine and surgery become more and more intimate. The factors in the production of disease are proven in many cases to be due to germs, and (injuries) as wounds—whether surgical or otherwise—are shown to be more readily manageable in proportion as cleanliness and disinfectants are and have been tried. Processes are now known to be putrefactive and septic, hence the relation which the special causes of these conditions bear to wounds and other processes of disease are relations of primary importance. It has been claimed that the "exudation" material does not depend upon the presence of germs. That depends upon the fact whether inflammation is upon a free surface or entirely subcutaneous. "It is claimed that the germs are also found in subcutaneous injuries, while again others claim that septic organisms are primarily the source of all inflammatory and other troubles to which wounds are liable." To one acquainted with

the processes of cure in wounds in different individuals there can be no doubt that the processes of putrefaction differ very widely, and this is owing to various causes and conditions. In one case the vital state of the individual; 2, the immediate surroundings of the patient; 3, the cleanliness which is observed, all have much to do in the history.

Lawson Tait, one of the strongest and perhaps most uncompromising opponents of Listerism, while at the same time the most exquisite as to methods of cleanliness, yet shows most remarkable results without the aid of anything save excellent knowledge and clean hands. He draws a distinction and asserts a difference between germs upon the living and dead tissues, alleging that it is introduction of the latter—conveying germs and dead elements of tissue—which causes such serious consequences. In this, he is at least partly right and may be wholly so, as witness what occurs in the deep recesses of organs when dead elements are changed in form and become lodged in various structures as fibrin from the valves of the heart thrown into brain, lungs or liver followed by inflammation, abscess and consequences. Here there are no germs. Yet Stokes makes answer to this objection and argument thus, "That those who hold this view ignore the elementary fact that there never was a wound, and especially one in which vessels are tied or twisted, in which dead and living tissues are not at once brought into contact." "Also, if dead material is necessary for the growth of germs the abscesses which are found infested with myriads of bacteria in pyemia and in ulcerative endocarditis are difficult of explanation."

It must be true if we would comprehend the changes in the bioplastic material in health, that we must also understand the capacity of this material for living under greatly altered conditions and which varies greatly as we descend from higher to lower forms, the highest being destroyed by a slight alteration in the conditions, while lower forms of matter resist destruction and for long periods of time. The pus corpuscle and the particle of contagium, both of which are descendants of the germinal matter of the organism retain their vitality under conditions which would be fatal to the germinal matter from which they spring. Hence we can easily understand the statement of Mr. Tait, "That the bioplastic exudation from a wound in healthy tissues has a vitality of its own, often superior to the most active germs, and either fails to furnish them the necessary pabulum or walls them in from producing further damage and finally eliminates them from the body as is found in a localized abscess."

But mark the difference which is manifested in a devitalized patient in the processes of the growth and multiplication of these germs. Many blastema distinguished by their ready coagulability (dependent upon the fibrin contained) do not rise above the lowest grade of form development, and if germs of disease or any other kind find admission into such material or blastema it is easy enough to see that the development of cellular forms in harmony with the law of organization or development can not go on in order and harmony.

In the discussion of surgical questions in various parts of the world, we find developed marvelous improvements in English, German, French and American surgery during the last decade, and it becomes us carefully and patiently to investigate the causes of

such progress. If it be assumed that men are mistaken as to the merits of antiseptics in the surgical treatment of wounds throughout the world, to what then is to be attributed the great advance in success and the lessened mortality. When we take up the question of evidence we find Lister himself from 1876 to his British Association address presenting the doctrine and methods; and Mr. Savary in his British Association address on surgery at Worcester, hurling denunciations against Listerism while Tait and many others are arrayed as outspoken opponents, having tested it to their satisfaction. Savary, in this address, claimed from the statistics of St. Bartholomew's Hospital, as good or better results without the use of antiseptics. He also read another paper before the British Medical Congress of 1881, "On the Causes of Failure to Obtain Primary Union in Operative Wounds." He claims "that the remarkable improvement in the surgery of to-day is due to better sanitary arrangements, yet Mr. Savary admits two things: 1, the germ theory of putrefaction; 2, that his method is essentially antiseptic, embracing carbolic catgut ligatures, carbolic oil, drainage, washing the wound with a solution of permanganate of potash, or some other potent antiseptic.

Stokes, of Dublin, in his British address not only vindicates Listerism, but answers Savary by stripping his address of all its pretensions, and brings out the admissions which he makes and yet so beautifully covered up by his touches of eloquence. Keith, the ovariologist, a very competent witness, says: "For some time I have not found carbolic spray necessary, and have not used it in my twenty-seven last cases, all of which have recovered easily. With every possible care, the spray has not in my hands prevented the milder septicemia, and its effect upon the kidney was sometimes disastrous. I have seen hemorrhages from the kidney follow long operations, and two deaths in hospital patients were occasioned by carbolic acid poisoning. Though I had at one time a series of eighty recoveries under spray, I have reluctantly given it up, believing that on the whole it did more harm than good." Lister, in his discussion of the question, Is the spray really necessary? replies with candor thus: "In other words is there sufficient chance of the air of an operating theater or private room containing septic matter which can prove effective in blood serum to make it needful to regard the question of contamination from the air at all? If the answer must be given in the affirmative and the choice must lie between the spray and antiseptic irrigation during the operation at intervals, or with syringing the cavity of the wound after dressing and with every precaution, then I should give my voice decidedly in favor of the spray, as being more certain of attaining its object and involving less irritation of the wound, and also in the use of carbolic acid much less risk of carbolic poisoning." He says further: "I should not feel justified, except on perfectly established grounds, in omitting any part of the technique by which results so important to our fellow creatures have been arrived at. Finally, if further investigation should confirm the conclusion to which our recent facts seem to point and it should indeed be proved that all idea of atmospheric contamination of our wounds during operations may be thrown to the winds, then no one will say with more joy than myself: 'Fort mit dem spray.'"

Notwithstanding the earnest advocacy of careful

antiseptic surgery by such men as Esmarch, Volkmann of Germany, Spencer Wells, Thornton, McCormac, Gant, Prof. Humphrey of England, Dr. J. Marion-Sims, now dead, (all honor to his memory) with many others, the reports of the British Congress made out a verdict that antiseptic surgery had received its doom and Listerism was dead. And so the refrain has been gathered up and echoed across the continents, and the AMERICAN MEDICAL ASSOCIATION, at St. Paul, through its members proclaimed with added proof that "Listerism was dead."

Why this refusal of men in both hemispheres to accept the doctrine, if tested by sufficient experience; if not proved then wait the results of more patient and conservative testimony before reaching a final judgment. It must grow out of the impatient restraints of dogmatic teaching, or otherwise it grows out of hasty and imperfect conclusions by men who ought to be in such positions as would enable them to decide upon the value of antiseptic treatment. So late as Nov. 5, 1883, the discussion before the London Medical Society was protracted an hour beyond the usual time of adjournment to hear Prof. Lister answer the objections made to his doctrine and practice. Bryant, author of a work on surgery, made a strong case against Lister's teachings. The subject under discussion was Lister's address, and the special question was the management of recent fracture of the patella by wiring the fragments together. Besides Bryant, Adams, Bloxam, Gant, Morris, Rose, Turner and Baker concurred in the opposition to the doctrines of Lister, and Bryant contended that strict Listerism was not necessary in order to be perfectly in accord with the grand principles of antiseptic surgery, which in the minds of the opposition means strict cleanliness in everything pertaining to the dressing of wounds, as well as the most perfect hygienic conditions about the patient. "Bryant thought that any operation upon the patella was unjustifiable, because the results of the old-fashioned treatment were in his experience quite satisfactory."

So we find Listerism is not accepted in Lister's own home in London, yet we should expect that the fiercest fight of ideas will come from men who live in his own city, verifying the old aphorism, "That a prophet is not without honor, save in his own country." Coming directly to the facts of the subject, Do they sustain the extraordinary claims of antiseptic surgery, it would seem that the verdict of the two great medical associations, British and American, ought to be able to settle this question, yet we are of the opinion that the verdict will be made by a more universal congress than either; the matured judgment and opinion resting upon it of the surgical thought and experience of the world. When this verdict of judgment will be rendered is still in the future. It may be long after Lister has departed, when his works shall be freely weighed and estimated. In such a vast problem it is very difficult to obtain reliable data, as "facts seem to have a special aversion to registration." Statistics alone can in time show the bearings of this question; in the question of suturing the broken patella we have the results in forty-nine cases which show 16.3 per cent. of suppuration of knee joint, 6.12 per cent. of deaths, 4 per cent. of necrosis of fragments, 4 per cent. of amputation of thigh—and which results completely negative the dogmatic assertion of Lister in his address that "antiseptic treatment converts

serious evil into complete safety." In favor of the operation it must be said, "that a large majority recovered with bony union and excellent use of the joint." But let it also be remembered that in eight cases there was suppuration of the joint and other grave difficulties—as exhaustion, death, pyemia, amputation; and in others which recovered of the eight there were stiff joints and necrosis of fragments.

Ovariectomy is not now regarded as a very dangerous operation. Its dangers have been greatly diminished by the precautions which have been thrown around it by antiseptic methods, and yet it is believed by many, among whom are Keith and Tait, that the antiseptic method is not so valuable here, while Lister himself regards his method in this field as least successful. Spencer Wells in this field has the most remarkable experience and which sweeps over a wider range, giving it as his unqualified opinion that both in safety and rapidity of recovery it is the most efficient and protective of agencies. Keith has abandoned the use of the spray, but is not inclined to the use of the method so much as formerly.

We have not time to review the broad field of surgical endeavor and must close without attempting a statistical review of the various kinds of operations and wounds resulting, as the statistical evidence is not yet full enough, nor complete enough with all the conflicting evidence in the question to determine the full value. In the cases of compound fractures, and other open wounds affecting large joints, are found a class of cases which furnish the best proof of the value of antiseptics. Prof. Volkman reports seventy-five successive cases of compound fracture without a death, and does not hesitate to claim that without infection there is no suppuration, and that to obtain primary union, by which is meant immediate union, two factors are necessary; complete disinfection and absolute opposition, so that the parts have the chance of growing together. "While admitting," Volkman continues, "that a depraved constitution and a devitalized condition would render the patient less able to resist the influences of germs or poisons, he asserts as a demonstrated clinical fact "that such patients have a revivifying bioplastic power sufficient to afford immediate and complete repair if treated antiseptically." We doubt this, as stated, because it is as fully demonstrated that there is an organic dyscrasia, by which is meant some "unknown aberration of nutrition" in certain cases, which can not be remedied by any processes yet made known to us. This dyscrasic state of the blood is a factor in disease now recognized by the leading teachers of medicine in the world, among whom are Vogel, Libert, Rokitsansky and many others. Hence, while using disinfectants the general question of nutrition must be comprehended. We have said these organisms are found in this relation *post puerperium*; hence the question arises, What relation exists between these and septicemia?

The fact of existence under the circumstances indicates some present relation. No condition exists in such cases by which these could so readily find admission to the interior of the body as after a lying-in or confinement. These changes are believed to be septic changes in the uterus, and the modes of introduction. There are three modes of infection: 1, absorption by the lymphatics; 2, extension of septic changes along the mucous membrane of the Fallopian tubes into the abdominal cavity, as seen in

the ovaritis by the gonococcus, which is a typical case in gonorrhoeal inflammation. This affects the lymphatic system, as seen in the enlarged inguinal glands, but its most permanent effects in the female are due to extension of inflammation along the mucous surface to the peritoneal cavity; 3, *direct passage* of septic matter into the circulation, as by the two first methods the septic matter reaches the circulation and causes or may cause metastatic abscesses in various organs. The uterus, under the conditions after delivery, presents most favorable conditions for such development. The veins close by thrombosis, and the septic material containing the microorganisms are rapidly thrown into the circulation. The latter method is the most likely mode of infection in this case.

If we would understand the present state of our knowledge as to the relation of microorganisms to puerperal septicemia, we must study the literature of the subject. Here we shall no doubt find a solution of that much *questio vexata* of puerperal fever, and here we may find a firm basis of pathologic facts, instead of vague theories and changing views or notions, upon which to ground a successful treatment.

HISTORICAL RÉSUMÉ.

The literature of this subject is fully brought up to about 1880 or 1885 by Dolores and monographs by Lusk, a more recent one by Lomer, and a beautiful work by Woodward. Hare gives an exhaustive description of pyemia and allied conditions. Attention was first directed to the subject in 1869 by Coze, Feltz and Mayerhofer of microorganisms as a cause of puerperal fever. They have been found since by others. They have been traced from the diphtheritic lining of the endometrium through the lymphatics, into the peritoneal cavity, and also by the lymphatics through the diaphragm. Pasteur, the celebrated investigator of organisms, recently applied to the study of hydrophobia, has given his investigations in seven cases of puerperal fever, various forms of germs being found in the progress of this disease. The exact relation of germs to the development of this disease and septic poisoning generally has not yet been satisfactorily tested, but there have been established some very important facts, viz: That we have the same pathologic changes in puerperal as we have in surgical fever, and that these hold the same relation to the germ theory. In most cases we have to do with blood poisoning from wounds identical in pathology with the poisoning of the blood from an amputation wound.

The conclusion from all that is known is that the condition of the interior of the uterus occupies the same position as to the septic poisoning as the stump of an amputation wound. The lochia gives valuable information as to the state of the uterine surface, but we should remember that we may have septic absorption going on when there is no factor of the lochia. We must distinguish between putrefying matter and septic matter, as all putrefaction within the uterus after delivery will cause septic poisoning, but all septic poisoning does not imply that putrefaction must have occurred as to the fluids. This difference grows out of the difference in the microbes which mark each process.

Finally, the germ theory receives confirmation from the fact that those substances which are shown to be

the most effective in the destruction of germs have proved most useful in the treatment of septicemia. It is a fact well observed and established beyond question that washing out the uterus with antiseptics in cases of puerperal fever is followed by most remarkable results in the reduction of temperature and pulse. Carbolic acid was first the favorite remedy, but solutions of bichlorid of mercury seem to possess so many advantages that it is among the most popular remedies because it is more destructive to germs. Toxic effect has been charged to both remedies, but bad results only occur in improper use or strength. So I would use solutions which destroy germs and produce antiseptic results, and thus save cases from the development of those much to be dreaded forms of disease, pyemia, septicemia and puerperal fever. This answers the questions at the head of this paper, and shows us that prevention in surgery as in medicine takes the form of the trans-Atlantic writer: "The medicine of the twentieth century, viz: Sanitary science and surgery."

THE TREATMENT OF OPEN FRACTURES.

Read by title in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY JOHN B. HAMILTON, M.D., LL.D.

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If aseptic surgery had been practiced only in the treatment of open (compound) fractures, it would have accomplished much for humanity. It is safe to say that there are not one half as many amputations performed since the commencement of the present treatment as formerly. Lives have been saved that otherwise would have been sacrificed, and useful limbs are now seen where a few years ago, a wooden substitute was worn as a perpetual reminder of the shortcomings of the surgical art. The aseptic treatment of an open fracture requires first the thorough cleansing of the limb and the wound. The limb should be shaved and washed clean. Irrigation with boiled water is the best means of securing cleanliness of the wound. If there should be venous oozing, it should be stanchd with hot water, or irrigated with a bichlorid of mercury solution 1 to 4,000. The styptic effect of this solution is at once seen in the bleaching and drying effect produced. Any spurting vessel should be tied with carefully sterilized catgut. The next step is to secure accurate coaptation of the fragments, sharp splinters (*spiculæ*) should be removed, but broad fragments, even when considerably comminuted, should be readjusted. The elevator and the heavy bone forceps will be frequently needed to bring the fragments into position. It is well known that the principal causes of non-union, outside of constitutional causes, are: 1, want of apposition; 2, interposition of muscles; 3, excessive motion. Every care should be taken therefore to avoid these causes of non-union.

Direct fixation of the fragments is one of the most important indications. This may be accomplished by periosteal suture or bony suture. I have many times secured good union in bones of the foot, for example, by the periosteal suturing of the fragments. Chromicized catgut or whale tendon should be used, and a sufficient number of stitches taken to bring the fragments together. In case the obliquity is such

the fragments can not be brought together by periosteal suturing, then the osseous suture may be made; after trying many expedients, and experimenting with many kinds of suture, I have reverted to silver wire as being that best adapted to the work. These sutures in some soft bones may be passed obliquely through with a stout needle, but generally a small drill hole must be made to enable the passing of the wire. The wires must after twisting, be left long and project from the wound so as to facilitate easy removal.

I have had no experience with the use of bone dowel plug placed in the medullary canal to secure fixation. It has seemed to me so liable to be septic, and there must be so many practical difficulties in the way of final removal, as to make it a dangerous appliance.

In five cases I have used the bone ring introduced to the notice of the profession by Professor Senn. In every case there was suppuration, and I have abandoned it, until such time as we shall be enabled to sterilize the ring. It is yet so far from perfection in that regard, as to make it almost certain that the wound will become infected. The principle may be yet found useful by the invention of some different material. The bone ring (or thimble) has one advantage, that is the great amount of exudate (forming callus) which is excited by the presence of the ring. So pronounced is this effect, that in cases of ununited fracture where there is no attempt at the formation of callus, the ring may be used to advantage notwithstanding its general lack of sterilization.

The condition of the soft parts must next be looked to. Indeed it is a matter which is scarcely secondary to the proper treatment of the fractured bone. Wounded tendons, torn muscular structures and lacerated nerves should be sutured according to the rules laid down for the respective tissue involved. Stout chromicized catgut will be found useful for tendons, and fine flexible catgut for nerves. In case the distal and proximal ends of a nerve or tendon can not be brought together, they may be sewed to the nearest adjoining nerve or tendon. All this takes time, but it will be well spent. When the wound is cleaned the bones are brought together, and the soft structures thus attended to, then irrigation is again practiced and the external wound closed by sutures of silk-worm gut. Extension is usually not necessary if the fragments have been brought into perfect apposition, nor is there much difficulty in retaining them. External support should be secured by a plaster-of-paris bandage, and when necessary a fenester cut opposite the wound.

In complying with the wishes of our distinguished chairman, to keep within the ten minute line, it will be seen that I have chosen rather to support the existing practice, than to compile the literature of the subject, and if more attention shall be directed to methods of suture of the soft parts, in addition to bone fixation, the paper will have served its purpose.

FISSURE OF THE ANUS.

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY THOMAS W. HUNTINGTON, M.D.

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The lesion known as fissure of the anus is an elongated oval ulcer from one-fourth of an inch to an inch in extent and of variable depth. By many authors it is designated irritable ulcer or painful

ulcer of the anus. Bodenhamer classified fissures, according to location, into four varieties; but for the purpose of this paper the term will be applied to those having their seat in the skin and mucous membrane, external to the whiteline of Hilton, the line of demarkation between the external and internal sphincter muscles. The favorite location of anal fissure is upon the dorsal surface but this general rule has many exceptions. It may consist of a small linear abrasion, capable of detection only by careful inspection, but more often it will be observed as an indolent ulcer with indurated base and rigid walls varying in depth from one to three lines. Externally its existence is often marked by a superficial hemorrhoidal tumor, the "sentinel pile" of Ball. Upon exploration with a probe it is customary to find one or more excessively tender points within the boundaries of the ulcer. There is a tendency to hemorrhage in many cases but this condition is by no means constant.

Anal fissure has been observed occasionally as early as the first year of infant life, and is now and then met with in persons of advanced age. A very large proportion of cases, however, occur during the period of adult life between the ages of 30 and 55.

It is generally alleged that it is found oftener in women than in men but my own observation does not verify this statement. For obvious reasons, persons leading an inactive or sedentary life are more subject to anal fissure than are those whose employment demands active physical exercise. Among the various causes to which this lesion is ascribed, the chief and most apparent one is habitual constipation. Constipation in turn that may have been accidental and quite amenable to simple treatment, having resulted in the establishment of a small fissure is by the latter rendered incorrigible through the peculiar reflex influence of the ulcer upon the sphincters, the rectum and the digestive organs in general. As a result we find that the gravity of the structural lesion and the functional derangement correspond closely.

Anal fissure is a common and serious complication of all structural diseases of the rectum. Pain when an attendant circumstance of rectal ulcer, hemorrhoids, rectal stricture and syphilitic manifestations always suggests the possibility of the co-existence of anal fissure. In penal institutions the practice of sodomy is an alleged cause of this lesion, and violence done the parts by scratching in pruritis ani, and forcible distension during parturition are among the more infrequent causes of the same trouble.

Allingham alleges the earliest symptoms of anal fissure to be morning diarrhea. The patient is called to stool instantly upon arising, but usually with an unsatisfactory result, a small loose motion containing viscid mucus matter sometimes streaked with blood. This is succeeded by tenesmus and an uncomfortable burning sensation, and the experience may be repeated several times during the early hours of the day. As the disease progresses it is characterized by intense, agonizing, paroxysmal pain during and subsequent to an evacuation. This symptom is wholly out of proportion to the pathologic lesion which underlies it, and as often attends an apparently trifling erosion as a deeper more extensive ulceration. It undoubtedly depends upon the exposure of filaments of the pudic nerves, which are distributed over the area below and adjacent to the external sphincter. In pronounced cases this pain is

described as well nigh unbearable, and the act of defecation is regarded as an ordeal so terrible that the patient is often compelled to seek relief in the hypodermatic use of morphia. It usually persists for a protracted period, during which absolute quiet in the recumbent position is rendered imperative. Temporary relief ensues but the suffering recurs with each effort to unload the rectum.

Numerous reflex disturbances are also ascribable to this condition. Obscure and tantalizing bladder pains are common to both sexes. Prostatic irritability in the male, uterine colic and ovarian neuralgia in the female are frequently noted. The appetite is impaired, the digestive function badly sustained, nausea and vomiting ensue, and the resulting condition is that of emaciation and extreme nervous irritability and prostration.

An effort at digital examination is always stoutly resisted by the patient on account of the exaggerated sensibility of the part, and in a fair proportion of cases this step can only be taken after the production of profound anesthesia.

Since several small fissures frequently exist, some of which may be deeply concealed by anal folds, the use of a speculum is essential to a thorough knowledge of the situation. For this purpose I have found a heavy wire bivalve instrument exceedingly efficient, in that it permits an almost continuous view of the entire anal circumference.

There is a wonderful unanimity of sentiment regarding methods to be adopted for the relief of this most distressing malady. It is certain that the disease, save when it occurs coincidentally with malignant trouble is amenable to some form of treatment.

Cases which are a sequel of syphilitic infection are successfully met by the usual constitutional remedies, combined with the use of mercurial ointment locally.

In recent and comparatively mild cases scrupulous cleanliness, careful attention to the bowels, an abstemious diet, cessation from labor, and the application of a stimulating ointment will suffice to effect a permanent cure. I have found an ointment composed of a drachm of creolin and an ounce of lanolin a very efficient agent. To this may be added belladonna, cocain or opium as occasion may demand. I believe the use of nitrate of silver has been generally abandoned. In the more advanced and urgent cases, pure nitric acid, or acid-nitrate of mercury retain a few advocates. It is probable that they may be useful where a resort to more radical and seemingly rational measures is prohibited by the patient. Cooper and Edwards, however, in their work upon diseases of the rectum and anus unhesitatingly denounce the use of caustic applications of all kinds as "useless and mischievous."

Matthews, on the other hand, for those cases wherein radical measures are inadmissible, employs pure carbolic acid as a topical application and as supplemental to this he highly recommends a daily injection of an olive oil emulsion of iodoform, 5 grains to the ounce. The frequent occurrence of a persistent and annoying dermatitis in the anal region, as a result of the use of iodoform, has led me to abandon it entirely. We know that the skin of many patients is peculiarly susceptible to the irritant effect of this drug; and this fact has caused me to regard it always with distrust.

Under the head of radical treatment two plans are included; dilatation and incision. Owing to the ex-

treme sensitiveness of the anal region neither method should be attempted without the use of an anesthetic.

If simple dilatation is to be resorted to, it may be accomplished by inserting one or two fingers of both hands well into the rectum, and stretching the sphincters by drawing upon them in all directions; or the same end may be attained by the use of a powerful speculum. The process should be persisted in until the sphincters become perfectly relaxed, and must usually be repeated several times before perfect relief can be obtained. It is claimed, however, that a single introduction of a speculum for purposes of examination has now and then completely eradicated the difficulty.

The combined plan of treatment by dilatation and incision has been found so efficient and satisfactory that it has received the sanction of by far the larger number of operators. By no other method can we hope for so rapid and perfect relief from the main feature of the disease, the excruciating pain which attends and follows an evacuation. The details of the procedure are very simple. The rectum having been thoroughly washed out and the patient etherized, the fissure is exposed between the blades of a speculum. A free incision is then made through the floor of the ulcer extending at either end considerably beyond its limits. If the lesion be of long standing and deep seated, the knife should be carried into and across the border of the external sphincter muscle. Subsequently the process of dilatation should be fully completed as before described. After treatment consists in maintenance of cleanliness and attention to the bowels.

A PLEA FOR THE EARLY AND SYSTEMATIC REMOVAL OF THE INGUINAL LYMPHATIC GLANDS.

IN CASES OF MALIGNANT GROWTHS IN REGIONS FROM
WHICH THESE GLANDS RECEIVE LYMPHATICS.

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY H. REINEKING, M.D.
SHEBOYGAN, WIS.

The rule that operations for the removal of malignant growths should include also the removal, not only of glands already perceptibly enlarged from secondary deposits, but also those which from their anatomic relations to the primary growth are likely to become the seat of secondary disease, as now quite generally followed in operations for mammary cancer, has been productive of much good. The fact that we can not determine by our examination whether a gland, though not perceptibly enlarged, may not after all be the seat of a secondary deposit, and the further fact that when those glands nearest the primary seat of disease have become enlarged, others more remote may in turn have become infected,—these facts form a sufficient argument for the general adoption of the above rule wherever practicable.

I was somewhat surprised therefore, on looking up the literature on malignant growths of the external genitals and the lower extremity, to find how little was said in our standard text-books concerning the management of the inguinal glands in such cases.

Two cases occurring in my practice during the last

half year, brought the importance of this subject to my attention so strongly that I concluded to use them as a text for this plea for early attention to the glands in such cases:

Case 1.—M. K., male, aged 48 years, single, farmer, German. Family history good, except that one brother died of cancer of the stomach when 27 years old. Phimosis since childhood. During the summer of 1892 noticed swelling at end of penis. This was followed by inability to void urine, use of catheter, purulent discharge from the swelling and hemorrhage. Penis amputated near its root, March 20, 1893. No glands extirpated at that time. Several weeks later some enlarged glands were extirpated in the left inguinal region, but others in the same locality, as well as in the right groin, began to enlarge almost immediately.

Present condition (July 4, 1893) appearance of cachexia, although general nutrition fair; stump of penis healed, except a small granulating surface around urethral opening. Testicles healthy. Both groins occupied by large masses of enlarged confluent glands, those on the left in a more advanced stage, and the skin covering them sloughing, the abdominal walls considerably involved, the masses very painful. Thorough removal being out of the question, parenchymatous injections of pyoktannin were tried, which was effective in so far as they prevented all odor; but the disease progressed rapidly and ended in death Oct. 3, 1893, less than seven months after the primary operation. There was no metastasis at the primary seat of disease nor any evidence of metastases in internal organs.

Case 2.—Mrs. D., aged 67 years, married, American. Family history shows no cases of malignant disease. Severe pruritus and eczema vulvæ for past fifteen or twenty years; lately severe burning and sharp pains. Examination shows a flat epithelioma, about an inch in diameter, involving the clitoris and upper portion of the left labium minus, which was excised Nov. 18, 1893. Careful examination at this time failed to detect any enlarged inguinal glands. Healing rapid, mostly by first intention. About five weeks later, several glands in left groin became rapidly enlarged and were extirpated Jan. 11, 1894. No infiltration outside of the gland capsules. Glands contained large cysts filled with grumous, semi-purulent matter. Every particle of gland that could be detected by the touch was removed. Healing again rapid, leaving a small fistulous track leading to the bottom of the wound, with slight grayish, liquid discharge. Recurrence in same locality within a month, the swelling increasing rapidly involving the skin and occupying the entire left inguinal region. The right side remained unaffected. Third operation Feb. 15, 1894. Removal of entire contents of left inguinal region, including skin, adipose tissue and glands down to the deep fascia, as well as the glands lying along the large vessels and belonging to the deep inguinal group. The removal of all the tissues mentioned was not difficult, the region of the vessels being left until the very last. Wound partly closed and packed with iodoform gauze; it remained in good condition, but showed no tendency to heal. The patient rallied well from the operation, but after a week began to fail from exhaustion, or possibly, secondary internal complications, and died March 4, two and one-half weeks after the last operation and less than four months after the extirpation of the primary disease. No return at primary seat of disease.

These cases show clearly that there must have been secondary deposits in the lymphatic glands at or before the time of removal of the primary disease, notwithstanding the fact that they were not perceptibly enlarged. They further show the great tendency of malignant disease of the external genitals to secondary location in these glands, and the great malignancy when once it has become thus located.

If malignant growths are of local origin, the early and thorough removal of the primary disease, as well as of those structures which are almost invariably the first foci of secondary invasion, can be reasonably expected to lead to a fair percentage of permanent cures, as has been sufficiently shown by the results of extirpation of the cancerous mamma, with simultaneous clearing out of the axillary space. On the other hand, if the glands are left until they have become enlarged, the results will as a rule be very

similar to those illustrated in the cases just outlined.

Why, then, not apply the rule which has long since been adopted in cases of mammary cancer, with equal force and regularity to the cases here under consideration? The difficulties and dangers of the operation for removal of the inguinal glands are certainly not greater than those attending the operation in the axilla, and the same may be said of the after treatment of the wound. After the skin has become involved, a large and disagreeable wound may indeed be left, just as in other regions, which fact is only another argument for adopting the extirpation of these glands as an essential part of the operation done for the removal of the primary disease.

I have limited my remarks to cases of malignant disease affecting the external genitals. All that has been said, however, pertains as well to the lower extremities, skin of lower portion of abdomen, and all structures sending lymphatics to the superficial or deep inguinal glands. For anatomic considerations and surgical technique I must refer to works on these subjects.

BLOODLESS VAGINAL MYOMECTOMY.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1894.

BY OSCAR J. MAYER, M.D.

SAN FRANCISCO, CAL.

Probably no question of abdominal surgery has given rise to more animated discussion and bitter controversy than the treatment of uterine fibroids in all their three varieties—submucous, interstitial and subserous. After electrolysis failed to realize the hopes that were held out to the profession by Apostoli, laparo-myotomy and abdominal hysterectomy were once more eagerly resorted to, and led to many modifications in treating the pedicle so as to avoid hemorrhage and infection. Present indications are that all these methods will soon be discarded for the more correct and ideal operation of removing the uterus *in toto*. Arrest of growth of the neoplasms was sought by bringing about artificial menopause following oöphorectomy. More recently, ligation of the uterine and ovarian arteries has been recommended to effect atrophy of the growths and uterus. Vaginal enucleation is only applicable to such tumors as either can be pulled through the cervix, or those that appear as fibroid polypi, having their seat in the body or cervix of the uterus. The removal by morcellation, as originated by Péan, of large submucous myomata or pediculated fibroids distending the cavity of the uterus, although favorably recommended by many eminent surgeons, has never found much favor with the profession at large. The reason of this is the excessive hemorrhage that endangers the life of the patient. Some authors supplemented Péan's morcellation by first splitting the cervix bilaterally as far as the vaginal junction, and extending these incisions even into the body of the uterus itself, if necessary, to have the required room for their operations, and then ligating the uterine arteries to control hemorrhage. These preliminary incisions into the cervix and uterus have been regarded as such severe preparatory measures that most surgeons prefer abdominal hysterectomy.

The preservation of the womb of a young woman is a matter of most vital importance, and our aim

should be a conservative plan of treatment that will remove the benign neoplasm, and will not carry in its wake sterility fraught with such momentous psychical and physical sequelæ. In the following case in my practice, I have successfully removed a fibroid tumor by morcellation, without any hemorrhage to speak of, by means of *temporary ligation* of the uterine arteries, having first caused obliteration of the cervix and dilatation of the os by vaginal packing, inducing contractions similar to the first stage of labor:

Mrs. H., age 28, of previous excellent health, gave birth five years ago to a living child, passing a normal puerperium. Since then her menses were regular until ten months ago, when about two weeks after menstruation, patient had a hemorrhage which lasted about two days, accompanied with pains in the back and groins. From then on, hemorrhage occurred at irregular intervals, with more or less pain. Four months ago, while constantly losing in weight and strength, patient noticed an increase of abdomen, which was very hard to the touch. Consulting a notorious quack, he pronounced the growth to be a cancer, and patient became alarmed about her condition. During the past eight months patient had lost forty pounds, and at the time of consultation weighed ninety-eight pounds. The lower abdomen protruded, the uterus was plain to the touch, enlarged and perfectly smooth, the fundus a finger's breadth below the umbilicus, corresponding in size to the fifth month of pregnancy. Auscultation revealed no sounds over site of uterus. The os was sufficiently dilated to permit the entrance of one finger, which felt a hard smooth mass. The digital examination caused quite a hemorrhage, so vaginal packing with iodoform gauze was employed to check it. Twenty-four hours after the packing was removed, the cervix was found obliterated, os dilated to the size of a silver dollar. Removal of the tumor, per vaginam, was proposed to the patient, and at the same time permission was obtained that if this should prove unsuccessful, abdominal hysterectomy should be resorted to, to remove the growth and uterus.

The idea suggested itself to me to try and prevent, or to reduce hemorrhage to a minimum by passing a temporary ligature *en masse* around the uterine artery. The vagina having been thoroughly irrigated with a 2 per cent solution of lysol and a Martin posterior speculum *in situ*, the field of operation was still further enlarged by retractors. With a strong volsellum forceps seizing the tumor, tumor and uterus were strongly pulled downward and to the right side in order to bring into view the vaginal junction of the cervix. With a large, strongly curved needle, threaded with a double thread of No. 12 braided silk, a ligature *en masse* was applied around the uterine vessels, by entering the needle well anteriorly to the transverse median line of the fornix, bringing it out equi-distant posteriorly to that line, and the two ends of the ligature were then securely tied. The uterus including the tumor being strongly pulled toward the left side of the patient, a temporary ligature *en masse* was applied to the uterine vessels on the right side. Morcellation of the fibroid was proceeded with by means of a pair of Sims' scissors, guided by the finger, which resulted in bringing forth forty-eight small pieces of the tumor until sufficient room was made to deliver the large remaining mass by traction. The weight of the tumor was nearly four pounds. Before the operation the tumor must have measured six and one-half inches in diameter. This was ascertained by enveloping the removed pieces in a towel and measuring the circumference of the enclosed mass. The uterine cavity was packed with iodoform gauze and the temporary ligatures were removed. Patient was given two hypodermic injections of ergotin. The time required for the operation was one hour, during which time the patient did not lose more than two or three tablepoonsful of blood. Twelve hours after the operation the intrauterine tampon was found forced out of place to more than half its extent, and showed very little bloody discoloration. The second day after the operation, the remainder of the tampon was removed, and as a precautionary measure the patient received a hypodermic injection of ergotin. Patient was kept in bed for twelve days, passing an uneventful time toward recovery, the temperature at no time rising above 99.2 on the evening of the operation. On the twelfth day patient left her bed, a convalescent, rapidly gaining in weight, until now she shows an increase of twenty-six pounds.

Despite the free anastomosis existing between the ovarian and uterine arteries, the circulation can temporarily be arrested for a sufficient time to allow of a bloodless operation being made on the cervix or in the uterine cavity, as was demonstrated in this case. While the anastomosis of the ovarian and uterine arteries is quite free, I do not believe that the collateral circulation is as easily and quickly established as it would appear from accepted drawings illustrating the vascular supply of the uterus and its appendages. Dr. J. H. Barbat, Demonstrator of Anatomy in the Medical Department of the University of California, who kindly assisted me in this operation, has carefully dissected out the vessels supplying the female organs of generation in a well injected subject, that he might ascertain the exact anastomoses and sizes of anastomosing vessels between the ovarian and uterine arteries. Further researches on this subject are necessary to substantiate my skepticism and will be published by Dr. J. H. Barbat as soon as his labors are completed.

The danger of including the ureter in the ligature can be avoided if the needle is not passed too close to the cervix. Even should this occur no apprehension need be felt, as temporary compression of the ureter for such a short time will not cause any evil consequences. Puncture of the uterine artery is avoided by selecting a strongly curved needle of large size, taking care that the needle traverses a large semicircle from its entrance in the anterior fornix to its point of exit in the posterior fornix vaginae. Injury to the intima of the uterine artery from compression is not to be feared any more than injury to the vessels by using Esmarch's constrictor for bloodless amputations.

Bloodless operations are one of the triumphs of modern surgery, and with the great discoveries of the last fifty years, which enable us to operate without pain to the patient, and which have reduced to a minimum the danger of infection, conservatism should guide us in all surgical procedures. The time is fast approaching when the surgeon who removes an organ, except as a last resort, will have sinned against nature, and will by his very act pass sentence upon himself in the forum of Medicine.

THE USE OF ACETANILID IN MEDICINE AND SURGERY,

WITH SPECIAL REFERENCE TO ITS SURGICAL APPLICATIONS, INCLUDING ILLUSTRATIONS OF ITS USE IN MINOR SURGERY, AND ITS ACTION IN TWO IMPORTANT CASES INVOLVING OTHER IMPORTANT FEATURES.

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY G. W. WOODS, M.D.

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Acetanilid is a synthetical compound produced by the inter-action of anilin with glacial acetic acid at a high temperature, the distillate being collected at 295 per cent, and re-crystallized from boiling water.

It appears in shining crystalline plates, in powder colorless and odorless having a greasy feel, is neutral to test paper, and has a feeble acid taste. It is soluble in 31 parts of alcohol, in ether and chloroform, and its alcoholic solution permits of large dilution with water without precipitation. It melts at 113 Cent., forming a clear liquid, and is decomposed

by acids and alkalies. Exposure to moisture and mixture with water does not affect its integrity.

An easy test for acetanilid is heating it with liquor potassæ and a few drops of chloroform, when a distinctive odor is developed partaking of the nature of phenyl and ethyl compounds, said to be phenylisonitrile. Another is the boiling of 6 grains with 1 drachm of acid-hydrochloric until the mixture becomes clear, and then adding 3 drachms of water with 4 drops of acid-carbolic previously dissolved in a half drachm of liq. sod. chlorinat. This produces a turbid pink solution, becoming blue on the addition of excess of ammonia.

The use of acetanilid, or antifebrin, its copy-righted title, or chemically, phenyl-acetamid, dates from 1887, when it was first brought to notice as an antipyretic, and classed therapeutically from its analogous effects on the system with those other but recently introduced remedies, antipyrin, and phenacetin.

As an antipyretic, acetanilid has sustained all that it claimed for it, and where given in moderate doses has never indicated the slightest poisonous or depressing effects even in children. Where toxic symptoms have been manifested they have followed an administration of the drug in the same manner as antipyrin, while the dose should be graded to one-third of the latter drug. It is adapted to every form of fever, the continued, enteric or malarial, and eruptive, and to all inflammations associated with high temperatures, but should be carefully watched for fear of individual idiosyncrasy and, commencing with small doses of 2 to 3 grains, be increased, if necessary, not to exceed a half a drachm daily, save where indicated to combat the more intense forms of pain.

In spasmodic affections such as asthma, pertussis and epilepsy, as a nervine and analgesic in the worst forms of neuralgia and rheumatism and, in fact, to all affections characterized by spasms or pain it is especially applicable; and in cerebral congestions, the delirium of fever, and even in delirium tremens it acts as a most satisfactory sedative and hypnotic.

In its effects on the temperature its influence is manifested more slowly than antipyrin; it is diuretic and diaphoretic; and while antipyrin is a positive cerebral sedative and general depressant, acetanilid while hypnotic, is rather a moderate stimulant to the cerebral, muscular and vaso-motor systems.

I have thus epitomized the experience and observations of seven years in the world-wide use of this drug in medicine, deeming it unnecessary to present any clinical notes as evidence, the periodical literature of our country during this period having offered an abundance of detailed reports establishing the facts enumerated. These bear testimony of a convincing character to the usefulness of acetanilid, and demonstrate the propriety of making it a permanent addition to the drugs we should always wish to have within our reach, as necessary to us as opium and its alkaloids, and the derivations of cinchona bark.

Thus much for medicine! But acetanilid has surgical applications of even greater importance, although until recently its external use was derided, and yet its antiseptic powers were long ago recognized and it was recommended as especially applicable to the preservation of aqueous hypodermic solutions. The only surgical indorsement it had hitherto received had been from Dr. K. P. Wasilevitch, who had found

it an admirable substitute for iodoform as an application to primary venereal sores, which had healed with great rapidity under its local application.

This was the status of acetanilid in surgery until less than a year ago, when a modest communication to the *Medical News*, (Vol. lxiii, page 438,) from Dr. Francis W. Harrell, of Gilman, Washington, announced its remarkable adaptability to the dressing of lacerated wounds. He states that he was led to use acetanilid simply from its being non-hygroscopic, and he first applied it to an extensive lacerated wound of the skin and muscles of the lower arm and fore-arm. The surfaces were cleansed with warm water and the substance applied freely, the only sensation being described as a "peppery" one and of brief duration. Within twenty-four hours the wound was examined and no pus found. Again it was dressed as at first and not disturbed for a week, when the wound was found to be completely healed.

Dr. Harrell is the surgeon-in-chief of the Seattle Coal and Iron Company's mines, and the surgical cases coming within his cognizance are principally wounds grimed with dirt, coal, or mineral dust, and oil, which can not be completely cleansed save with great difficulty; but under acetanilid healing progresses perfectly without pain, the formation of pus or poisonous effects from absorption.

Dr. Alfred Hand of the Surgical Dispensary connected with the German Hospital, Philadelphia, Pa., reports in the *Medical News* of March 10, 1894, that in the wide experience of this establishment the results have been excellent, especially in the lacerated wounds of mechanics imbued with dirt, oil and foreign bodies; that acetanilid has completely displaced iodoform, and permits of immediate resumption of work and the saving of fingers and toes, where formerly amputated under similar conditions. Its use has been extended to all forms of ulcers, venereal sores and moist eczema.

Dr. Charles H. Castle, of Cincinnati, Ohio, Resident Physician of the Cincinnati Hospital, in the *Medical News* of March 31, 1894, records its use in over two hundred and fifty cases including all forms of lacerated wounds, especially those of the scalp, incised and gun-shot wounds, venereal ulcers and burns. He first flushes surfaces with 1 to 40 solution of acid. carbol, dusts with acetanilid, and covers with gauze and protective, the result being that no pus forms. With him, acetanilid has entirely superseded iodoform, and the only objectionable feature has been a burning pain when applied to any extended granulating surface.

Another record is that of Dr. M. E. Knowles, of Hamilton, Montana, who has used acetanilid extensively in surgical veterinary practice, and found it especially adapted to the closing of fistulæ, first cleansing with peroxid of hydrogen.

My personal surgical experience with acetanilid is confined to twenty cases of lacerated wounds and operations, and the list embraces some new experiences and applications of this remedy.

After the removal of a keloid tumor from the hand, I employed acetanilid as a dressing with the result of perfect immediate comfort and rapid healing, without the formation of pus; I have found it an admirable and curative application to internal hemorrhoids and a satisfactory dressing in the form of a suppository after their removal by the Paquelin cautery; I have also employed it in solutions of dilute alcohol

—acetanilid grammes 4; alcohol c.c. 2; aquæ ad c.c. 500—in blennorrhagia, and with most satisfactory results, salol being administered at the same time, however. In a long fistulous tract of the right side of the neck, connected with a deep cervical gland, dipping down to the region of the deeper blood vessels, I succeeded after curetting the accessible portions, in closing the sinus by means of the above injection.

I herewith offer a brief clinical history of two cases of importance illustrating the efficiency of acetanilid in aborting or controlling the formation of pus, and the manifestation of an alterative effect over a large granulating surface following an extensive burn, affected also with an intercurrent eczema—of which there was a previous history—and incidentally its toxic effects through absorption.

Case 1—was that of a Japanese mess attendant from the U. S. S. *Alert*, who received bruises of the left thigh during a typhoon near Yokohama, Japan, on August 19, 1893, while en route to San Francisco, which eventuated in plegmous erysipelas. He was admitted to the U. S. Naval Hospital, Mare Island, Cal., September 23, with multiple abscesses on the inner side of left thigh, and extensions from this region to the iliac crest and sacrum, with an opening of discharge in the first mentioned site; and on the inner aspect, near the groin, two sinuses leading deeply and upward to other accumulations of pus. Counter openings were made in both situations, at the most dependent portions, and on the following day another opening over the tuber ischii to relieve a posterior pocket of pus. The discharge was abundant from all these openings and the temperature, which has been as high as 103.6, fell to 100.4. The integument was widely separated, forming large cavities, and from the openings there was estimated to be discharged daily from 200 to 400 cubic centimeters of purulent matter, necessitating two dressings each day, and thick coverings of absorbent material. Three days later another large cavity was opened, burrowing around the femoral. From this time with thorough drainage and thorough cleansing with sol. hyd. bich. 1 to 2000, there was some improvement, a diminished discharge and contraction of cavities, with general improvement under the most careful administration of stimulants, concentrated nourishment, and appropriate anodynes to relieve the constant aching pains in the limb. The temperature fluctuated between 99 and 100.4. October 20, an increase of temperature was noted, gradually rising to 103, and October 25, an extension of suppuration was perceived towards the groin, and an incision was made in the inguino-scrotal angle but no pus was found; on October 20, however, it forced its way into the incision and 200 c.c. was discharged. Again, the high temperature maintaining itself, a new focus was searched for, and found in Scarpa's triangle on November 2, a large incision giving exit to 250 c.c., which exit was subsequently extended by another incision, just below Poupart's ligament, and a drainage tube passed through both openings. It will thus be seen that the thigh of patient was for one-half its circumference, and extending from Poupart's ligament and the cresta ilii, a series of subcutaneous abscesses penetrating the muscular septa, discharging more or less profusely, and from time to time making new extensions. At this juncture, with no signs of permanent abatement of the existing conditions, and patient greatly prostrated, the employment of acetanilid suggested itself, and on November 9 its use was commenced. At first the sinuses and cavities were washed out with either warm solutions hyd. bichlorid or carbolic acid, and afterward powdered acetanilid was forced through the openings. This was an awkward and unsatisfactory way of using the remedy and yet it soon showed evidences, of controlling the pus formation. On November 21, another pocket of pus was found in Scarpa's triangle and, on probing, was found to extend into the gluteal region, where a counter opening was made which was enlarged on the 28th, this being the last incision. On November 22, it being well demonstrated that the acetanilid was acting favorably, it was determined to find some way of testing it more thoroughly, and the alcoholic solution employed as a urethral injection was made use of. With this the cavities were thoroughly irrigated daily, and improvement commenced at once the discharge diminishing, the pain almost annihilated, sleep refreshing, appetite rav-

enous, digestion excellent and strength increasing rapidly. In a month the discharge was practically annihilated and on Jan. 18, 1894, the cavities were obliterated and the openings had healed without the formation of large cicatrices. There was some contraction of the skin, and slight ankylosis of the hip and knee joint, with the leg in a partially flexed position from the prolonged disuse of the limb and rest in bed, with the leg habitually drawn up; but this condition is being gradually overcome without tenotomy or other operation being demanded.

Case 2—was that of Mr. X., a native of Germany, for many years a citizen of California, and the proprietor of a brewery which he personally superintended. The interest of this case lies in the constitutional effects of acetanilid being manifested on its application to a large granulating surface, the apparent grave condition without any recognition of this fact by the patient, its alterative effect without repetition being demanded over the entire surface, and its apparent control over an inter-current eczema. The case was one in which I was called in consultation by Dr. W. D. Anderson, a prominent practitioner of Vallejo, Solano County, Cal., and during his illness was in sole attendance on the patient for a considerable period, Prof. A. M. Gardner, of the University of California, and Superintendent of the State Insane Asylum at Napo, being the primary consultant.

On May 23, 1893, Mr. X. was scalded by his left leg slipping into a tub containing a boiling infusion of hops, the scald extending from nine inches above the knee to the ankle, the foot being saved by a closely-fitting congress shoe of thick leather. Brewer's yeast was applied as soon as the clothing could be cut from the limb, and after medical assistance had been summoned, carron oil was substituted; morphia was administered, and patient kept under its influence for a prolonged period. The scald was beyond the second degree, and the result was a sloughing of the entire cutaneous surface within the area indicated, involving the entire substance of the true skin. Profuse suppuration followed, and it was variously treated with iodoform, aristol, hydrogen peroxid and hydro-naphthol, each application acting well for a time and then losing its efficacy.

On July 15, the surface being covered with healthy granulations, it was determined to employ skin grafting and, within a period of eight days, 2,280 grafts were inserted by Drs. Anderson and Gardner, 40 persons contributing the grafts, not one of them having a history of either venereal or eruptive disease. These grafts were obtained from the skin covering the biceps, which was cleansed with soap and afterward with peroxid of hydrogen. They were raised with mouse-tooth forceps, severed with curved scissors, averaged fifty mm. by sixteen mm. in size, and placed immediately upon the surface previously cleansed with hydrogen peroxid. They speedily attached themselves, vitally, and the leg soon demonstrated its new covering, especially on the calf, where the current of pus had swept, and crowded the grafts, but islands appeared everywhere. The progress of repair went on rapidly and on September 6, when Dr. Anderson, becoming seriously ill, had to absent himself from the case, the surface was so nearly healed that the patient was expected to be out in a week.

About this time eczema appeared, and just subsequent to this date developed rapidly, when the newly-formed tissue began to break down, and the patient's wife becoming greatly alarmed, treated the leg to a coating of hot mutton tallow, an old German remedy. It was evidently applied at too high a temperature, the result was the separation of nearly all the imperfectly vitalized new tissue, save on the central posterior aspect of the limb, but here the grafts had formed a firmer covering, and the islands more anteriorly, still persisted. The suppuration again became abundant, forcing up the thick coating of tallow in little craters, which were found to be the seat of eczematous pustules, and the whole tallowy coating being removed three-fourths of the surface was found to be apparently returned to its condition before the grafting, with the added complication of an extensive eczema.

It seemed as though the work had all to be done over again, for we did not then hope for the persistence of the grafts, and the development of the pus in such abundance with the eruptive complication was discouraging. Hydriodic acid had been prescribed at the earliest appearance of the eczema, by Dr. Anderson, who had observed on the other limb evidences of its former existence, and now specific, alterative and tonic remedies were prescribed with a view to influencing the eruption more decidedly. Locally the changes were rung for some time on the old applications,

embracing bismuth subnit., sodii bicarb., iodoform, aristol, peroxid of hydrogen, hydro-naphthol, and lastly pyoktannin, without any appreciable improvement. In the end I proposed the use of acetanilid, stating my experience in its use as aborting suppuration and in consultation, it was decided to give it a trial.

The suppurating and eruptive surface was carefully cleansed with carbolized boiled water, and the superfluous moisture being absorbed by borated cotton was freely coated with dry acetanilid and covered with antiseptic lint. It produced, at once a burning sensation which patient complained of bitterly, but this effect was transient and in half an hour had completely passed away, when at 3 P.M., patient was left in a state of complete comfort and tranquillity. Not long after midnight of this day, November 17, Dr. Anderson was called from his sick-bed to see Mr. X., the message being that he was in a most alarming condition. On reaching the patient he was found to be completely tranquil himself, and protesting against the excited state of his wife who was, naturally, greatly alarmed at the pronounced state of cyanosis he presented. The face, especially the nose and lips, as well as the extremities of the fingers and toes were blue.

The pulse had been, the wife thought, weak and slow when she had first noticed the blue color of his lips and nails, and later accelerated; but when the Doctor responded to the summons about 2 A.M., the patient's heart was tranquil and the pulse only exhibited a great fullness, as distinct from its ordinary character, while the temperature was normal and respiration natural. Beyond the fullness of the pulse there was absolutely no changed condition except the cyanosis, which gradually passed away in twenty-four hours. The appearance of the limb was peculiar, and persisted for several days. All the granulations had a shrunken desiccated look, like cutlets of beef long exposed to the atmosphere, the pustules were scarcely demonstrable, and there was absolutely no formation of pus for forty-eight hours. A consultation determined against the further use of acetanilid, in consequence of the poisonous effects manifested, and on the third day, aristol was substituted at my suggestion; but there is no doubt that a permanent effect was produced on the open granulating surfaces by this one application and the eczema influenced in an equal degree. We are warranted in this conclusion as from this day the healing process went on rapidly, the eczema disappeared and on March 9, the patient went abroad with a good covering of skin, save at the seat of two small ulcerated surfaces, where the original injury had affected the superficial muscular fiber, and with scarcely any cicatricial tissue, most of the original grafts having survived through the many months of profuse suppuration and eruptive irritation.

Not many cases of poisoning by the use of acetanilid have been recorded, and the one cited through its external use is unique. In all, cyanosis is noted with pale and haggard face, nose, lips, and extremities of fingers blue, pulse slow and weak, and a slightly subnormal temperature, in fact an apparent collapse; but in none did it seem to be a grave condition, the patients in no sense showing the anxiety of those around, slight stimulation soon overcoming the disturbance of the circulation. The essential toxic effect of acetanilid would seem to be an interference with the physiologic process of blood oxygenation, rather than a disturbance of the circulatory and respiratory functions, the cyanosis being persistent after the normal reestablishment; or, as Prof. O. L. Potter expresses it: "The toxic effect is to destroy the ozonizing function of the blood, decolorizing it, and forming methyl-hemoglobin." Poisonous effects have followed 30 grains taken in two doses within a period of two hours; yet 100 grains taken by Dr. Simpson, of New York, in seven doses within a period of two and one-half hours produced no toxic effect whatever.

As a summary of its surgical advantages, I beg leave to present the following enumeration. It is; cleanly, odorless, antiseptic, desiccant, hemostatic, stimulant, alterative, non-toxic practically, lasting in its effects, if intermitted, does not crust, easily

removed; and it acts in these ways, when perfect cleansing of a wound is impracticable; while it is a perfect substitute for iodoform at an insignificant cost; and is not injured or altered by moisture, as it may be saturated with water, and being drained and dried, is found to be unaltered.

With these advantages, acetanilid should be welcomed to the outfit of all surgeons, but especially to those of the Army and Navy, this simple enumeration of its excellencies seeming certainly to demonstrate its special adaptation to the field and campaign work of the former, and similar duty in connection with landing parties and shore duty of the latter; in time of war, its application to all wounds being soothing, beneficial, avoiding the necessity of immediate, careful, antiseptic cleansing, and permitting of delay in completing the final surgical attention in most cases a delay often as necessary as desirable on shipboard, on account of the rolling of the ship or stress of weather.

CHRONIC PROSTATITIS AFTER GONORRHEA.

I. ITS CLINICAL PATHOLOGY—II. ITS MICROSCOPIC AND BACTERIOLOGIC ASPECTS.

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY M. KROTOSZYNER, M.D., AND JOHN C. SPENCER, M.D.
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I.—CLINICAL PATHOLOGY.

We desire to call your attention to a new method of examination and treatment for a certain form of prostatitis, which is very often found as a sequela of a prolonged and severe posterior urethritis.

Our knowledge of the pathology of specific urethritis has increased more during the past ten or even five years than on any other subject in medical science. All our ideas upon the etiology, pathology and treatment of this affection have entirely changed through the successful bacteriologic researches of the last few years. Further, we have learned to diagnose all possible complications of gonorrhoea since rare culture methods of the specific microorganisms, the gonococcus Neisser have been made on modified blood serum by Brunner and Wertheim.

The difficulty connected with the study of this microorganism has always been and is at present to ascertain the presence of gonococci in all the organs secondarily affected by the specific malady. We are still in want of an easy method of demonstrating the gonococci and differentiating them from non-infectious diplococci. But the rapid progress made by continued bacteriologic investigations upon the features of this microorganism will in the near future surely solve this question. Every physician will then be able to give a decided opinion upon the possible danger of infection after gonorrhoea, just as easily as for instance in tuberculosis by finding the tubercle bacilli.

Comparing both constitutional affections—tuberculosis and gonorrhoea—we are fully justified in stating that as important as it is for the patient himself and his possible cure to find the specific microorganism in tuberculosis, it is just as important to demonstrate successfully the *diplöe* gonococcus Neisser after a prolonged chronic gonorrhoea, on account of the possible danger of infection an individual might have for others. It is evident that by our present methods

of examination it is often impossible to state whether a chronic posterior urethritis has entirely died out or not. Experienced gynecologists coincide in the statement that in cases of posterior urethritis where by objective examination nothing could be found and as subjective symptoms existed the female genital apparatus was very heavily infected. It is worthy of note, that Zweifel says in his latest work upon gynecology: "This disease (or chronic urethritis) has a strictly social danger and wives and families even were then syphilitic, for it produced zoöspemia and sterility in males, and sterility and general debility in females."

You will readily coincide with me that every contribution which throws more light upon the question, at what time a chronic posterior urethritis can be considered as cured or is no longer infectious, must be gratefully received by the medical profession.

While in Europe last year, Dr. Posner, of Berlin, told me that in his opinion the infection in cases of posterior urethritis apparently cured might be produced by the secretion of the diseased prostate gland, which is pressed out at the moment of ejaculation. In an important contribution upon this subject this same author first called our attention to the fact that by examining the prostatic secretion much benefit might be derived as regards an exact diagnosis in obscure cases of posterior urethritis. Where by digital palpation of the gland and microscopic examination of its secretion a chronic inflammatory condition of this organ could be ascertained, this chronic prostatitis was in his opinion in almost all cases complicated with an insufficient action of the ejaculatory ducts, or even with chronic spermato-cystitis. The anatomic basis for Posner's suggestions was given a few years later by Finger of Vienna. In a number of cadavers where the prostatic portion of the urethra showed chronic gonorrhoeal affections he found the glands of the prostate the seat of periglandular as well as endoglandular infiltration. Very interesting is the fact that in a considerable percentage of cases thus examined passive pathologic conditions of the ejaculatory ducts could be found, namely, an obstruction of the ducts by an invasion of round cells. To such conditions, apparently, ejaculation is difficult or prevented.

We therefore have sufficient reason to believe that the residue of chronic gonorrhoea lies here. It is evident that by the insufficient action of the ejaculatory ducts, as well as by the cardoglandular infiltration of the prostate, infectious material is retained in the deeper appendages of the posterior urethra.

Lately v. Schlen, almost simultaneously with myself⁴ has utilized the investigations of the authors above mentioned to devise a new method of examination, by which positive results may be obtained where our previous methods failed to furnish any infectious material. Let the patient urinate at first in two portions, keeping a portion of urine in his bladder. As a rule these first two portions appeared to be almost void of threads, pus, etc. Then the prostate gland is forced out from the rectum and immediately afterwards the fluid and last portion of urine is voided which was uniformly cloudy, containing abundant material of an infectious character.

In palpating the prostate of many cases suffering from chronic posterior urethritis for this purpose, I could ascertain the fact that in a large percentage this organ was rather enlarged, of unequal consist-

ence and often painful to the touch. None of these patients complained of any of those symptoms generally ascribed to a subacute or chronic form of prostatitis. I am inclined to think that this condition of the prostate must be considered as an extension of the gonorrhoeal infection from the posterior urethra to the prostate gland and the peri-prostatic tissue. The deeper the inflammation extends the more it loses its violent character. If these glandular organs are once infected those remedies which will readily remove the infection from the urethral canal will certainly not influence the morbid condition of these organs owing to their anatomic structure and the insufficient action of the ejaculatory ducts.

I therefore concluded, with the valuable aid of Dr. Spencer, to systematically examine our entire clinical material of cases of posterior urethritis to ascertain what rôle the prostate gland plays in the infectious process. In order to exclude possible errors in drawing conclusions from our investigations, we have at the same time examined a number of persons who never had suffered from gonorrhoea. In all cases the prostatic secretion was acquired by pressing open the gland from the rectum, the fluid was then examined microscopically and bacteriologically by Dr. Spencer, who will give you his report in addition to mine, and will illustrate the importance of our investigation through some excellent drawings.

As I proceeded in my investigations I began to utilize his method of pressing out the prostatic secretion for therapeutic purposes. At first in a number of cases the palpation of the prostate was quite painful. Later all tenderness gradually disappeared. I therefore combined with my diagnostic object in pressing out the prostatic secretion, a systematic massage of the gland and could very soon macroscopically as well (in the appearance of the fluid) as microscopically (in the gradual disappearance of pus cells) notice a decided improvement. At the same time in those cases which presented subjective symptoms the symptoms gradually disappeared under the beneficial influence of the massage.

One case will illustrate the satisfactory results obtained by this method:

Patient C., aged 29, consulted me early last winter. He had suffered from repeated attacks of gonorrhoea, a slight discharge having been present for the last two or three years. In the last eight months he had been under very able treatment in New York, as well as here, with the result that all discharge had disappeared and no other symptoms were present. As he intended to marry shortly he wished to satisfy his mind upon the possible danger of infecting his future wife. In this case the two-glass method gave a negative result, both portions being absolutely normal. In palpating the prostate from the rectum it was found slightly enlarged and the left lobe was very painful to the touch. The microscopic examination of the prostatic secretion showed an abundance of pus cells. The third urine portion, voided after the expression of the prostate was cloudy and contained several threads, in which there were found gonococci. I advised the patient to postpone the wedding, which he did. Meanwhile I treated him with systematic massage of the prostate with the very satisfactory result that after two months all threads had disappeared while the prostate appeared to be normal in every way. His wife is perfectly healthy up to date.

Since then I have treated several other cases similarly, and desire to mention particularly one case in which we both, Dr. Spencer and myself, after each expression of the prostate made a careful microscopic and bacteriologic examination of the prostatic secretion. Here the gradual decrease of pus cells was accompanied with the disappearance of subjective and

objective symptoms. In another case I have to report that the improvement is only very slight up to date. Undoubtedly this method will fail to give satisfactory results where the prostatitis is complicated with a severe chronic spermato-cystitis.

Our material has not been large enough at present from which to draw absolutely certain conclusions. Even in the limited number of normal cases we could obtain for our purposes we could occasionally notice an invasion of round cells, indicating a congestive condition of the prostate. This was in one case most decidedly due to a hyper-irritation of the genital apparatus by masturbation. The positive value of our investigations still lacks the presence of gonococci in the prostatic secretion of any of our cases. Dr. Spencer will give you his reasons why the absence of gonococci in the prostatic secretion does not prove the absence of an infectious condition of the gland. Still I am ready to confess that the positive proof of a gonorrhoeal prostatic can only be obtained by the presence of the gonococci.

From our preliminary investigations—we intend to publish the result of our future studies upon this subject at a later date—I am convinced that much harm to the female genital apparatus will be avoided if any man having suffered from chronic gonorrhoea is examined in regard to his prostatic secretion before marriage. No patient who has suffered from chronic posterior-urethritis can be pronounced as cured without an examination of his prostatic secretion. The best treatment—if no after symptoms of posterior urethritis are present—will be the systematic massage of the prostate. If symptoms of post-urethritis are still present the massage of the prostate might be combined with a local treatment of the posterior urethra.

II.—ITS MICROSCOPIC AND BACTERIOLOGIC ASPECTS.

As an indispensable adjunct to the rational therapeutics of chronic prostatitis, we must consider the microscopic phases of this affection. Owing to the limited time and material at our disposal, our observations are necessarily incomplete. Such as they are, however, they are of the greatest interest to the urologist, and importance to the patient. Owing to more or less imperfect diagnostic methods, the knowledge of the actual condition of the prostate gland has been left largely to chance. Reliance has been placed principally upon the subjective symptoms of the patient and the very meager objective symptoms which he presented. By the aid of the comparatively simple method of expression of the contents of the prostatic follicles, as outlined by my colleague, Dr. Krotoszyner, and by a microscopic examination of the expressed fluid, a great flood of light is thrown upon the actual conditions present.

The literature upon this important subject up to the present is exceedingly scanty. Fürbringer, of Berlin, may be regarded as the pioneer in the use of improved direct diagnostic methods of ascertaining the exact condition of the diseased prostate. A notable contribution is that by Finger, of Vienna, in the *Archives of Dermatology and Syphilis* in 1893, afterward incorporated in the last edition of his work on "Blenorrhoea of the Sexual Organs." As my colleague, Dr. Krotoszyner, also refers extensively to this work, I will confine myself solely to the microscopic features. He examined the prostates of patients known to have had posterior urethritis dur-

ing life, but who died of intercurrent diseases. He found a number of cases in which the gland follicles were filled with desquamated epithelial cells. In such, during life, the prostatic secretion had shown nothing beyond a striking increase in the number of epithelia. In another group of cases examined in a similar manner, beside the desquamated epithelia, he found numbers of polynuclear leucocytes completely filling the gland tubules. In these cases, during life, the expressed prostatic secretion showed large numbers of pus cells in addition to the epithelia. Neither set of cases presented any subjective symptoms as affecting the prostate.

The last article on this subject appeared in the *Berliner Klinische Wochenschrift*, May 21, 1894, by Dr. Tonton, of Wiesbaden, entitled, "The Gonococcus and its Relation to Blenorrhagic Processes." Among other matters he writes "that he believes in the possibility of a continuance of chronic inflammatory processes (in the genital tract), without the presence of gonococci." He further believes it reasonable to assume that the vascular lesion caused by the virus may outlast the virus itself and be the cause of continued exudation. An extension of the process is due to the presence of the virus itself.

In order to make comparisons which should be the more striking, we have expressed the prostatic secretions of a number of normal cases, who have never had a gonorrhoea or any known inflammatory lesion of the genital tract. For present purposes it will suffice to describe the microscopic findings in three cases:

Case 1.—Age 19 years. Fluid expressed shows immense numbers of lecithin granules. Of these the majority are very minute in size; many are larger, approximating in size a red blood cell. They are perfectly circular in shape and present a uniform hyaline appearance. The majority lie free in the fluid or may lie on an epithelium, or corpus amylaceum.

There were numbers of medium-sized cells, presenting for the most part a densely granular structure, and containing several glistening bodies which were undoubtedly oil globules from a beginning fatty degeneration. The majority of these were simply granular.

There were moderate numbers of cylindrical epithelial cells from the gland follicles of the prostate. These presented a characteristic appearance of a long spindle-shaped cell body terminating in a long stem-like process. In certain cases this process branched at its extremity and formed two rootlets, as it were. Each cell contained a large oval nucleus, and was granular. There were a very few cells with one nucleus, which we regard as lymphocytes and of no pathogenic significance.

There were a few motionless zoöperms scattered about.

Case 2. Normal Prostate.—H. S., age 19 years. Fluid appeared in rather unusual amount for one of his age, at the meatus. Upon microscopic examination, there appeared numerous lecithin bodies as described in the previous case. A moderate number of medium-sized cells, presenting the granular appearance before referred to and also evidences of beginning fatty degeneration; corp. amylacea; a very few scattering cells, with one nucleus, which we regarded as lymphocytes; a number of the characteristic cylindrical epithelia; a few zoöperms.

Case 3.—H. H., age 24 years. Never had gonorrhoea. Abundant lecithin bodies; abundant granular cells with a few showing fatty degeneration; lymphocytes; cylindrical epithelia, and corpora amylacea.

Case 4.—S., age 33 years. Although we have examined several cases of chronic prostatitis, this case will stand as a type in lieu of a detailed description of the others. The case has been under treatment for nearly six weeks. The fluid at first expressed contained an abundance of dense flocculent masses, which upon examination proved to be closely packed masses of pus cells. At the beginning the expressions were carried out about twice a week, and subsequently once a week. A striking feature of the fluid was the unusually large cells, which had undergone granular

and fatty degeneration. These occurred in groups. There were also the numerous lecithin granules, as in normal cases; cylindrical epithelia, and a few zoöperms. With each succeeding expression, the diminution in the number and arrangement of the pus cells was very marked. After the second or third expression and instillation of silver nitrate solution, the pus cells ceased to appear arranged in the dense groups as at first. They became progressively more scanty and scattered through each field of the microscope. Finally, they were so reduced in number as to give evidence that the process had come to a close. A similar course obtained in the behavior of the pus cells in the other cases examined.

The corpora amylacea showed the structure of concentric laminae, and more or less well-marked cleavage as one might be led to expect in crystalline structures. There were also a number of more or less cylindrical-shaped bodies, which consisted evidently of hyaline casts of the prostatic follicle, as described by Paget, Clark and Fürbringer. In this case there were large numbers of isolated pus cells. Many cylindrical epithelia as in the normal cases. Abundant lecithin granules. A few zoöperms.

Case 5.—S., age 43 years. Fluid contained an abundance of flocculent threads. Upon microscopic examination, these threads were found to consist exclusively of pus cells grouped in masses held together by a scanty amount of mucus. In this case there were numbers of corpora amylacea, fatty and granular cells, lecithin granules and epithelia, as in the previous case.

Case 6.—R., age 24 years. This case presented features resembling those of the previous case. The fluid expressed contained numerous shreddy floccules which consisted of densely grouped masses of pus cells, corpora amylacea, epithelia and zoöperms.

The importance of our diagnostic methods is well illustrated in Case 6. After apparent subsidence of all of the symptoms and physical signs of urethritis, an expression of the prostatic contents revealed the presence of an abundance of pus cells in the characteristic manner, thus necessitating still further treatment.

General Observations.—From our observation we have concluded that, in the normal cases, the large cells seemed uniformly smaller, and showed less of a tendency to fatty degeneration than in the cases of the maturer and infected cases. From this we are led to the deduction, that these bodies do not reach the large size, and show evidences of fatty degeneration, in young persons whose sexual functions are as yet in a more or less dormant state. In Case 2, in which the sexual function was already somewhat active, we observed an increase in the number of lymphocytes. While this increase may hardly be said to assume the importance of indicating some pathologic change in the prostate itself, yet we regarded it as evidence of a functional over-activity. It is interesting to observe that upon a subsequent attempt to obtain fluid from this case the fluid was distinctly sanguinolent and upon examination proved to contain large numbers of red blood cells. Upon questioning the patient we found that he had indulged freely in sexual pleasures on the day preceding our expression. Through this indulgence the prostate became undoubtedly hyperemic and, owing to the presence of round cells, showed a condition of irritability.

As regards the presence of the above mentioned hyaline casts, we agree with others that they seem to occur toward the close of a desquamative prostatitis, as verified by our own experience. In order to exclude all doubt as to the nature of those bodies which we have regarded as pus cells and lymphocytes, we treated them with a 20 per cent. solution of acetic acid. Upon clearing the pus cells were found to be uniformly polynuclear, and the lymphocytes mono-

nuclear. According to certain authors, there are mononuclear pus cells, but Ziegler's "Pathology" in the last German edition says: "Among the cells emigrating from the circulatory system, two forms may be distinguished, viz: mono- and polynuclear, and the term pus cell refers to the polynuclear forms."

Fürbringer, in his classical work, "Die Inneren Krankheiten der Harn u. Geschlechtsorgane," edition 1890, states, that pus cells may appear plentifully in prostatic secretion as a result of a catarrh confined to one gland follicle, and not of the entire organ. Under all circumstances the finding of the large and beautiful Böttcher crystals, determines the secretory involvement of the prostate. The addition of a drop of a 1 per cent. solution of ammonium phosphate to a drop of the expressed fluid on a slide, should show these crystals after the lapse of an hour. Further, he says: "It must be admitted, that these crystals may not be found in true prostatorrhoea, because of extensive chemic changes in the gland secretion, especially in those forms tending to form necrotic areas and abscesses, also because of the admixture of urine." But the failure of this reaction by no means weakens the proof in the positive results afforded by their presence.

We have endeavored to demonstrate the presence of these crystals in each of our cases, according to the method indicated, but as yet without success, perhaps owing to the obstacles mentioned. Likewise in each case we have searched through many specimens for gonococci in the pus cells of the expressed secretions, but without success. Undoubtedly, with the advantage to be derived from examination of greater clinical material, our efforts in this direction should be successful.

Our method of staining for gonococci is one which has given us beautifully clear pictures, and generally brilliant results. It is that recommended by Lanz in No. 9 of the *Deutsche Medicinische Wochenschrift*, of this year. Briefly it is as follows: Spread on the cover-glass, dry and fix in the usual manner, being particularly careful not to overheat in fixing. Immerse from one-half to one minute in a 25 per cent. solution of trichloroacetic acid. Wash, dry, and fix again. Then immerse for about five minutes in a solution of thirty cc. of distilled water, to which add enough of a saturated aqueous solution of methyl blue to give a deep blue tint, and one or two drops of a 5 per cent solution of caustic potash. The gonococci will appear deep blue, and the rest of the cells a lighter blue. A double stain may be produced by immersing the cover-glasses for a few minutes in a dilute solution of Bismarck brown. The cell protoplasm will take on a greenish or brownish hue, while the gonococci will remain unchanged. As a negative criterion in cases in which all other methods of determining the presence of gonococci fail, cultures may be made. They grow only on such media as blood-serum, serum-agar or blood-agar, in the form of minute dewdrop-like colonies. It is a distinguishing characteristic of gonococci, that they do not grow on plain nutrient gelatin or agar.

In conclusion, we must express our regret that our limited time and clinical material have not enabled us to give you more extensive results, but we trust that the little we have presented will serve as a stimulus to our colleagues to devote more time and painstaking methods to the examination and treatment of

this hitherto somewhat unsatisfactory class of cases. If by definitely excluding all possibility of infection after an attack of specific urethritis, we may lessen the misery entailed on young wives through innocent contact with husbands pronounced free from infectious possibilities by their medical advisers, we may feel some degree of satisfaction; if in no other way, at least by curtailing some of the work of the gynecologists.

ON THE TREATMENT OF PHLEGMONOUS ERYSIPELAS AND OTHER FORMS OF SUPPURATIVE INFLAMMATION BY IMMERSION IN ICE WATER.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY HENRY BERGSTEIN, M.D.

RENO, NEVADA.

Phlegmonous erysipelas, phlegmonous inflammation, or pseudo-erysipelas, as Billroth terms it, I, in my earlier experience, found an intractable and destructive affection materially interfering with the future usefulness of the hand, the part most commonly affected.

After having treated a number of cases by the old method of free incision, local applications, hot fomentations, etc., with the usual results, it occurred to me that the rapid destruction of tissue was due to excessive heat, and that if some method of reducing the temperature were adopted the effect would be prevented. Cold has always been used as a method of treatment, with the added caution that it was liable to produce gangrene, as in these cases there is a natural tendency to that result. Pressure, such as would be produced by the application of ice would increase that danger, so the thought occurred to me to use immersion in ice water, and I will now cite a couple of cases treated in this manner:

In December, 1875, J. M., a half-witted fellow, becoming alarmed at something in the night, thrust his hand through a pane of glass. He came to my office the following morning, and I found an incised wound extending along the back of the hand from between the second and third fingers to the wrist. I brought the parts together with four silk ligatures, and giving him a carbolized lotion, told him to return in a day or two. He returned on the second day and I found the hand enormously swollen. The skin, of a roseate hue, with the well-known doughy feeling of erysipelas. I at once removed the stitches, and quite a quantity of ichorous pus escaped. I painted the surface with iodine, gave him the tincture of the chlorid of iron internally and ordered the application of flaxseed poultices. He returned on the following day, and the quantity of pus had greatly increased; the hand having assumed the well-known feeling of a bag filled with loose bones. I directed him to go home, fill a basin with water, and after putting in a large lump of ice to keep his hand completely and constantly immersed, and when he was ready to sleep, to wrap a towel, which had been previously dipped in ice water, around his hand and to renew the application every time he awoke, and, as in his mental condition he slept but little, it was kept pretty constantly immersed. In addition to the iron I had previously ordered, I gave him liberal doses of quinin, together with wine and nourishing diet. For the first twenty-four hours, I was rather uneasy about the treatment, visiting him every few hours to watch its progress. To my delight, suppuration ceased almost immediately, and to my amazement on the following day I found granulations springing up in various portions of the wound, which continued to do well and I discharged him at the end of twenty-one days, the wound being completely healed and the hand unimpaired.

In the practice of the country physician, cases of this character are not of common occurrence, and it was not until the summer of 1893 that a second case presented itself:

E. U., residing near Reno, working in a saw-mill, in some way brought the palm of his right hand in contact with a circular saw. He was attended by a *confère* for eleven days, when the patient, finding his hand in a bad condition, and realizing that he was to be disabled for some time, and not being overburdened with this world's goods, concluded to go to the county hospital which was at that time in my charge. At that time his condition was as follows:

A large portion of the surface tissue of the palm of the hand had sloughed away, shreds of dead tissue hung from the denuded surface, also from a number of openings into the fingers, and pus in large quantities was being discharged from all the parts named, and from two openings at the wrist.

I first removed all shreds of dead tissue, then made a thorough application of pure carbolic acid, injecting it into all the sinuses, then carried out the same treatment as in Case 1, except that I substituted tartarized iron for the chlorid. For two or three days there was a slight discharge of pus, at the end of which time it ceased completely. Granulation springing up freely continued to complete healing of the wounds, which occupied seven weeks, when he was discharged with some slight impairment of the flexor muscles. After eight months of active exercise of the parts, he reported the impairment overcome.

I report these cases in the hope that this method may be given a trial and the results be reported, for if it proves as efficacious with others as it has in my hands, it must become an established method of treatment.

HOW LONG IS SYPHILIS CONTAGIOUS?

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY J. D. THOMAS, M.D.

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Syphilis has as clear and well defined a clinical history as characterizes the other contagious or infectious diseases. That the disease is due to a microbe is partially established, and the analogy that exists between syphilis and other diseases where germs are demonstrated as causative is so marked that there is little room for doubt. Some of the zymotic diseases are acute in their invasion and rapid in their career, while others are chronic. We may cite as extremes of this comparison, roetheln and the disease under consideration. If roetheln runs its course in comparatively a few hours he who would diagnosticate an eruption of ten days' duration as roetheln would be a poor diagnostician indeed. All germ diseases run a certain period, and that period is individual or peculiar to each, after which convalescence takes place, or there follows certain sequelæ. These sequelæ are due to an alteration in nutrition or function or both. Original diseases are not reproduced from their sequelæ. After an acute disease is over there is no danger to others so far as the patient himself is concerned; the remaining danger lies in the fact that the germs may be lurking in drapery, walls, etc. The convalescent patient is not a factor. In diseases that are contagious only, or those that require inoculation for their reproduction, when the active stage has expired the patient and his surroundings are absolutely innocuous. Syphilis being purely an inoculable disease then when the zymotic period has exhausted itself the patient is no longer capable of conveying or transmitting the disease.

All zymotic diseases have a pretty uniform history of invasion, period of acme and period of decline. Syphilis is not an exception to this rule. Let us take, for instance, diphtheria. Six months after the disappearance of the active stage the patient may be suffering with paralysis. The paralysis is not diphtheria; the condition is not a contagious one; it is a sequel. No one has the temerity to assert that a person who has had scarlatina or smallpox continues to carry about, for months, in his system the germs of these diseases, although the one disease may cause, for an unlimited time, a suppurative otitis and the other a necrosed maxilla. Why should not the same reasoning hold good with regard to syphilis? Why should such a large number of the profession still hold to the idea that the sequelar lesions of syphilis are contagious? But recently I heard a gentleman make the statement to a medical society that he had treated a patient for syphilis ten years before the patient's marriage, and that after the marriage the patient infected his young wife. To me the statement was absurd—I did not deny the contagion but did the source. The belief by some that the contagious character of syphilis persists for decades is an error due to faulty observation or to a lack of observation. Without entering any further into polemics I make the assertion, in language more forcible than elegant, that patients may be rotten with the sequelar lesions of syphilis and at the same time indulge in intercourse and procreate offspring without conveying the disease to the one nor transmitting it to the other.

In corroboration of the above opinion I present for your consideration a few cases from my note-book—cases that have been carefully observed. Here are the facts:

Case 1.—In the summer of 1885 Mr. G. E. acquired a chancre on his lip through kissing a prostitute, and afterwards conveyed the disease to his wife. This couple have already several children. On March 3, 1886, to this couple a child is born which soon becomes cachectic and in a few months dies from specific marasmus. On May 30, 1887, at full term a macerated fetus is born. On August 31, 1888, a healthy looking child is born and does not develop the disease. On Feb. 17, 1890, another healthy child is born which has given no evidence of syphilis. On May 3, 1894, (the present year) an exceptionally fine boy, weighing twelve pounds, is born and remains well. During all this time this family has been under my exclusive care, so that my opportunities for observation have been unobstructed. The mother ceased to convey syphilis in less than three years.

Case 2.—Mrs. B., mother of three children, becomes infected through her husband. For three years after the infection she remained unimpregnated. During this time she was under my care, but in an irregular manner—presenting herself only when symptoms or lesions appeared. At the end of three years she became pregnant, went to full term, and was delivered, by me, ten months ago of twin boys. At the time the twins were born she had a serious tertiary lesion on her posterior fauces. On the tenth day the larger child died with eclampsia, but presented no signs of the disease. The smaller child has not been ill a day and is at present the picture of health. The period of contagion here lasted less than three years.

These two cases bear upon the heredity feature of syphilis.

Case 3.—Was called to see Mrs. C., who felt herself indisposed. On taking hold of the wrist to examine her pulse I noticed an eruption. On further investigation this eruption, which was macular, was found to exist over nearly the entire body. In addition to the eruption there was sore throat and an adenopathy. I saw the husband of this woman privately. On putting the question, "Did you ever have syphilis?" to him he replied that he had had syphilis four years ago; that three months ago he entered the matrimonial state on the strength of the advice given him by his physi-

cian. Although I did not say so to the man I was perfectly satisfied in my own mind that the advice given was orthodox. So firm was I in my belief that this new wife did not receive the disease from her husband that at my next visit I made bold to tell the patient the nature of the disease and asked frankly how she acquired it; stating at the same time that her husband had had the disease and that he was safe from further infection. She denied the possibility of any other source of infection, but took my statement in such a matter-of-course way and with so much *sangfroid* that I was satisfied that my premises were correct. This patient remained unimpregnated for two years and three months. At the end of the third year from her marriage I delivered her of a healthy looking child which, in a few days, developed a papular syphilide. After a prolonged treatment this child recovered. In another year after the birth of the first child this woman became again pregnant, was delivered by me at full term of a healthy child which is now $3\frac{1}{2}$ years old and which has never shown any symptoms of syphilis. Now, to come back to the woman herself. After having by many devices attempted to get a correct history of her infection, at the end of four years she admitted having had intercourse with a man other than her husband the week before marriage. I ascertained from the physician of this man that four years before he did treat the individual professionally and that he was then in the active stage of syphilis.

Case 4.—Mr. D. and his wife called at my office. Mr. D. explained, privately, to me that he had been married but a few months; that his wife had an eruption which he feared was syphilitic; that he himself had been infected four years ago and as a result he had given the disease to his innocent bride. I saw this "innocent bride" alone and found the eruption spoken of by her husband. It was syphilitic. I said to Mrs. D., You have syphilis, you are perfectly safe in the companionship of your husband for he has had the disease and can never acquire it again. He did not give it to you, for too long a period has intervened since his infection. Now, you can make a confidant of me. She then admitted having had intercourse with an old lover about the date of her marriage.

These two cases prove the clinical fact that they were not infected by their husbands but by fresher syphilitics.

Case 5.—Mrs. E. was treated by me for syphilis. At the end of three years after infection she formed a *liaison* with a patron of mine who had never experienced the disease. This relationship was kept up for an indefinite period; the male in the case remained uninfected.

Further recital of cases would be tedious, although they are numerous enough. I have quoted no authorities, for this brief paper is intended as a purely personal contribution, the aim of which is to help establish the fact that syphilis can only be conveyed during the primary and secondary stages, and that the secondary stage ends not later than the third or fourth year from date of infection. I am sure that the chaotic views held by many of the profession in regard to the contagious period of syphilis is due to the acceptance upon their part of the word of the patient. We should not, and can not afford to, base scientific axioms upon the statements made by members of the laity. These statements are often studied deceptions; at other times they are honestly given but from ignorant premises.

A CONTRIBUTION TO SURGERY FROM ITS YOUNGEST SPECIALTY, DENTAL SUR- GERY.—THE SURGICAL ENGINE.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY W. G. A. BOXWILL, D.D.S.

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While every medical man has heard and read of this instrument for the past twenty years, but few have ever witnessed the application of it in the surgery of the bones and tissues. Outside of Philadelphia

—my home—it has been but little used, so slow are surgeons to take hold of new appliances, and particularly this engine, which, to so many, seems so formidable that, while they can not doubt its great efficacy yet they fear to handle an instrument driven at the high speed of from one to twenty thousand revolutions a minute.

The dental engine had been tried for minor operations and was better than nothing; yet it was not until this duplicature of the human arm and hand was developed, that it was possible to call it a truly surgical engine.

This I present you to-day, is the only type that is of any value and is based on the surest basal principles of mechanics. It is not necessary to describe it in detail. Suffice it to say that a look at its working parts will satisfy the most skeptical that it must do all that is claimed for it.

As a further guarantee of its value in surgery, I need but mention a few of those eminent in this line. Both the elder and younger Gross, Agnew, of Philadelphia, and Horsley, of London. These are enough.

Be it said to the credit of the conservatism of surgeons, it would have been more largely used had I not parted with it and sold to a manufacturing firm, hoping to have it more extensively made and better and cheaper. But I made a great mistake. It is not too late to have it remedied. As you see it here in operation there is every element about it calculated to perform any operation in surgery on soft or hard tissues, and it is so simple any one can take care of it, and so cheap that any surgeon of extensive practice can afford to have one. Beside, it is so made that it is used for a dental engine and wherever it is to be found, in any town or hamlet, in the possession of a dentist, it can be borrowed at any time and made available for surgical work by simply adding to it a crank to give it higher speed; so that an amicable arrangement can be made with the dentists for its use, and they would be too glad to be of service in assisting the surgeon anywhere.

In this way the first cost to the surgeon is nothing, further than having a few instruments adapted for its special work which would be but a trifle. Then, its universal presence could be relied upon at any moment and anywhere if it is in the possession of a dentist. This one item, of combining the dental with the surgical power, must militate largely in its favor and one's surroundings can be adapted to its use. This argument is no mean one. While not so good for the manufacturer, yet to the *user* of it a favor not to be resented.

Up to the time of the death of both of the Professors Gross, not an operation on the bones was performed but I did it for them.

As to Prof. Horsley, of London, he said before the Washington Congress: "Thanks to one of your fellow-countrymen—Dr. Bonwill. Without this engine I would not like to undertake the formidable operations I have to perform on the skull for removal of tumors and treatment of nervous affections."

Its range enables you to perform the most delicate as well as the most extensive operations, and can be confined to 100 revolutions or run up into the 1,000 revolutions.

It will remove in a few minutes the hardest osseous tumor, or with the diamond will cut a stone in the bladder into atoms.

In plastic surgery wherever tissues are to be united

there is no loss of substance and success is more certain. In the bones, whether taking away the whole shaft leaving nothing but the periosteum for renewal of the parts—there is no necessity for opening into the bone further than merely exposing for access, thereby saving the covering of important arteries or interfering with nerve tissue. In the reduction of ununited fractures and the absolute apposition with which they are afterwards held by special appliances, it is of great value.

It can be used in fractures of the patella without opening into the membranes. Removal of the whole of the superior or inferior maxilla without other access than by the mouth. Its aid with its special appliances enables you in fractures of the skull to elevate the parts without trephining.

Removal of the bones of the coccyx has been done in a few minutes and no injury done to the rectum or shock to the surroundings. With a special instrument I have, the vault of the cranium can be entered at any point without a trephine, and of any shape, without any danger of injury to the dura mater or much loss of bone.

In operations upon the cervix, the diamond wheels it carries at high speed chafe off the hardened tissues with but trifling loss, and enables the parts to the more certainly be brought in apposition, and left nearly the normal size of cervix.

It is unnecessary to speak further of its possibilities, as the ingenious surgeon would soon see that it would be his constant companion and when once he had learned to manipulate it, it would be as much of a *sine qua non* as it is to-day a part of modern dental surgery.

No one can estimate the value alone in time saved in all cases and, from its high speed and capability of reaching 20,000 revolutions a minute, *pain* itself can almost or quite be annihilated or prevented, and if nothing more the shock is comparatively light, the effort at healing by first intention is made certain in every case, and from the smoothness of the bone cut, drilled, burred or sawed, there are no spiculæ of bone left to induce the least inflammation or necrosis.

THE NON-OPERATIVE METHODS OF TREATING ANAL FISSURE OR IRRITABLE ULCER OF THE RECTUM.

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY LEWIS H. ADLER, JR., M.D.
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PROFESSOR OF DISEASES OF THE RECTUM, PHILADELPHIA POLYCLINIC AND COLLEGE FOR GRADUATES IN MEDICINE; SURGEON TO THE CHARITY HOSPITAL, ETC.

When anal fissure is of recent origin and not associated with much spasm of the sphincter muscles there is a fair prospect of cure without operative procedure.

This statement is made advisedly and in the face of a criticism published in *Mathev's Medical Quarterly*, (January, 1894, Vol. i, No. 1, p. 185) of the writer's brochure: "Fissure of the Anus and Fistula in Ano," (Physicians' Leisure Library Series, 1892. Geo. S. Davis, Publisher, Detroit, Mich.) in which the following statement is made: "It is a pity that this admirable little work wastes so much time in discussing the palliative (?) treatment of the disease," (fissure).

"In an affection so simple in its etiology and pathol-

ogy and that can be so quickly and radically cured by divulsion of the sphincters, it seems a great loss of time to talk about applying ointments, when it is a recognized fact that not one case in ten is ever benefited by their use."

I do not doubt but that the reviewer quoted, honestly expressed himself in the statements made; and furthermore, that the opinion given,—that not one case in ten is ever benefited by other means than operative measures,—is based upon personal experience. But I must be pardoned for dissenting from the same views as my experience, while not an extensive one, is ample to justify a more conservative treatment of many of these cases.

I am well aware that the operative treatment of fissure is a simple procedure and that the disease is quickly cured by its execution; but I am likewise conscious of the fact that many persons object strenuously to any operation. No matter how trifling its import be to the surgeon, an operation to the patient is something which is dreaded, and it behooves the practitioner to remember that the majority of persons are unwilling to submit to an operation until they are personally convinced that such a course is the ultimatum.

It is my purpose in presenting this paper to indicate how over 75 per cent. of the cases of fissure of the anus which have come under my observation, both in hospital and private practice, have been cured by non-operative measures. No less an authority than Allingham ("Diseases of the Rectum," fifth edition, London, 1888, p. 215) states that the curability of this lesion does not depend upon the length of time during which it has existed, but rather upon the pathologic changes it has wrought. He also adds that he has cured fissures of months' standing by means of local applications, where the ulcers were uncomplicated with polypi or hemorrhoids, and where there was not any marked spasm or thickening of the sphincters.

It is essential to the success of the treatment of fissure by local applications, that rigid cleanliness of the parts be maintained; for this purpose the anus and the adjacent portions of the body should be carefully sponged night and morning and after each stool with tepid water. It is also highly important that attention be given to the condition of the patient's bowels. Regularity of habit should be established, and the evacuation rendered semi-fluid,—as figured or hard stools materially aggravate the symptoms. To accomplish these purposes, enemata or mild aperients should be employed, and the diet must be regulated, the use of bland and unirritating food being enjoined.

All drastic purges should be avoided, as they are more or less irritating to the extremity of the rectum. To establish a daily evacuation of the bowels and to render the movement as painless as possible, I am in the habit of ordering an enema of warm water, or one of rich flaxseed tea, say from half a pint to a pint, to be administered every evening; preference being given to the night time, as then the patient can assume the recumbent posture, which, combined with the rest, affords the most relief from subsequent pain.

If the first enemata should prove ineffective it should be repeated in half an hour. In order to relieve the pain and spasm of the sphincters attending the evacuation, it is well to use a suppository about

half an hour before the injection is employed consisting of

R Ext. belladonnæ gr. $\frac{1}{8}$ ad $\frac{1}{2}$
 Ext. opii aq. gr. $\frac{1}{4}$ ad $\frac{1}{8}$
 Ol. theobromæ gr. x

Misce, et fiat suppositoria j.

or an ointment of conium may be used, as recommended by Mr. Harrison Cripps, ("Diseases of the Rectum and Anus," second edition, London, 1890, p. 189):

R Ext. conii ʒij. 8 |
 Olei ricini fʒiij. 24 |
 Ung. lanolinii q. s. ad ʒij. 64 |

A small quantity of this ointment should be smeared on the part five minutes before expecting a motion, and again after the bowels have been moved.

In applying any of the various local remedies to an anal fissure it is necessary first to expose the ulcer to view, which can be done by means of the fingers of the operator or his assistant, and to anesthetize its surface with a 4 per cent. solution of the hydrochlorate of cocain, well brushed in with a camel's hair pencil or with a piece of cotton attached to a probe. The application of the cocain may have to be repeated once or twice at intervals of three or four minutes in order to obtain the desired anesthetic effect. If any ointment has been used about the fissure, the anus should be subjected to a hot water douche before using the cocain, as this drug will not exert its anesthetic influence on a greasy surface, (W. P. Agnew, M.D., "Diagnosis and Treatment of Hemorrhoids," etc., second edition, San Francisco, Cal., 1891, p. 91).

Among the different remedies that have been used in the local treatment of fissure of the anus may be mentioned the following: Nitrate of silver; acid nitrate of mercury; fuming nitric acid; carbolic acid; sulphate of copper; the actual cautery; and chloral hydrate. Of these topical applications the nitrate of silver is the best. Its effects are various: It lessens or entirely calms the nervous irritation which is so important a factor in producing spasmodic contraction of the sphincters; it coats and shields the raw and exposed mucous surface by forming an insoluble albuminate of silver; it destroys the hard and callous edges of the ulcer, and tends to remove the diseased and morbid action of the parts. The form in which I usually employ this salt is in solution (from 10 to 30 grains to the ounce). The stick caustic may be also used.

To accomplish the best results, the solution should be used once in twenty-four or forty-eight hours, according to circumstances. It may be applied by means of cotton attached to a silver probe or to a piece of wood.

The application is made by separating the margins of the anal orifice with the thumb and the index finger of the left hand, and introducing into the anus the probe charged with the solution. The argentic nitrate is to be applied to the fissure only; a few drops are all that is required. If thorough local anesthesia has been induced by the use of cocain, the application of the silver salt produces little (if any) suffering, for by the time the anesthetic has lost its effect the otherwise acute pain of the nitrate of silver will have passed away.

After each application the part should be smeared well with an ointment of iodoform (30 grains to the ounce). The odor of that drug may be disguised by the addition of a few drops of attar of roses. Iodol may be used instead and in the same way, but I prefer the iodoform, owing to its anesthetic qualities.

After the ulcer has been touched once or twice with the silver solution the effect will be, in the cases that are benefited by this treatment, a considerable mitigation of the pain from which the patient suffered when at the closet and afterward, and the sore will present a healthy granulating appearance, and will slowly contract in size.

Unless the fissure be complicated with some other affection in children and in young persons, anal fissure is almost always curable by adopting the mode of treatment laid down.

Some authorities speak highly of the use of the acid nitrate of mercury, fuming nitric acid, carbolic acid, the actual cautery, etc., but in my opinion their employment is attended with more suffering than follows the use of the nitrate of silver. Furthermore, the application of these remedies is not so certain to effect a cure, so that I rarely resort to their use.

The daily introduction of a full sized bougie, made of wax or tallow, will sometimes act beneficially in cases of fissure by stretching the sphincter and producing such an amount of irritation as will set up a healing process in the ulcer. An application of cocain or of belladonna ointment should be made to the part previously to their employment.

In the treatment of anal fissure, Allingham strongly advocates the local use of the following ointment:

R Hydrarg. subchlor. iv grains. | 24
 Pulv. opii ij " | 12
 Ext. belladonnæ ij " | 12
 Ung. sambuci ʒj " 4 |

M

Sig. To be applied frequently.

He states that he has had many cures with this ointment alone. Another excellent ointment recommended by this same authority, is:

R Plumb. acetatis gr. x. | 60
 Zinci oxidi gr. x. | 60
 Pulv. calaminæ gr. xx. | 20
 Adipis benzoinat ʒss. | 16

M

An ointment of the oxid of mercury, 30 grains (gm. 1.80) to the ounce, has cured many cases.

In conclusion, I would emphasize the fact that in many cases anal fissure, when uncomplicated with some other rectal affection, is curable by means of non-operative methods of treatment.

1610 Arch Street.

A PLEA FOR THE PROPER TEACHING OF ANATOMY.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY GEORGE FRANKLIN SHIELS, M.D., F.R.C.S.E.
 SAN FRANCISCO, CAL.

The tripod upon which the whole superstructure of medical science stands is made up of anatomy, physiology and pathology. As it is well known to the student of natural philosophy that when one leg of a tripod is weak or is taken away, the mass which it helps to support either totters, or falling outside of its center of gravity topples and falls, so it is well known to the student of our science that when a knowledge of one of these important subjects is weak or lacking, the whole grasp of general medicine and surgery, no matter how acquired, is either insecure and shaky, or in the face of some slight emergency

trembles, totters and finally falls, carrying with it the reputation of the individual, who when he is dragged out from amidst the ruin is often held up as a laughing stock to his colleagues. If one leg of this tripod be more important than another it is assuredly anatomy, for without it no advance can be made in the study of its fellows. Hence I may state that to each and all of us a knowledge of anatomy is not only of the greatest importance, but is an absolute necessity.

No matter how a man may brace up his weak and tottering knowledge with props of polysyllabic eloquence, quotations from authors, tact in avoiding exposure of his lack of knowledge, flight to specialties which seem not to necessitate anatomic knowledge or with a laughing acknowledgment of once having known the subject and having forgotten it, on account of its being overshadowed by the more important practical branches of science,—no matter what means he may use, I state without hesitation that the time will come, if he live long enough, when his want of knowledge will make itself known either to himself or others by disastrous consequences to his patients, and a subjective sense of shame. For a superstructure no matter how beautiful, if it have an unsound foundation may indeed be likened to a house built upon sand.

If you agree with me in these views and I feel convinced that you do, then of a surety a plea for the proper teaching of anatomy, is one which will gain your hearty and willing support, and by strengthening my weakness with the expression of your opinions and honoring the subject with a free discussion, we may hope our plea will have an influence, perhaps small, but still an influence in directing the attention of schools toward a correction of existing conditions by awakening in them a desire to escape from the trammels of use and custom, and will lead to improved methods of instruction whereby a better and more useful knowledge of this great subject may be obtained.

Anatomy as taught in the past has been the bugbear of the student, the dreary, dry, uninteresting subject of the curriculum. Ask a student picked haphazard from his fellows: "What subject do you find most uninteresting?" In all probability his answer will be: "Anatomy." Go further; ask him which subject he fears most in his examinations, and he will again answer: "Anatomy." He looks upon it as a subject to be learned after the manner of a proposition of Euclid, and sits down with his Gray, proceeding to memorize the text, word for word, or if ingenious enough invents a means of memorizing by the aid of mnemonics, such as the following: "Sala-sap" for the branches of the axillary artery.

"Timothy doth vex all very nervous pupils," for the structures passing behind the internal lateral ligaments of the ankle joint.

"Oe, eighth pair," thoracic duct found there. Vena azygos by aorta stands. Lymphatic vessels and lymphatic glands," for the contents of the posterior mediastinum. Nerves, arteries, veins, muscles, become to him streaks of yellow, red, blue and brown color, formed into intricate diagrams to be memorized by constant conning over.

He attends lectures to find the same methods in vogue, and only too often does he discover that the teacher following the custom and for want of time, narrows down to a few complicated points of the sub-

ject which he, the student, learns to fear at the time of his examination since they crop up in the abominable form of catch questions.

And what about practical anatomy? It appears in syllabus that a candidate for a degree must have dissected the human body once. Curious, and taken by the novelty, the student buys a set of instruments, an apron, a pair of sleeves, and appears in the dissecting room ready for work; and what will he find? If my experience be correct and it extends to the schools of Germany, Austria, France, England, Scotland and America, he will find that his professor is rarely seen in the dissecting room. There may be a single demonstrator, or more rarely a staff of demonstrators, who are supposed to guide him in his work, and who as a rule confine themselves to demonstrations of special regions, such as the axilla, popliteal space, etc. He dreadingly drills through the necessary and specified single dissection and finally appears for examination stuffed full of answers to catch questions, and if he succeeds in passing the ordeal he thanks God, throws away his dissecting instruments and with a sigh of relief leaves anatomy forever behind. A few years later we find him as a practicing physician and surgeon, clothed in a white apron, his sleeves rolled up above his elbows, surrounded by all the appurtenances of modern aseptic surgery and ready to operate upon some poor unfortunate who like a lamb led to the slaughter little knows that the man in whom he has put his trust is ignorant of the very territory which he is about to invade. The operator follows one of two courses; he makes his primary incision, often based upon an erroneous diagnosis due to lack of knowledge, cuts some important vessel, the blood spurts, he is attacked by that condition of mind called "surgical delirium," puts a compress upon the wound, bandages it up and trusts that a clot may form by the time of the first dressing. Or what is worse he damns the mishap and proceeds on the cut-and-tie principle, the result of which is disastrous to the patient and the reward of which comes sooner or later to the operator, especially if he be possessed of a conscience.

Or mayhap our young graduate having an eye to business and seeing that the general profession is over-stocked, chooses what he believes to be a lucrative specialty, for example, the nose and throat. He buys the latest works on the subject, reads them assiduously and grows to believe that all the ills of mankind are centered in the organs, the diseases of which he supposes himself to know so well. A child comes to the office with enlarged tonsils, a guillotine is introduced, the tonsil is removed, but something else has occurred. The blood wells up from the wound by the teacupful, the child's face becomes blanched for the ascending pharyngeal or the internal carotid artery has been wounded. A surgeon is hurriedly sent for while the terrified and ignorant specialist stands by and watches his victim bleed to death. Had he known his anatomy how easy to have avoided this accident, or had it occurred, to have tied the common carotid artery and saved a life. I will not multiply examples—they are numerous and are known to you all. I plead for a proper teaching of anatomy—for a knowledge gained by training and not by cramming. Naturally I expect to be asked what I consider to be a proper method of teaching this subject, and by your courtesy I shall venture to briefly lay before you my ideas.

The teaching of anatomy must be systematic, must be begun at the commencement of the medical studies and continued until their end. The student must begin by learning the anatomy of the cell, and must be able to follow it through all its changes up to the formation of the most intricate tissues. To accomplish this it will be necessary to institute a distinct course of microscopic anatomy in which he will learn the beautiful wonders of the growth of tissue from that simplest anatomic element, the primeval cell. Next he should be taught development from the moment of impregnation to the time of birth. If these two branches of anatomy were carefully and systematically taught, the student would indeed be dull who did not have an active desire to pursue his studies further. Next he should attend a regular course of didactic lectures in which his teacher should aim to use the cadaver and actual preparations as much as possible, as by so doing he would teach the student to recognize the actual structures and not pictorial likenesses thereof. *Pari passu*, with this didactic course he should be taught practical anatomy, but before he is allowed to dissect he should be carefully taken over the bones of the skeleton, having each and every one of them thoroughly demonstrated to him, both from a mechanical and from a physiologic point of view, and in this way be able to understandingly view the skeleton, both in its integral parts and as a whole. He is now ready to enter the dissecting room where he should be made to dissect the body at least three times. His first dissection should be a topographical one, in which he should learn not only the individual parts, but the parts in relation to each other.

His second dissection should be a repetition of the first, with the addition that the teacher should constantly draw the student's attention to the importance of the various structures in their relation to the practice of surgery and medicine.

His third dissection should be one confined to medical and surgical anatomy, when he should perform all the surgical operations and learn to recognize all the tissues concerned therein, and during which he should be further taught the surface markings of all the important viscera. By such a course as this, I believe that the subject could be thoroughly mastered.

I would further suggest that the method of examination should be changed and that a series of examinations should be held, arranged in such a way that the teacher could be sure that his pupil had mastered what he had already gone over before he was allowed to proceed further. This would do away with cramming, would stimulate systematic work and would insure sound knowledge.

It is true that such a course as that which I have laid out would take time, but what of that? The day has passed when the intelligent teacher believes in the remotest degree that a two or a three years' course can be sufficient for a medical education, and the four years' curriculum is being rapidly introduced, while there are still many who like myself, believe that six years should be the minimum time of study for a medical degree.

In closing, let me affirm that no man who will follow out the course which I have here laid down will ever have reason to regret it.

If a surgeon, he will have that *sans froid* and confidence which is begotten of knowledge, that knowl-

edge which is not to be obtained from books and lectures alone or in preponderance, but which is only acquired by long work in the dissecting room. He will not only know the position and relation of parts, but he will have the *tactus eruditus* which carries to the mind an appreciation of tissues and which Treves, so well names, "the anatomy of the individual." His dissections will have further trained him for his future operative work, for surgery is largely a handicraft. He will be self-possessed, cool, ready in any emergency, will know what he wants to do and will never suffer from "surgical panic," for he knows, and knowing fears not.

STRICTURE OF THE MALE URETHRA.

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY MILLARD H. CRAWFORD, M.D.

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Stricture is that condition where there is an abnormal diminution of the caliber of the canal, induced by pathologic changes in the mucous or submucous muscular walls of the urethra.

Strictures may be divided into inflammatory, true or organic stricture and false or spasmodic stricture, and divided according to their form into linear, annular, indurated, irregular or tortuous strictures. Some surgical authorities make another division according to the condition that exists; for instance when the stricture bleeds easily by use of instruments or becomes inflamed it is called an irritable stricture. Then again they may be divided into small caliber, which will admit only of the smallest size sounds, less in circumference than fifteen millimeters, and of a large caliber, or strictures that will take instruments from that size upward.

A spasmodic stricture is that condition where there is muscular spasm and the normal caliber of the urethra is diminished.

It is a question which all surgical authorities have not fully agreed upon, whether spasm of the urethra takes place without the presence of some organic constriction of prior existence. Sir B. Brodie says: "That a spasmodic stricture may exist independently of any actual organic disease. At the same time it must be acknowledged that the existence of a purely spasmodic stricture is of rare occurrence."

John Hunter states: "There are often spasmodic contractions of these muscular fibers in different parts of the canal, shutting up the passage and obstructing the course of the canal, and often not allowing a drop to pass."

I think it has been proved beyond a doubt that the whole urethra has contractile action, and with a sphincteric muscle which acts especially on one part of it may cause temporary constriction. I will briefly mention the chief causes of spasmodic stricture. Where an organic stricture already exists, this spasmodic constriction may be caused by extreme acidity and irritating effects of the urine. Turpentine, cantharides, spices have the same effects. Hemorrhoids, rectal fistulæ and operations about the anus are frequently followed by retention from spasmodic contractions of the muscle. Strong mental emotions will interfere sometimes with micturition.

ETIOLOGY OF STRICTURE OF THE MALE URETHRA.

I believe that the majority of surgeons agree with Sir Astley Cooper, who says: "That in ninety-nine cases out of every hundred it was the result of an attack of gonorrhœa."

Civiale says: "That gonorrhœa might be placed in the first rank of the list of causes of stricture. He then asserts that this affection may never have been acute, but chronic at its commencement, and not necessarily following impure or even indeed any sexual connection."

He enumerates other and less obvious causes, such as abuse of instruments employed in affections of the urethra, perineal section and abuse of coitus and prolonged erections.

Sir Henry Thompson gives the analysis of 202 cases of the stricture of the urethra. Of this number 81 per cent. was caused by gonorrhœal inflammation; 14 per cent. due to injuries of the perineum; four cases due to cicatrization of chancres, and six cases to congenital origin.

Dr. Otis gives the record of 85 cases of stricture, representing 147 distinct strictures of the urethra:

| | | |
|----|--------------------|--------------------------|
| 75 | or 88.23 per cent. | were due to gonorrhœa |
| 5 | or 5.88 per cent. | were due to masturbation |
| 3 | or 3.53 per cent. | were due to lithiasis |
| 2 | or 2.35 per cent. | were due to traumatic. |

My experience is where an attack of gonorrhœa has existed for some time, it is more apt to cause stricture than a slight attack of but brief duration.

Any injuries to the perineum from a fall or a blow may cause stricture.

The use of strong injections, a sudden rupture of the walls of the urethra during an attack of chordee might result in causing a stricture, or rough and awkward use of sounds and catheters. The location of a stricture of the urethra varies extensively, but I think most authorities agree in finding it most frequently in the subpubic curvature which occupies an inch of the urethra before, and three-quarters of an inch posteriorly, which includes all of the membranous portion. The next place in frequency is about two inches and a half of the first portion of the urethra. The seat of the third most frequent location is about two inches and a half to three inches of the center of the spongy portion of the urethra, or within two inches and a half of the external meatus.

According to the eminent authority of Sir Henry Thompson who made a careful examination of over three hundred preparations of strictures contained in the museums of Paris, London and Edinburgh, he found that out of 320 distinct strictures, 216 cases, or 67 per cent., in the subpubic curvature; 51 cases, or 16 per cent., in the center of the spongy portion; 54 cases, or 17 per cent., at the external meatus, including a distance of two inches and a half behind it.

Stricture in the prostatic portions is extremely rare unless there exists hypertrophy of the prostate gland.

Symptomatology.—The first symptoms that usually causes a patient to consult a surgeon for treatment of stricture is a slight gleet discharge.

Some irritation is felt or slight smarting sensation in the tract of the urethra during the act of micturition; there is a more frequent desire than in the normal condition to urinate. The stream is smaller than usual and presents a twisted, forked or divided appearance.

In the majority of cases there will be found a purulent secretion from the urethra, which may present a yellowish or transparent appearance. In some cases the first symptom the patient has of stricture is a complete retention of urine, the stricture having existed for some time, but after a debauch or over indulgence in eating and sudden exposure to cold, retention of urine develops.

There are marked chemic changes in the urine if the disease is of a chronic character and has not been treated or relieved. The urine becomes almost opaque, and gives a distinct ammoniacal odor and leaves a sediment of mucus and pus, which is of a tenacious character and adheres to the bottom and sides of the vessel. The urine becomes alkaline.

Hematuria is a rare symptom of stricture. In addition to the local symptoms of stricture there are some constitutional disturbances.

The patient presents an anemic appearance, suffers from dyspepsia and becomes irritable and complains of pains in the back and loins. Has chilly sensations, followed by perspiration.

PATHOLOGY OF STRICTURE.

The pathology of stricture of the urethra is that of a simple inflammation which may affect the epithelial and submucous basement membrane of the urethra, and at the same time the corpus spongiosum may be involved. Where the stricture is slight the urethra anterior to the constricted portion is normal; but in severe and chronic cases where the anterior portion of the urethra becomes affected it is contracted.

The urethra posterior to the stricture is almost always dilated, which dilatation is caused by the obstruction to micturition. There is a loss of elasticity in the urethra, and it becomes so enlarged as to easily admit the finger; pouches may form and appear as fluctuating tumors in the perineum.

The gleet discharge, as a rule, comes from behind the stricture where the mucous membrane is in a state of chronic inflammation. The walls of the urethra may become ulcerated with abscesses and fistulæ. The walls of the bladder are hypertrophied, caused by interference with the flow of urine.

The ureters and kidneys are affected. The ureters become dilated; the pelvis and infundibula and calices of the kidneys are distended, while the medullary structure of the organ undergoes atrophy. Not infrequently the penis becomes hypertrophied, especially where the stricture is of long duration.

DIAGNOSIS.

The symptoms I have already mentioned might be considered sufficient to diagnose stricture, yet there are other diseases of the urinary organs that have symptoms so similar to those of stricture that they might be mistaken for it. Inflammation of the prostate gland of a subacute character, and neuralgia of the urethra and hyperesthesia may have all the symptoms that I have described as having occurred in stricture. The safest method of diagnosing stricture is to make a careful and thorough exploration of the urethra with instruments. The instruments necessary for a physical examination of the urethra and to determine the presence of a stricture are a complete set of sounds, solid and flexible bougies and catheters.

I know of no better instruments than the bulbous bougies for exploring the urethra for stricture.

Dick's elastic or gum bougie, and the oral tipped wire bougies of Otis are invaluable.

I prefer to use flexible bougies for exploring the urethra for a stricture. I find them easier to introduce, and they certainly cause less irritation and pain than metallic sounds. The chief kinds of non-metallic flexible instruments are English gum elastic catheters; the most common of solid instruments are the sounds or bougies and the ordinary catheter.

In order to ascertain whether a stricture exists, the number and character of the obstruction and what portion of the canal is affected, I would recommend the introduction of a No. 9 or 10 acorn or bulbous pointed bougie. I have observed that I can detect a slight stricture better on the withdrawal than on the introduction of the sound, since the abrupt shoulder of the bulb impinges more decidedly against it. A graduated bougie can be used in order to ascertain how far the stricture is from the external meatus.

Having found a stricture and its location by exploration, it is important to know its caliber. This can be judged of pretty accurately by the size of the stream; the caliber of the passage is a little less than the volume of the stream. The urethrometer is an instrument by which we can obtain an accurate measure of the urethra in its normal condition.

Dr. Otis contends that there is a relative proportion existing between the caliber of the urethra, and the size of the penis. For example, when the flaccid penis about three-fourths of an inch back of the corona glandis measures three inches in circumference, the size of the urethra is thirty millimeters in circumference or more.

THE TREATMENT OF STRICTURE OF THE URETHRA.

The treatment of organic stricture of the urethra varies according to the type we find in the canal. It is one of the most difficult problems in urinary surgery to make a fixed rule as to the selection of the best mode of treatment in the different types of stricture.

Dilatation is one of the safest and mildest modes of treatment of stricture for the urethra. It is a method more frequently used by surgeons than any other form of treatment, having been employed in the time of Galen and used extensively up to the present time. It can be accomplished slowly by the introduction of sounds and bougies.

This method of treatment may be continuous dilatation or interrupted. Before the introduction of bougies and sounds in the urethra they should be thoroughly sterilized by heat or carbolic acid or by friction with a clean towel. The instrument before introduction should be warmed to the temperature of the body, oiled with 1 to 40 carbolized oil. In order to obtain local anesthesia, hydrochlorate of cocain as suggested by Dr. Kohler can be used. Can inject about half a drachm of a 4 per cent. solution of cocain into the urethra. An ordinary hypodermic syringe may be used, at the end of which I attach Otis' cocain tube. Local anesthesia is produced within five minutes.

In several cases where I have used injection of cocain in the urethra for local anesthesia I have observed alarming symptoms of toxic effects, accompanied by delirium and tetanic fixation of the muscles of respiration.

Stimulants with hypodermatic injection of strychnia

and chloral by enema give the best results in correction of this condition.

In the treatment of a simple case of stricture of the urethra by gradual dilatation, I prefer to use a flexible bougie as large as the stricture will comfortably admit; after it is passed I withdraw it at once, however, there is a great difference of opinion among surgeons as to whether the bougie should be withdrawn at once or allowed to remain in the urethra for ten minutes to half an hour.

The operation may be repeated on the third day, introducing the same sized bougie first, and the next size larger, and so on increasing the size until the stricture is dilated to the caliber corresponding with that of the external meatus. It is important to instruct the patient how to pass the instrument on himself, as the treatment should be continued for several years. Should pass the bougie at least once a week, increasing the interval to once a month.

When a stricture is located more than four inches from the meatus there is no treatment as safe and none that will give better results than gradual dilatation. A quicker method of dilatation than the one I have just described is known as "continuous dilatation." A catheter or one or more whalebone filiform bougies may be inserted in the urethra and retained not longer than forty-eight hours. Within twenty-four or forty-eight hours suppuration takes place; a purulent discharge comes from the constricted portion of the urethra, and the canal is rapidly enlarged.

Other instruments may be passed as in gradual dilatation until the normal diameter of the urethra is obtained.

Many reasons have been given as the *rationale* of dilatation, but the one now agreed upon by the majority of surgical authorities, is that, "so far as it effects any permanent good results it acts by promoting absorption."

Now the first or immediate improvement must clearly have been due to the mechanical action of the dilating body on the stricture.

According to the authority of Sir Henry Thompson most kinds of strictures contain two structural elements, physiologically considered, or one element in two different degrees of development—the one absorbable; the other non-absorbable. The former is supposed to be removable by the act of dilatation; the other not so, but only amenable to mechanical distension, the effects of which are temporary. The relative proportion, then, of these two elements determine the degree of success which dilatation is capable of accomplishing in the urethra.

The operation for the relief of stricture by internal urethrotomy is performed with an instrument known as the urethrotome.

The instruments in use are of many different kinds. The one most frequently used is that of Maisonneuve, which has been modified by different makers at the suggestion of different surgeons. His instrument consists simply "of a grooved staff, which need not exceed No. 7 French catheter scale, provided at its extremity with a screw point, to which is attached a filiform bougie. The blades intended to slide in the grooves and to divide the stricture, are triangular in shape, sharpened before and behind, but blunt at the apex, so that it may pass over the sound urethra without wounding it."

Civiale's urethrotome was a very popular instru-

ment, and is highly recommended by Sir Henry Thompson. At the end of the shaft of this instrument is a bulb, in which the blade is concealed equaling about No. 16 or 17 American scale. It cuts from behind forward. The instrument can not be introduced until the stricture is dilated sufficiently to admit No. 16, which is a great objection to the use of this urethrotome.

Prof. Otis has invented several dilating urethrotomes, known by instrument makers as Nos. 1, 2, 3 and 4. These instruments consist of a pair of steel shafts connected together by short pivotal bars, on the plan of an ordinary parallel ruler. They are separated by means of a screw at the handle, near which is a dial indicating the extent of their divergence. The upper bar of the instrument is traversed by a urethrotome, terminating in a thin, narrow spring blade, which when at the extremity of the groove in which it runs, is concealed in a slot.

The instrument and its contained urethrotome, having been passed down behind the site of the stricture, and dilated until the stricture is made tense, the handle of the urethrotome is withdrawn, causing the blade to rise from the depression in which it was concealed, and the stricture is divided upon its upper wall from behind forward.

This instrument is to be preferred in strictures of large caliber; it is easily introduced and has great strength. Other advantages it has, that it attacks a stretched instead of a flaccid stricture. The incisions are made at a pre-arranged place, extent and depth.

Prof. Otis reports 2,297 operations of dilating urethrotomy without a death or permanent disability of any sort. He contends that re-contraction of the stricture after the operation is rare.

There is but little risk of hemorrhage after the operation of internal urethrotomy; if hemorrhage should occur from the pendulous portion of the urethra, it may be stopped by placing the penis upon the belly, "laying a handful of cotton over the organ and strapping it down with a bandage carried around the pelvis."

The patient should remain in bed for several days and be kept perfectly quiet. Sounds and bougies should be introduced for some time after the operation of urethrotomy, until the urethra is dilated to its normal size.

The operation of urethrotomy is not always a success; a recurrence may follow, especially if the stricture has existed for a long time and is greatly indurated. If the stricture should recur after having performed internal urethrotomy I would advise gradual dilatation.

Strictures at and around the meatus are best operated upon by a blunt pointed tenotome which gives the surgeon greater accuracy in making his cut than by the old method of dividing the stricture by Civiale's concealed bistoury.

In a small percentage of strictures there will be found cases where on account of the tightness of the stricture it will be impossible to introduce the urethrotome until the stricture is dilated sufficiently to pass the instrument. In cases of this kind, dilatation can be done efficiently with Banks' dilating filiform bougies, known as immediate dilatation, or it can be accomplished by the method I have just described, continuous dilatation.

When dilatation has been sufficiently made, the urethrotome can be passed and the stricture cut.

Strictures located near the external meatus may be cut with but little risk and give the best results. Strictures within three inches of the external meatus re-contract so quickly and the surrounding tissues are so unyielding that the operation by the urethrotome is the best mode of treatment.

In some cases of stricture the constriction is so great that it is impossible to pass any instrument, and at the same time it may be complicated with infiltration or retention of urine or abscess. The operation of external perineal urethrotomy should be performed at once in order to save the life of the patient. The stricture at the time that the operation is decided upon may be found in one of three degrees of constriction:

1. The stricture may be opened sufficiently to introduce a grooved sound, which will act as a guide when the knife is passed through the perineum in its division of the obstruction. The operation thus performed is known as external perineal urethrotomy with a guide.

2. When it is impossible to pass the stricture through the normal canal, we may succeed by introducing a grooved staff which terminates with a button-like end until it reaches the obstruction, then perform the usual perineal incision and open the urethra about a quarter of an inch in front of the stricture. The anterior face of the stricture is shown and the proximal orifice is discovered through which a fine probe can be passed, and afterwards a grooved staff upon which a free division of the constricted tissue can be made. When the operation is complete pass a catheter, which is to be retained for three or four days. This method is known as "Wheelhouse's operation."

As a last resort and when unsuccessful by the above methods of treatment open the urethra behind the stricture, at the apex of the prostate gland, known as "Cook's operation."

Resection of the urethra as a radical measure in the relief of severe forms of deep urethral stricture due to injuries, has been done successfully during the past year, chiefly by French surgeons.

Guyon, of Paris, advocates partial resection of the perineal urethra in preference to total resection, especially where the cicatrices involve only the floor of the urethra. If complete resection of the urethra be performed the elasticity of the surrounding tissues produces greater retraction between the resected edges of the urethra than could otherwise take place. Slight resection, the after cicatricial contraction in connection with the floor of the urethra, the roof not being disturbed, tends to increase rather than to diminish the caliber of the urethra at that point. Albarran has operated five times by partial resection of the urethra. All of his operations were successful, and cured in from two to three weeks. He contends that it is more difficult to get union by first intention in a case of stricture due to gonorrhoea than of traumatic origin, as when of gonorrhoeal origin there is always a chance of infection and subsequent suppuration.

Herteloupe, of Paris, reports eleven cases of successful resection of the urethra. He does not advocate this operation when the stricture is of gonorrhoeal origin.

Blank Applications for membership in the ASSOCIATION at the JOURNAL office.

ON THE LIMITATIONS OF SURGERY IN THE TREATMENT OF THE NEUROSES.

Read before the Michigan State Medical Society, May, 1894.

BY DAVID INGLIS, M.D.

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A hardy young Englishman who had followed the hounds, fallen from his horse, wrestled, boxed and enjoyed the varied experiences of an out-of-door life takes to sedentary life, hard study with little or no recreation, and having thus changed his mode of life, slips one winter morning on his own doorstep, bumps down the five successive steps on his buttocks—considers the incident simply as rather undignified and amusing, goes down town and, a few hours later, has to be assisted to his home, where he takes to his bed. He becomes paralyzed in both legs, has enormous exaggeration of the reflexes, takes to tears or laughter, elation or depression on trivial provocation, fears yet longs for his doctor's daily visits, perspires, grows cold or flushes, becomes faint, his heart palpitates, he is harassed by insomnia; in short, presents the typical symptoms of railway spine and brain and is confined to his bed and room for many months. Finally his paraplegia passes off completely but three years after returning to the pleasant rural life of his old English home, he writes that he is still incompetent to engage actively in responsible mental labor. He has every inducement to work, for he needs money and he is not kept from trying to work by any expectation of damages to be obtained from any corporation, for he fell on his own doorstep. Here is a pure case of neurasthenia which can fairly be termed traumatic.

But notice that when he used to get a fall while fox hunting no such symptoms followed. There was another cause acting quietly before the injury. A change in the nutrition of his entire nervous system, probably largely due to the great change in his life from an active and out-of-door one to a sedentary and studious one.

A woman of good Christian character, of much good sense, a good wife and mother, who had actively spent her energies in house and church work, is now approaching the menopause, and has the misfortune to entertain, as the family guest, for several days, a fanatic revivalist preacher. He labors with constant prayers and endless assiduity to convince her of the fact that because she had grown quietly into the Christian graces and not experienced any emotional storm, her soul is therefore in jeopardy. So successful is he that he leaves behind him a ruined home, the hostess becomes insane, is removed to the asylum where she remains until her death.

Shall we lay all the blame on the guest?

Great as is our indignation, truth compels us to acknowledge that here again there must have been a cause acting slowly and quietly, which prepared the poor woman for the catastrophe inflicted by the unwise visitor. If it were not so, then this man's track through the world would be like that of a pestilence, for what he preached to her he preached to other women and men.

Several children playing together are suddenly scattered in affright by an immense dog. One of them in a few hours develops chorea. She is tormented for weeks by involuntary muscular movements of almost every muscle, but quite as marked is the change in her intellectual and emotional state. Study is impossible; she becomes so irritable as to render it a burden to her family to live with her; the general bodily nutrition begins to fail and for years to come her life must be adjusted to a different scale.

Why were the other children not so affected?

Because this child's whole nervous organization had been adjusted on a more unstable basis than theirs—this may have been brought about either by defective hereditary endowment, by wrong physical and mental training, or by some antecedent disease or acquired diathesis, but that it was so seems certain. In almost every similar case it can be easily demonstrated. You ask what is the bearing of such common cases upon the matter of surgical treatment of the neuroses? Simply this:

As surely as the various neuroses depend mainly and finally upon general and wide-spread defect in the nutrition of the cerebro-spinal axis, just so surely will the correction by surgical measures of local and secondary causes fail to permanently cure the various neuroses. But just in proportion as any neurosis depends mainly or primarily upon local causes, in that proportion can we hope for help from the removal of the cause.

This last statement needs to be modified, however. Nothing is more certain than that the entire functional life of the nervous system contemplates the establishment of habits. Our whole educational effort can be summed up in one idea: We are trying to establish habits. The violinist has made no progress until his fingers come down on the strings automatically or by habit. The student of books is forming habits—training his mind to follow certain sequences of ideas as a habit, to recognize certain relationships easily or habitually. It matters not how the action is set up, it becomes habitual if continued for a time. I knew an epilepsy set up by the irritation of some late coming and abnormally located teeth. When the abnormality was discovered and removed it was too late; the epileptic habit had been set up and the disease went on unchecked.

So the neuroses which depend mainly or primarily upon local causes are not all capable of being cured by the removal of the cause. Here, then, is a further limitation of the possibilities of surgery. Surgical cures would be more frequent than they are, if surgical efforts were resorted to much earlier than they commonly are.

It is clear, then, that the question of the possibility of surgical help in the neuroses is largely bound up in this: In any given case how important a part in the causation is played by general causes? If local causes are largely to blame, the further question is, How long has the cause been acting?

It has been one of the triumphs of the science of medicine that we have learned to give careful attention to the phenomena of reflex irritation—the fact of an irritation at one point causing a train of symptoms at some remote point of the body, has been known to the profession since ancient times, but it is only in the last few years that we have begun to comprehend how widely these relations extend, and how frequently this relation of cause and effect can be traced.

Probably nothing has done more to advance positive therapeutics than this one discovery. The recognition of the relation of various defects in the eyes to certain neuroses is a case in point. Migraine was, in former years, a stumbling block in the way of the profession. As a rule, the sufferer from sick headache, after trying several physicians in vain, settled down to a life of periodical wretchedness and the physician was no longer regarded.

To-day a large percentage of cases of migraine can be cured by careful correction of ocular defects. It is a great triumph.

Our gynecologic associates were not slow to recognize the bearing of this phenomenon upon their line of work, and to-day the gynecologist can bring forward illustrations, without number, of distant neuroses cured promptly and completely by the proper treatment of some pelvic disorder. That, too, is a great triumph—I would not attempt to lessen it—rather would I urge that the profession in general

should be more diligent in searching for these cases of reflex irritation. There is not a gynecologist before me who can not tell of instances in which it was the gynecologist who first traced the relationship of some nervous disorder to some pelvic error, and that, too, in patients who had been a long time in the hands of one or more general practitioners.

There is not an ophthalmologist who can not confirm this from his experience, and the neurologist sees daily that there is much need yet of a fuller recognition of the part played by reflex irritants. These things are true.

Now it has happened that men have been carried away from sound judgment by their zeal for truth. Certain ophthalmologists have been so impressed with the facts of reflex irritation that they have made impossible claims for the cure of diabetes, locomotor ataxia and other diseases, by means of proper adjustment of the eye muscles. Fortunately, the over-zealous ophthalmologist has been content to leave the eye in the socket, and the worst that has come to the patient has been a series of useless tenotomies.

It has been otherwise with the gynecologist. He, too, has been strongly impressed with the facts of reflex irritation. He has seen women whose lives had been reduced to utter uselessness, to whom existence was a curse, suddenly restored to a happy and useful life by the correction of some pelvic disorder. It is small wonder that he has become thoroughly enthusiastic in his zeal to search out and remove sources of reflex irritation. Still more; he may well have grown weary and dissatisfied with the endless round of applications to the mucous membrane of the genital tract—the tampons and pessaries and douches, and have felt that gynecology must find its glory in some measures which bring more definite and lasting results than these things do—and we all feel just as he does, but the gynecologist is mortal; he belongs to the great gregarious family of man and sometimes his zeal runs away with his judgment.

So it comes about that we are living, in these days, in an era of laparotomies. Unlike the ophthalmologist who still leaves the eye in the socket, the tendency of present day gynecology is to extirpate the genital apparatus, root and branch. I stand here to-day, not to condemn gynecology, but to call for careful judgment.

Let us give to the surgical gynecologist all due honor, there still remain these limitations: First and above all, the greater number of neuroses by far are primarily dependent upon general conditions of the nervous system. This holds true of very many cases in which an evident local cause can be traced as well. This is a fact of prime importance, and can not be too clearly emphasized nor too often reiterated. In the very large class of neuroses in which no evident local defect can be found, even the most enthusiastic operator is quite content to let the patient alone. The real battle ground is in the cases in which some local defect can be discovered.

Here the tendency of the surgeon is constantly and strongly to urge operation. The local defect occupies so large a part of the field of vision as to hide from view those general conditions which are the real and permanent causes of the neuroses. I am confident, from a constantly widening experience, that were surgeons to bring to their work that habit of mind which is fostered by the practice of general medicine,

the habit of taking a comprehensive view of the patient's whole status and previous environment, the surgical treatment of the neuroses would be attempted far less often than is now the case, and gynecology would be spared the condemnation which has been brought upon it by some of its members.

The needless castration of a woman is a permanent wrong to her. It is not to be cast aside as a light matter, for a woman's whole life is changed. It is not simply a question of the sexual life, although to shut a young woman off from the happiness of wife and mother is a most serious thing. The change is more profound, for the whole mental state is in many cases altered. The mental change is of all grades, from a simple lowering of the intellectual activity to the development of pronounced forms of insanity. Women become queer, cranky, unhappy, irascible. The beauty of life has gone; they continue to exist. Some die from the operation—it is a hard thing if it be that the patient might have been restored without operation. There is need of more careful judgment. Again, I am equally confident that were surgeons to keep track of the subsequent histories of their cases, for long periods, operations would not be done as often as now. It is not a sufficient answer to say that the patients recovered *from the operations*. The question at issue is, Did they recover from their neuroses? This question can not be answered by stating the condition of the patient a few weeks or months after the operation. The evidence is overwhelming that the mere fact of operation, in many cases, exerts a remarkable effect upon the patient for a time. This effect of operation occurs when the operation has been a failure, or when it has been performed for various other reasons than the removal of points of reflex irritation. The question is this, How many operations performed for the purpose of removing supposed causes of neuroses accomplish the object aimed at? Let our laparotomists keep records of all laparotomies done for such purposes, for two years after operation, and give us the results. It will result thus: A proportion of beautiful cures, another considerable number of cases in which there is striking temporary improvement and subsequent relapse, another group of cases in which the removal of the generative organs has taken away all hope and left that most wretched of all patients, a neurotic woman confirmed in her despair. All of these patients, with the exception of the first group, come to the neurologist, and in each he recognizes that the operation has not touched the real difficulty; that the same problem in therapeutics presents itself after the operation as before. The limitation of surgery is evident; it can not reach the functional soundness or unsoundness of the nervous centers.

A further limitation of surgery is found in the difficulty of diagnosis. It would seem that an irritated and painful ovary could be easily diagnosed. Yes, the patient can tell that herself. The problem for the surgeon, however, is not so simple. Is this painful and tender ovary the cause of some profound neurosis, or is it a consequence of it? You see the question is a vital one.

I have in mind a beautiful girl of 19 years, who developed a most remarkable series of convulsions, which for a long time seemed to endanger, not only her mental health but life itself. There was in this case an ovary exquisitely tender, the seat of pains of great intensity. The other ovary finally participated in

the same condition. To resist the pressure for removal of these ovaries was the most trying task; the mother, the girl's relatives and friends besieged me in person and by letter to cease wasting valuable time, and let her ovaries be removed.

But always in my mind was this problem: If I have them removed, what then? Knowing the girl's life history and her inheritance, I said to myself, I will have to make the same fight to restore her nervous system to stable equilibrium, ovaries or no ovaries. The girl has still her ovaries, she is a well, happy woman, she has a future before her as wife and mother, and now comes the remarkable fact that, just in proportion as the general nervous upbuilding went forward so the local pain in the ovaries ceased—ceased not because the generative apparatus was treated but, as I believe, because it was carefully let alone. The pains in the ovaries were no more a guide to operation there than neuralgia of the face, occipital or intercostal nerves would have been; they were a result of her nervous condition, not the cause of it. No!

Surgery is limited by the difficulty of diagnosis, the difficulty of deciding upon the real significance of some local symptom.

Surgical treatment of the neuroses is further limited by the fact that surgical operations are themselves the cause of severe neuroses; sometimes lead to worse conditions than the one sought to be cured. The statement has been made that "10 per cent. of the castrations for uterine fibroids bring on insanity." This is undoubtedly an exaggeration, but there is no question whatever that there is a basis of fact in it; many observers have put on record cases of insanity caused by operation. I have spoken thus of the limitations of surgery in the treatment of the neuroses, because it seems to me that the same fundamental principles apply in all the neuroses. The subject more particularly before us this morning has been the gynecologic treatment of the insane, but insanity is in most of its forms a neurosis.

I heartily coincide with the proposition now receiving more and more acceptance, that every asylum should have an attending or consulting gynecologist, and that he should actively study the patients. So, too, the insane at home should be carefully studied on this line.

One of the most valuable papers ever brought to my notice, was one by Dr. Holmes, of Chatham, Ontario, upon the relation of puerperal mania to uterine disorders—particularly subinvolution—and every year's experience has taught me to look more closely for subinvolution or some uterine or ovarian lesion in cases of mania or melancholia occurring after childbirth. And these cases emphasize very clearly the fact that the earlier the local error is corrected, the greater the hope of curative results.

The limitations of surgery in the treatment of the insane, are the same as those which I have already mentioned, but with one added limitation. Much of the benefit of surgical operations upon the neurotic depends upon the effect of expectant attention. This element is apt to be largely lacking in the insane. On the other hand, surgery in the insane is free from one of the usual limitations. I refer to the patient being worse off after the operation than before. Herein the surgeon has a more free field than in the other neuroses.

In conclusion, I venture the suggestion that the

search for removable causes of the insane neurosis ought not to be confined to the female inmates of our asylums, and ought not to be carried on exclusively by gynecologists. There are more males insane than females. There are probably as many insane patients with atrophied testicles and varicoceles, as with hardened ovaries or congested uteri. Hemorrhoids can cause the same reflex neuroses as lacerated cervixes, but when all is done that can be done locally, the population of our asylums will not be materially reduced, for the great facts of defective heredity, of wretched mental culture, of high pressure living, of immoral life and of early or late old age will still remain, as they are now, the causes of insanity, as they are of most of the other neuroses.

SELECTIONS.

Ligation of the Base of the Broad Ligaments per Vaginam Including the Uterine Arteries for Fibroids of the Uterus.—Dr. Augustin H. Goelet, of New York, in a contribution to the *American Medico-Surgical Bulletin*, June 1, reports favorably upon this operation in his hands for the control of uterine hemorrhage and reduction of fibroid growths. He believes it should be done in lieu of hysterectomy when that operation would involve too great a risk, and as a preliminary step with a view of avoiding the necessity of the more hazardous operation. When extensive attachments have been formed which would afford additional nutrition, considerable reduction has resulted even in growths of large size.

When the operation has been done for smaller growths the result has been more satisfactory. In some instances complete atrophy has been reported. This result, as well as arrest of the uterine hemorrhage, is accounted for by interference with the blood supply and nerve supply which are included by ligation of the base of the broad ligaments. It is estimated that the uterine arteries furnish the uterus with two-thirds of its blood supply, and it is reasonable to expect that a profound effect will be produced upon that organ and growths arising from the walls if this is suddenly cut off.

The sole danger in the operation is the risk of including the ureters in the ligature, as they pass down behind the uterine arteries only half an inch from the cervix and are consequently in the field of operation. Dr. Goelet suggests as a preliminary step, to eliminate this risk, that bougies be passed into the ureters through the bladder. He admits, however, that a careful operator accustomed to working in this region may easily avoid the ureters.

The technique of the operation as described by Dr. Goelet shows an important departure from the usual method followed. Instead of ligating each artery in only one place, on a level with the internal os, he applies a second and often a third ligature to the artery on each side as it ascends along the side of the uterus, the result of which is to cut off the compensating blood supply from the ovarian artery to the lower part of the uterus.

Dr. Goelet gives all the credit of priority to Dr. Martin, of Chicago, who has recently suggested and popularized the operation and perfected its technique, but states that he first ligated the uterine artery per vaginam on one side in January, 1889, in the case of a large fibroid the size of a seven months' pregnancy with a view of diminishing the size of the growth by reducing the blood supply. The artery on the other side was not ligated because the position of the tumor made it inaccessible. Six months later the tumor was one-third smaller, and was giving no inconvenience.

He quoted his last case operated upon, to show how promptly uterine hemorrhage may be controlled by this operation.

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SATURDAY, JULY 21, 1894.

ABOUT FOOT WEAR.

"How beautiful are thy feet, with shoes, O! Prince's daughter," says the Song of Solomon, and it must be confessed as a fact true of our time that modern feet must be hidden by shoes to give an approach in appearance to a perfect classic standard. Toes twisted out of shape, thick projections at points of contact, clubbed nails, corns in various uncanny situations, and bunions on the joints, make the actual foot so far from being a thing of beauty that it is only to be viewed in private and then by the chiropodist.

The shoemaker, jolly follower of King Crispin that he is, desires to make "handsome" shoes, and they are usually quite unlike the natural form of the foot, which long having been "cribbed, confined and confined," becomes deformed for life.

We venture to say that the surgeon of experience, familiar as he is with the anatomy, if not with classical models, can scarcely recall an example of a foot perfect in all its parts, and these blemishes or deformities are nearly always acquired. The shoe pinches, it is too narrow, too long, too short, too wide, too heavy, too thin, or too much varnished, but Crispin made it, he has been paid and the shoe must be worn at all hazards. And thus the children's feet are ruined.

Looking at the matter from a purely hygienic standpoint, the Indian moccasin is infinitely superior, for indoor wear, to the stiff soled, unyielding shoes of our times.

The varnished or "patent leather" shoe is surely an invention of the devil. In any case while there remains a semblance of circulation in the foot, there will be some perspiration, and however slight the quantity or however great the amount, it remains in contact with the skin, for the shoe leather has been made impervious to moisture. The skin is thus macerated, and excoriated by being "stewed in its own

juice." It is readily seen that when in addition to the unnatural form common to most shoes, we add the hermetic seal of the patent varnish, we are not so very far beyond the Chinese civilization. Even that curious people limit the foot-deforming process to one sex, the female. We allow our shoemakers to deform all feet alike; we spare neither childhood, maturity, nor old age. All suffer alike. The male Chinaman has a wooden sole shoe with a cloth upper. It is well ventilated and serviceable, perhaps better adapted to the city foot-pavements than the moccasin, and for hot weather it seems greatly superior to the ordinary European shoe.

Common sense should teach us that living in a climate subject to such extreme variations of temperature as our own, we should adapt our style of dress, including foot-wear, to the season. A desire for cleanliness is a valid reason for not using the ancient sandal during the heats of summer; doubtless the desire to conceal deformity is equally potent, but the adoption of the Chinese shoe for outdoor walking during summer, and the moccasin for indoors, would be a great relief to suffering feet.

In winter we might use heavier soles and thicker leather when outdoors, but changes should correspond to the temperature as much as practicable. The tyrant CALIGULA permitted the Romans to wear slippers in the theater, and he himself often wore them in public. It is interesting to recall that this Emperor CALIGULA was so named on account of the soldiers' shoes. The shoe (*caliga*) of the Roman soldier was heavily set with nails. The word "*caligatus*," a private soldier, refers to the foot-gear, and SENECA, speaking of MARIUS, refers to him as "*a caliga ad consulatum perductus*;" that is to say, "led from a private to the consulship."

We have neither time nor space to take up the interesting historical question of the evolution of the modern deforming shoe from the natural skin foot coverings of the people of ancient Latium. It was many centuries before tanned leather came into use in the Italian colony, but wooden shoes were kindly put upon prisoners condemned for parricide, and the very poor wore them then, as now, from necessity.

In conclusion, we assert that reform is necessary to secure sound, healthy and well-shaped feet, and that the nature of the material of which shoes are made is of the highest hygienic importance.

WHAT WAS THE LISBON EPIDEMIC?

In April of the present year, following upon a season of drenching rains, a disease suddenly broke out in the city of Lisbon characterized by all the symptoms—with one exception, to be hereafter noted—of Asiatic cholera. Competent observers described the attack as setting in, without premonitory symptoms of illness, with sudden discomfort, vertigo,

muscular debility, headache and abdominal disturbance; followed quickly by vomiting, profuse mucous and sometimes rice-water diarrhea, sunken eyes, whispering voice, dry tongue, burning thirst, cramps, algidity and cyanosis—"a few hours sufficing for the development of all these symptoms in a person who was before in perfect health." Add to this that the disease was contagious—washerwomen, for example, being infected from the soiled linen of patients; and transportable—one suffering from the disease conveying it to the man in whose house he took refuge twenty miles (thirty kilometers) from the city; and, finally, that "the anatomic lesions characteristic of Asiatic cholera were present." It is little wonder that DR. FEDERICO MONTALDO, sent by the Spanish Government to investigate the epidemic, unhesitatingly pronounced it to be Asiatic cholera or that a quarantine of cholera was thereupon established against the city and province.

The single exception to the ensemble of Asiatic cholera above depicted was that of mortality. It is indefinitely stated that "several thousand persons were attacked within a few weeks;" yet there "were hardly any fatal cases, for among all those affected only a *single death* was attributable clearly to this singular type of cholera."

What, then, was the Lisbon epidemic of 1894?

DR. A. CHANTMESSE, Assistant Inspector General of the Sanitary Service in Paris, has just made public the results of his investigations of a comma bacillus isolated by DR. CAMERA PESTANA, Director of the Bacteriological Institute of Lisbon, from the evacuations of about forty of the Lisbon patients. This bacillus is asserted to be "distinctly different from the typical comma bacillus found in true Indian cholera," and CHANTMESSE claims to have established "a close relationship" between this Portuguese bacillus and that observed by FINKLER and PRIOR in the epidemic of cholera nostras in 1884, and seems inclined, on this ground, to class the Lisbon epidemic with that of Genoa. In doing this, however, he ignores the only symptomatologic difficulty which prevents the Lisbon cholera from being classified as true Indian or Asiatic cholera, namely, the light mortality. In Genoa the disease denominated cholera nostras by FINKLER attained almost the maximum mortality of cholera in India; out of 586 cases in twenty days there were 351 deaths—a mortality of almost 60 per cent. In this Lisbon epidemic the mortality was practically *nil*.

If the bacillus of PASTENA and CHANTMESSE was the epidemiologic cause of the outbreak in the Iberian capital and so closely resembles the bacillus of FINKLER and PRIOR, what *tertium quid* was lacking to produce the mortality of the Genoese outbreak? It begins to look as though we should have to fall back on the theory of "mixed infection" to account for the protean manifestations of cholera.

CORRESPONDENCE.

LETTER FROM EUROPE.

No. III.

PRAG, BOHEMIA, JUNE 28, 1894.

To the Editor:—A clinic in internal medicine here, differs but very little from one given in our own colleges. One advantage, however, is the fact that the cases have all been under observation for some time before being brought before the class, so that all facts concerning the patient are accurately known; this advantage is also possessed by our own schools where patients are brought from a hospital where clinical data have been obtained, and where the sole dependence for clinical material is not upon the dispensary.

It is worthy of note that in every case that comes before the class, not only is the urine most carefully examined but the blood as well, *i.e.*, the blood count is made and the hemoglobin estimated. The Thoma-Zeiss instrument is the one commonly employed here for counting the corpuscles, both white and red, and the Fleischl hemometer for estimating the percentage of hemoglobin. Great stress is laid upon the enumeration of the leucocytes, in many cases their number being of much more importance from a diagnostic point of view than that of the erythrocytes. A marked leucocytosis is always regarded as pathological and usually as indicative of an exudative inflammatory action in some part of the body. The blood is not stained except where there are special indications for it, *e.g.*, in suspected septicemia, malaria, leukemia, etc. Beautiful karyokinetic figures were shown to me the other day, in the nuclei of red blood corpuscles from a case of leukemia. This careful attention to the examination—and to the repeated examination—of the urine, blood, sputum, feces, exudates, etc., leads often to most positive, and sometimes brilliant diagnoses. Yet the attractiveness of these comparatively newer, and not always as yet, fully understood, methods of diagnosis is liable to lead even the best of diagnosticians away from what might be called the grosser details of a case; and carried away by the success of some new test he may overlook that which, twenty years ago, would have been surely found. For instance, a case of "cryptogenetic septicemia" was exhibited to the class and streptococci from the blood clearly proven. Every week the blood was examined and the diagnosis confirmed by the finding of the cocci. But the large retro-pharyngeal abscess, the multiple abscesses of the liver, and the old appendicitis, the starting point of all the septicopyemic trouble, were not revealed until the autopsy. Usually, however, there is excessive care in the examination of patients in every particular and a very accurate diagnosis.

In this University, as in so many others in Europe, there are two medical clinics. I believe the little rivalry that exists between the two clinicians is a good thing for both teachers and students, and particularly where both clinicians are good men and yet, as here, of totally different stamp. Jaksch, as one might judge from his writings, lays great stress upon the aids to diagnosis to be derived from chemic, microscopic and bacteriologic examination; he looks at his case from a strictly scientific standpoint. Pribram, while not underestimating the examination of urine, blood, stomach contents, feces, lays more stress upon the anamnesis and the physical examination of the patient himself. He always speaks at length and most instructively, of the therapy which Jaksch often dismisses in a few words. These words are apt to be—"calomel," "digitalis," or "venesection or wet cups." The amount of calomel given in his cases as anti-syphilitic, purgative, diuretic, alterative

is really astonishing. He employs blood letting quite freely in uremia and in pneumonia. Very rarely is there salivation. Pribram, much the older man, is much more reticent about the administration of mercury in any form. Opium, for pain, is also given by Pribram very cautiously indeed, as it seems, almost over-cautiously. As antipyretic and anti-septic, Jaksch has been using lactophenin and apparently with good results. In chlorosis he employs ferratin.

It is a pleasure to listen to either one of these men and feel that you are listening to an all round medical man and not to a specialist. Either one talks as well of the diseases of the heart as of the kidney, as well of the lungs as of the brain or of the stomach, and I feel sure that the presentation of the cases in the general clinic has a better teaching effect, if I may so speak, and gives the student broader and more comprehensive views of clinical medicine, than where one man constantly presents, and talks about, diseases of the heart, another only of the kidney, another of the stomach, another of the nervous system, etc.

There is no scarcity of material here for clinical work, and one can go into the wards at any time and find cases illustrative of most of the commoner, and many of the rarer affections. The frequency with which carcinoma is met with and the common occurrence of rickets, are remarked by every American coming to these parts of Europe. Suicide is here an everyday affair. If a young man is affected with "unglückliche Liebe," the proper thing for the man to do is to use the revolver on himself or throw himself from the bridge into the river. If the afflicted one is a female, she promptly eats the heads of a few boxes of matches and is shortly utilized to enlighten the students concerning phosphorous poisoning, its diagnosis and treatment, or as not infrequently happens, to illustrate by microscopic preparations the extensive fatty degeneration found in such cases. Münzer, lately Jaksch's first assistant, has written a very exhaustive article upon phosphorous poisoning.

Within the last two weeks I have seen three clinical cases that were very instructive to me, and that may not be without interest to JOURNAL readers.

The first was shown by Prof. Pribram. The patient was a young man, 28 years of age, who has, I judge, been exhibited in Vienna and other cities where the clinician is willing to pay something for the privilege of presenting such an unusual case. In 1885, *i. e.*, at 19 years of age, the patient was confined to bed with headache, fever, pain and swelling in one of the arms. For several months there were fluctuations in the symptoms, now one portion of the body and now another showing the pain and swelling, and again the pain being entirely absent. At the site of the previously painful swellings, bony masses developed, many apparently connected with the adjacent bones, others seemingly free and permeating, if not displacing, the muscular and inter-muscular tissues. The condition of the poor fellow was truly pitiable. The neck was stiff, the spinal column fixed at an angle of about 120 degrees, the jaw immovable so that only liquids could be taken through a tube,—teeth having been removed to enable the latter to be introduced; the arms fixed by the side. He was able to walk with a sort of shuffling gait. Fortunately, so far at least, the muscles of respiration and of deglutition are unaffected. The diagnosis of the case was *myositis ossificans*. As in many of these cases, the large toe was short and blunt and its end joint ankylotic and exostotic. No new light was shed upon the etiology or pathology of this rare and but little understood disease by this case.

A second case was shown me by Jaksch's assistant. The patient, 51 years of age, is a fixture in the hospital, having been here, I think three years and being shown clinically every year to demonstrate Erb's *progressive muscular dys-*

trophy. He is in fact the same man whom Erb eight years ago carefully examined and whose case was fully described by him at that time. Eight years ago the patient, a man, noticed a gradually increasing weakness of the upper extremities, finally incapacitating him for work; walking soon tired him out. All the muscles of the shoulder girdle became parietic, allowing the shoulders to drop. The constant weight of the upper extremity pulling on the shoulders causes much pain when the arms are not supported. There is great weakness also in some of the muscles of the lower extremity. Some muscles *e. g.*, the pectorals, seem to be entirely atrophied. Others, as the deltoid and quadriceps extensor femoris, present the bulging contour and hard feeling of the pseudo-hypertrophic paralytic muscle. That this is the real pathologic condition might be judged by the great weakness of the muscles in spite of their increased size, and is proven by the microscopic examinations made both by Erb and in Jaksch's clinic. The case is carefully watched and any changes that occur scrupulously noted. The quadriceps femoris, for instance, that was observed by Erb to be small and atrophic, has gradually grown larger yet weaker, *i. e.*, is pseudo-hypertrophic, and microscopic examination of a piece of the muscle shows the atrophy of many fibers, the deposit of fat, etc., characteristic of this peculiar muscular change. Aside from this muscular or nervous trouble the patient is well. An ingenious device somewhat corset-like, has been fitted up to assist in holding up the shoulder girdle.

The third case was one of grand hysteria where the phenomena of that marvelous disease so clearly portrayed by Charcot and his school were exhibited in a typical manner. Prof. Jaksch who gave two clinical lectures, each an hour and a half long on this case, was able by pressure over the left ovarian region to throw the patient, a girl about 20, into a condition of opisthotonus as marked as is ever seen in strychnia poisoning or in tetanus. She was readily hypnotized and would then, according to the Professor's directions, manifest the phenomena of monoplegia, hemiplegia, paraplegia, etc., would eat soap and regard it as chocolate, imitate with remarkable accuracy the gait and voice of an old woman of 70, etc. About all the acts of hysteria, hypnotism and mesmerism were seen in this clinic. The patient is to be kept under observation for some time and it is to be seen how far the functions of various organs can be influenced by hypnotic suggestion. Thus she is to have, if the experiments are successful, on one day diarrhea, on another constipation; and in analogous ways polyuria, anuria, vomiting, etc., will be produced.

Two cases that came to autopsy were very instructive. The one seen to-day was actinomycosis of the middle ear, invading the adjacent muscular and bony structures. Death was caused by rupture of the vertebral artery, probably from the bursting of an aneurism, the result of the invasion of the vessel wall by the parasite. The primary focus was not definitely located, clinically or macroscopically post-mortem, though microscopic examination Prof. Chiari thought, would show the tonsil to be the seat of old inflammatory actinomyotic changes and the point of entrance of the parasite.

Another case coming to autopsy a few days ago, was a primary endothelioma of the right pleura with secondary deposits in lungs, pericardium, liver and peritoneum.

The call of Prof. Gussenbauer from Prag,¹ to be the successor of Billroth has caused deep regret that so valuable a man is lost to Prag, but also a feeling of pride that this University possessed a man deemed worthy to fill the chair of the great surgeon of Vienna. Prof. Gussenbauer commences his work in Vienna October 1.

In my next letter, I hope to say a word concerning the work done here in children's diseases and in gynecology.

Truly yours,

JAMES B. HERRICK, M.D.

LETTER FROM BERLIN.

On the Production and Application of Curing Serum-Liquids (Heilserum), for Diphtheria. German Surgical Congress.

[From the Berlin correspondent of the JOURNAL.]

BERLIN W., July, 1894.

The Professors Ehrlich, Kossel and Dr. Wasserman, in Berlin, have published a paper on the application of curing serum as invented by Prof. Behring, assistant of Prof. Koch. Behring had undertaken to give an immunity from the diphtheritic poison and after that, to get a serum from the blood of those animals, by which he hoped to protect individuals of the human race against the results of diphtheria as well as to cure the disease when already developed in an individual. Ehrlich, Kossel and Wasserman have followed Behring in his experiments. They always had in view to use the results of their experiments for curative purposes. They experimented on goats. We will say nothing of the technical dates for giving the serum. Two hundred and twenty patients with diphtheria were treated with the serum. Of these there were cured 168, or 76.4 per cent.; fifty-two died. Tracheotomy was performed in sixty-seven cases, of which thirty died; the rest recovered. But a true insight of the curing effects of the injections is gathered only by grouping the number of the diseased people by the days after the infection on which the treatment was begun:

| Day after beginning of treatment. | Treated. | Cured. | Died. | Percentage of cures. |
|-----------------------------------|------------------------|------------------------|----------------------|----------------------|
| 1st day | 6 | 6 | 0 | 100 |
| 2d day | 66 (9 tracheotomies.) | 64 (7 tracheotomies.) | 2 (2 tracheotomies.) | 97 |
| 3d day | 29 (8 " | 25 (7 " | 4 (1 " | 86 |
| 4th day | 39 (14 " | 30 (10 " | 9 (4 " | 77 |
| 5th day | 23 (10 " | 13 (4 " | 10 (6 " | 56.5 |

It is to be seen by this table of dates that the safety of the serum treatment depends essentially upon the date on which the treatment of the children is begun, and that on the first day results were had never seen before. Of seventy-two children received at the hospital during the first two days of the disease, there were only two deaths; of seventy-two cases treated *without* serum after statistics reaching over twenty-five years, there were twenty-five deaths, or 34.7 per cent.

The above named experimenters give the following points of view for the treatment with their serum of those children sick of diphtheria: 1. *The fate of the children depends upon the treatment during the first three days of the sickness.* Therefore the serum should be injected as soon as possible after the beginning of the disease. 2. As there must be a surplus of antitoxin in the sick body, the dose of commencement should be, in light cases, at least 200 unities of immunization.¹ In cases of gravity and in those tracheotomized, 400 unities were needed. The treatment with serum should be continued some time after ceasing of rise of temperature and of the local inflammation. The total amount of dispensed serum may reach in a single case (in correspondence with the gravity of the symptoms) 500, 1,000, 1,500 unities of immunization.

TWENTY-THIRD CONGRESS OF THE GERMAN SURGICAL SOCIETY.
(Held at Berlin, April 18-21, 1894.)

HOFFA, of Wurzburg. Pathologic Demonstration concerning Operation of Congenital Luxation of Hip Joint. He showed the pelvis of a child operated upon on both hip joints with good functional result afterwards, which had died of diphtheria. A pseudarthrosis had been formed on the pelvis lined with hyaline cartilage. Operation should be performed during the third to sixth years on account of the head of the femur bone getting altered afterwards, as well as the upper parts of the femur. If these deformations are

¹ A dose of antitoxin serum equal to avoid in the body the consequences of the poisoning with diphtheritic poison, is called by the author a "unity for immunization."

present the operation becomes more difficult, especially when the neck of femur is crooked forward. The caput femoris would then leap out of the acetabulum and one was obliged to make osteotomy of femur beneath the great trochanter to bring the femur into straight position. When the luxation is on both sides, generally the ligamentum teres is wanting; when unilateral, the reverse is generally observed. When it is wanting, a slight knock or cracking is heard in rotation. If this be heard, reposition may be effected by unbloody proceedings; if the ligamentum teres is present, operation should be done. In older persons it is well done not to try reposition, on account of the alterations of the head of bone. For such cases he has tried a new proceeding: The capsule of hip joint and the ligamentum teres rendering reposition of the luxated caput impossible, he makes an arthroclasis, cutting from the margin of the capsule upwards to the ilium, shoves back the capsule and scrapes off the periosteum. Then the caput femoris is placed upon the naked bone in strong abduction, and fixed in this position until bone to bone is connected. The caput is then fixed by new grown connective tissue.

SCHUDE, of Hamburg, said that the alterations of the head of femur had nought to do with age. He has seen crooking of the neck of femur (coxa vara) twice in early life, but without disturbing the operation. In older persons, where the caput is strongly misplaced upwards, extension with heavy weights for some months is useful, with or without dividing muscles and sinews of the leg before the operation. The latter proceeding has had good success in two cases; one of congenital, and one of traumatic luxation of hip joint.

LAUENSTEIN, of Hamburg, proposes to prevent the dressings from getting wet with urine in little children, to protect the wound and gauze, etc., upon it, by a bow made of wire, whose ends are fixed on the skin with the usual cambric rolls.

WAGNER, of Konigsberg, has cured the congenital luxation in a girl of 17 years by operation, loosening the muscles and diminishing the very large caput femoris by cutting round like the shells of an apple. Then it could be managed into its place. The former shortening of leg of seven and one-half centimeters was reduced to two and one-half centimeters after the operation. After operation careful mechanical treatment is needed.

WAREWSKI, of Berlin, is of opinion that the deformation of the caput and colles femoris in these cases of congenital luxation is due to hereditary faults of the kernels of bone and cartilage, becoming manifest in the time of growth. If this should be so, such hereditary faults could develop themselves after a well performed operation, overcoming the primary good effect of it. One should not hope too much of Hoffa's operations, at least for permanent good results. Not all the cases offered those hopeful anatomic conditions as those published by Lorenz and Hoffa, but now, where the neck of femur was missing and the head deformed, effects of reposition were very doubtful. There were many transitions between those cases in which the dislocation of the hip was remarked during the first days after birth among other malformations, and those where the children began to walk in their second year of life or later. All those transitional forms had their different anatomic construction, and therefore should also be differently judged as to therapeutics.

MIKULICZ, of Breslau, has constructed a reposing machine working firstly abduction to 60 to 100 degrees, then inward rotation to a right angle, and finally extension with five to ten pounds (old German weight). Three cases cured in this manner. The treatment is troublesome and takes a good deal of time. Only for very young children.

GUSSENBAUER, of Prag, had a good result in one case by the osteoplastic proceeding of Kising. The heads are fixed firmly in the acetabulum of both sides; action of leg satisfactory.

SCHUDE, of Hamburg, on the non-operative treatment of dislocation (congenital) of hip joint. Hoffa had not done well to doubt cures of this disease in the anatomic way (without an operation). Mikulicz already had proved him wrong on this point.

SOHR presented a patient treated after Taylor's method, only in the reverse sense, inasmuch as there is used no abduction, but adduction and extension. The apparatus is able to reduce the caput in the majority of the children, and the trochanter is retained in its place by transverse pressure.

V. BERGMANN recommends the fixation with the dressings of Herzig, by which he had seen perfect cure. The results

of operation were unfavorable in most cases, antiseptics being very difficult.

V. MURANUS, of Leipzig, has also seen very bad results of Hoffa's operations. As for abduction, the important point is the existence of caput and colles femoris. If the latter is wanting the results are bad, even when the cases are not operated.

V. BRAMANN, of Halle, has operated upon fourteen cases of grave character. One died of tuberculosis miliaris; the rest recovered. He had always good success in these operations up to children of 11 years of age. B.

(To be continued.)

Letter from Ex-President Hibberd—His Return Trip from San Francisco.

To the Editor:—On June 11 some of the members of the AMERICAN MEDICAL ASSOCIATION who had return tickets via the Northern Pacific deemed it prudent to accept the arrangement by which their tickets would be honored over the Southern Pacific to Ogden and the Union Pacific to Butte, and on June 12 a larger number availed themselves of the same privileges. This was done for the reason that they discredited the statement that the flood damage to the Northern Pacific would be repaired by the time they arrived at Portland. With more faith about fifty of us took the evening train on June 12 for Portland, which we found still largely under water, but by a long steamer ride down the Willamette and Columbia Rivers—or where the rivers ought to be for the whole country was covered with water—the boat ran into what was usually a creek, and winding among the trees about five or six miles we reached a railroad bridge across the stream, disembarked on the moist earth, climbed into the train, went to bed and woke up next morning in Tacoma with our car on a side track at the wharf, and a steamer alongside to take the party down Puget's Sound to Victoria in Her Majesty's dominion, to return to Tacoma next morning. Having some arrangements to make for Pullman accommodations, myself and ladies remained in Tacoma during the day.

Completing our arrangements in Tacoma we left for the East on a belated train at 3 o'clock on the morning of June 16, and arrived at Spokane the next morning to find the road still impassable between Spokane and Helena on both lines via Missoula and Butte, but the agents declaring they expected dispatches every hour notifying them of a restored road. We waited two days without apparent progress of repairs and then twenty-one of us accepted an order from the Northern Pacific on the Union Pacific, which by a round-a-bout line via Walla Walla, Umatilla on the Columbia River, and Pocatella, covering 1,200 miles, landed us at Butte, Mont., on the morning of June 20. Leaving Butte at 9:20 A.M., June 21, we arrived at Bozeman at 1 P.M., to find that our connecting train was ten hours behind time and might be more. An earnest petition by wire to headquarters at St. Paul to continue our train to Livingston met with prompt response, making our train special, not only to Livingston but to Cinnabar, fifty-one miles further, when we were met by coaches which delivered us at Mammoth Hot Springs Hotel in the Yellowstone Park at 9:30 the same evening.

The next morning we left for the tour of the Park and returned on June 26, to find all further progress arrested by the strike. Here we waited day after day. The hotel made us comfortable, but no mails and no newspapers, with wild rumors about every railroad in the United States being tied up, we felt the burden of imprisonment and isolation to an intense degree. On July 1, we organized the "Association of Distressed and Stranded Tourists" which embraced about 120 persons of both sexes, ladies predominating. The Association at once secured a limited report of the more impor-

tant strike items wired to us from the press dispatches delivered at Anaconda 200 miles west. It was at once learned that the Great Northern Railroad was open from Helena to St. Paul, and Chicago entirely cut off from railroad travel. Helena could be reached by 182 miles staging over the crest of the Rockies, but notwithstanding the severity of the ride and its expensesome of the imprisoned tourists began to leave, the first on July 2, the number increasing from day to day, and so far as advised, all reached St. Paul in from five to seven days. At Helena, through an arrangement between the Northern Pacific and Great Northern Railroad, the tickets on the Northern Pacific were honored on the Great Northern, and parties found no difficulty getting through either to St. Paul or Chicago.

The whole number imprisoned in the Park at first was about 170, all of whom ultimately reached the Mammoth Hot Springs Hotel, but many went to Livingston and then elsewhere as they could find conveyance. The largest number at the hotel at one time was 127.

On July 11 a mail came in, the first since June 26, and we received files of Helena and Anaconda papers to June 9, which gave us the first understandable account of the inauguration and progress of the strike. These papers with some belated letters were boons indeed.

After considerable telegraphing the railroad authorities on July 12 wired us that a train would be ready for us at Livingston to take us to St. Paul on the afternoon of July 13, but in consequence of washouts trains could not be sent to Cinnabar for an indefinite time, so we packed our trunks for a sixty mile stage ride.

Thirty-five of us left the hotel at 7 A.M. on July 13, arrived at Livingston at 10 P.M., the latter part of the road being very tedious, miles of it deep mud and water from a cloudburst the evening before. A merchant on an unpaved street told me the water in front of his place was three feet deep, coming on to his porch. This was the second cloudburst in three weeks.

We supposed from our telegrams the train would be waiting for us at Livingston, but on arrival were informed that it would not be in until the 14th some time.

A train came in from St. Paul on July 14 at 4 o'clock and left about 5. Before the train reached the station the soldiers formed in line on each side of the track, a man fully armed every fifteen feet, and remained on guard until the train left.

At 10 o'clock P.M. our train arrived from the west and the soldiers guarded it as they did the westbound. When the train went west two days before a striker crowded on to the guard line and refused to leave, using defiant and abusive language to the commanding officer, who then cut his head with a saber. Our train was guarded until it left at 1 A.M. on July 15.

This was the first we had witnessed of the actual use of soldiers. True, troops at the Hot Springs in the Park had received marching orders at 4 P.M. on July 7, and at 7 o'clock were in the saddle and off, the public knew not where, but we guessed, and have since learned they were guarding the Bozeman tunnel. Ours was the first train East since the strike, and was picking up delayed travelers wherever it found them. Next morning we found our train consisted of sixteen cars of all kinds and under guard of soldiers carried on board—as every train was—and every bridge, trestle and important culvert guarded by soldiers, and large bodies of troops concentrated at strategic points. The dining car with us had its hands full to feed the promiscuous company aboard, but it was the only resource.

At an early hour Monday morning, July 16, we passed Bismarck, and being out of Montana and out of danger, had left our military guard at Mandan.

From Bismarck our trip was uneventful, and we arrived at St. Paul at 1:30 o'clock on Tuesday morning, and as the railroad authorities offered tourists who wished to take the early trains East the privileges of their sleepers and accommodations for the night, our party with others accepted, and with an early start arrived in Chicago at 9:45 P.M., July 17 well and in good condition, and expect to reach home after an absence of fifty-two days.

We left about thirty tourists at the Mammoth Hot Springs Hotel in the Park; there were no physicians among them, but we found several at Livingston awaiting the first train. Dr. Montgomery took a census of our train and reported ten members of the AMERICAN MEDICAL ASSOCIATION on it with nine ladies, and four tourists, doctors, with thirty-four other gentlemen and ladies who had been prisoners in the Park with us.

J. F. HIBBERD, M.D.

Beaumont Medical College.

St. Louis, Mo., July 10, 1894.

To the Editor:—Dr. W. B. Outen, Dean, requests me to say "that some months ago there appeared what purported to be an unofficial announcement from St. Louis that the Beaumont Hospital Medical College was about to close its doors. Had this statement come to my knowledge before now, I should certainly have asked for its immediate correction, for it had no foundation in fact and must have been promulgated by some one who intended that the Beaumont Medical College should be injured by the publication. Far from closing its doors our school is in a most flourishing condition. We have been so fortunate as to have secured from those interested in higher medical education, such financial assistance as practically to place the school on a firm financial basis, and to insure its perpetuity. We have never been the competitors of those who heralded their schools and incidentally their personality to the medical public. We have gone along the even tenor of our way doing conscientious and, we believe, good work in the cause of medical education, and we feel aggrieved to think that your JOURNAL would publish, without proper inquiry, a statement which is calculated to do us an injury, and we respectfully request that you give to this denial as much prominence as was given the original statement."

REVOCATION OF LICENSE.

The Secretary of the State Board of Health, of Missouri, has been instructed at our last meeting at Kansas City, to furnish to your JOURNAL the proceedings, more especially that portion of them which relate to the revocation of the license to practice in our State, of Dr. J. P. Henderson, a resident of Chicago, who was an itinerant for the last six months in Missouri. Dr. Henderson was a regular graduate and a licentiate of the Illinois State Board of Health, and is President of the Illinois State Institute of Medicine and Surgery. He registered in this State upon a diploma and letters of recommendation from medical men of Chicago and then spread his advertisements broadcast. Physicians of Nevada, Vernon County, Missouri, called the attention of the Board to his advertisements which were so worded as to mislead the public. After a hearing, the Board unanimously decided to revoke his license for unprofessional conduct. Our State has too long been the refuge of just such fellows, and the Board proposes in future to enforce the law, and to protect our people.

(Signed)

F. J. LUTZ, M.D.,

President State Board of Health, of Missouri.

North Texas Medical Association.

SHERMAN, TEXAS, July 10, 1894.

To the Editor:—Having just received the last number of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, I notice in it an account of the meeting of the North Texas

Medical Association which was held in this city on June 19, 20, 21, which notice does the Association an injustice as the program which I enclose will prove. All the papers therein contained were read except those marked out, and a number of cases reported not on the program, all of which were discussed.

There were in fact more than one hundred members present, instead of seventy-five as stated.

This Association meets semi-annually. The next meeting will be held at Gainesville the second Tuesday in December.

Yours very truly, J. T. WILSON, M.D.

Sanitarium in New York.

To the Editor:—The Sanitarium concerning which your correspondent, N. H. P., makes inquiry in the JOURNAL of July 7, page 37, is probably that under the care of Dr. E. L. Trudeau, at Saranac Lake, New York.

A. H. E.

SOCIETY PROCEEDINGS.

Medical Society District of Columbia.

Report on Typhoid Fever.

[Continued from page 82.]

2. The relations of the mortality of typhoid fever and its distribution in different sections of the city to the pollution of the soil by the leakage from privies, and to the drinking of contaminated well water.

The truth of the theory may be considered as established that there is a relationship between pollution of the soil with human excrement and the drinking of well water contaminated with the poison of typhoid fever contained in this excrement. The converse of this has also been absolutely proved that typhoid fever can be diminished—almost eliminated—by a proper purification of the soil and the drinking of pure water. Facts will be alluded to further on, which will illustrate this point.

Out of a total of 1,174 squares in Washington and Georgetown, deaths from typhoid fever occurred in 426 squares, or one death in about two and two-third squares.

If the city is arbitrarily divided into four sections, Georgetown making the fifth, and the number of deaths from typhoid fever during the last five years be marked in the localities in which they occurred, it will be seen that there is a great difference in the distribution of mortality. In region 1 (all that part of the city south of East Capitol Street, and the public grounds, including the southeast and southwest parts of the city), there are a very large number of cases. In this area there were 197 fatal cases in 131 squares, and in region 2 (east of North Capitol Street and north of East Capitol Street) in 59 squares there were 84 deaths. In region 3, comprehending all that part west of North Capitol Street and east of Thirteenth Street and north of the public grounds, in 116 squares there were 179 cases. In region 4, west of Thirteenth Street to Georgetown and north of the river to Florida Avenue, in 82 squares there were 114 deaths. In Georgetown in 38 squares there were 52 fatal cases. Assuming that each death represents 10 cases of typhoid fever, in the five years there were about 6,260 cases in Washington, at the rate of over 1,200 cases a year. Of these there were nearly 400 cases a year in the southeast and southwest districts, 170 in the northeast, 360 in the middle region, 230 in the northwest, and 100 in Georgetown, 400 in hospitals and public institutions, and 190 in the county. If we add the cases occurring in hospitals and the county to those in the city proper we have a total of 9,220 cases in five years, an annual average of 1,444 cases.

The percentage of deaths from typhoid fever in each of these divisions to the contained population is:

| Region. | Population of region. Police census 1892. | Total deaths from typhoid fever in five years in each region. | Annual rate of mortality to 10,000 population in each region. |
|---------------------------|---|---|---|
| I. (South) | 62,218 | 197 | 1.3 |
| II. (N. East) | 26,278 | 84 | 6.2 |
| III. (Central) | 70,865 | 179 | 5.0 |
| IV. (N. west) | 49,969 | 114 | 4.6 |
| V. (Georgetown) | 16,344 | 52 | 6.3 |
| County | 30,429 | 95 | 6.2 |

The interesting fact is to be noted in this table that the annual rate of mortality of the whole District being 6.2, that of the northwest section is 4.6; central region, 5.0; south, east, Georgetown and the county having each the same average, practically as that of the total District average.

The close relation of a soil polluted by sewage to typhoid fever prevalence is admitted to be a causal relationship, and no argument need here be adduced to support a theory so universally adopted. In Washington and the District there are three modes of infection of the soil with human excreta and sewage:

1. The overflow and leakage from privies.
2. The leakage from defective drain pipes in the soil.
3. The backing up of sewage in the sewers draining the lower parts of the city, and the flooding of basements and cellars.

The existence of the privy method of disposing of human excreta in cities is sufficient evidence of a contaminated soil.

Map No. 4 shows the numerical distribution of the privies of Washington. There are in the city limits 8,959 box privies, 5,133 in the county, a total of 14,092.

| | |
|---|-------|
| In the 1st division (South) there are | 8,994 |
| In the 2d division (N. E.) there are | 941 |
| In the 3d division (Cent.) there are | 1,086 |
| In the 4th division (N. & W.) there are | 1,761 |
| In the 5th division (Geo.) there are | 1,177 |
| | 8,959 |

Squares 743 to 795 in the southeast region may be cited as an example of the relative distribution of privies and closets with sewer connections:

| | | |
|----------------------|------------|------------|
| Square 743 | 82 privies | 13 closets |
| Square 766 | 23 privies | 6 closets |
| Square 768 | 14 privies | 3 closets |
| Square 770 | 41 privies | 14 closets |
| Square 799 | 21 privies | 19 closets |
| Square 795 | 24 privies | 22 closets |
| | 289 | 855 |

In 14 squares in the northwest part of the city there were 153 privies and 297 closets.

1. The report of the inspector shows that for the nine years ending June 30, 1891, there were 42,197 full or overflow privies reported, 6,455 boxes with leakage, and 663 old and dilapidated boxes. In one year, 1892, there were 465 boxes noted with leakage. It is difficult to ascertain the extent to which the saturation of the soil takes place in this way, but the above facts demonstrate that the saturation with excrementitious matter is a necessary result of such conditions.

2. Every report of the engineer department of the District government contains a statement as to the relaying of pipe sewers. In the year 1892 there were 1,534 linear feet of sewer pipe which were taken up and relaid; 8,438 linear feet of obstructed sewers were replaced. "These sewers were faulty in gradient, alignment, and because of defective joints, allowing the intrusion of tree roots, and in quite a number of cases, they were of insufficient size. They were all laid under contracts made with the board of public works in 1871-'74."—(Report upon the sewerage of the District of Columbia, by Board of Sanitary Engineers, June, 1890.)

All the pipe sewers laid prior to 1874 require to be replaced by those of suitable construction, with joints protected by concrete. It need not be added that such defective sewerage conditions permit the saturation of the soil with fecal matter.

3. A third cause which prevents thorough drainage of the soil and adds to the dangers from saturation with sewage is found in the fact that from the foot of Capitol Hill westerly to the Potomac River there is a long, flat area only a few feet above high tide. To the north and east the ground rises; the soil of the lower area is moist, that of the elevated territory is composed of compact gravel, clay and loam, and is comparatively dry. "Owing to the absence of slope, and therefore of scouring velocities," in the sewers in the south and east, accumulations take place in the sewers, which are added to by the entrance of tide water. In the Tiber Creek sewer these deposits reached two to three feet in depth and several thousand feet in length, reaching nearly to the present District building. The daily effect of the entrance of the tidal current into the sewer is to prevent the complete emptying of the drains and in times of floods great quantities of noxious sewage is carried into cellars and basements.

The drinking of the infected water of wells has long been known to be a mode of propagation of typhoid fever.

If the soil of the city is receiving a considerable portion of the excreta of typhoid fever cases; if much of that soil is badly drained and wet with returned sewage, is it possible to avoid the danger of the fouling of well water?

In that low section of the city in which there is the most imperfect drainage, in which the soil is most contaminated by the defective sewerage, there are many thousand inhabitants with 3,994 privies, drinking the water from 140 wells.

In the southern region, with 197 fatal cases, there were 140 pumps, now reduced to 87; in the northeast 84 fatal cases and 47 pumps, now reduced to 29; in the middle area 179 deaths, 70 pumps, now 42; in the northwest, 114 deaths, 34 pumps, now 22. (The number of pumps here given is taken from a map published by District Commissioners in 1889, and list furnished May, 1894.) In Georgetown there were 52 deaths with 18 pumps, by May list, 19 by map. It can be assumed that where there are the largest number of pumps there is the largest consumption of well water; that well water is used most largely by the poor, and in those quarters of the city where the water and sewer connections are fewest; and that Potomac water is used chiefly where the water and sewer connections are most numerous.

We know that water from the 310 pumps existing at the report of 1889 was largely used by the people living on the 426 squares in which the 626 fatal cases occurred. The number of wells here given may not be strictly correct, as errors have been found in the map of 1889. It is, however, approximately correct.

Even by those having access to Potomac water, well water is largely consumed on account of its being colder during the hot months of the year.

The object of these considerations is to show that the soil underlying the city is being constantly impregnated with human excrementitious matter, and with all microorganisms therein contained, and that the water of wells liable to be contaminated with such material is being constantly and generally used as drinking water by the people.

It is not an assumption that the well water thus consumed is infected and dangerous to health. It is a matter of chemic and bacteriologic demonstration.

At the end of 1890 there were 271 public pumps in service; 17 of these were abandoned during the year as being no longer fit for use.

In the report of the Engineer of the District for 1889-90 it is stated that 75 per cent. of the water of wells examined was found to be suspicious; in the northwest 71 per cent. was bad or suspicious; in the southwest all examined were bad or suspicious; in the northeast two out of three; in the southeast 40 per cent. and in the county 70 per cent. The report adds that the only excuse "for keeping the wells open is the filthy condition of the aqueduct water and the high temperature which it reaches in the mains in summer, often 85 degrees, which is far from palatable to the poorer classes who are unable to purchase ice."

In the following year nine wells were filled and abandoned. In the year ending June, 1892, of fifty-seven wells examined, 24.6 per cent. were condemned or declared very suspicious; fourteen were filled or abandoned. The wells of the county were, as a rule, more contaminated than the city wells, a condition due to the fact that the soil of the city is better drained by sewerage than that of outlying districts.

The report for the year ending June 30, 1893, states that a larger number of wells were condemned than in the previous year, "owing to the large number examined from the low portion of the city in the southeast and southwest sections." Fourteen were found dangerous.

This is the very section of the city in which the number of fatal cases was so great in the five years.

In the recently published report of the examination of the water of the city wells by Drs. Theobald Smith and Mew, sixteen wells were reported as examined bacteriologically by Dr. Smith, and the conclusions reached were favorable to the general purity of the well water. Five wells only were found to contain fecal bacteria; the water of four was in good condition, and that of seven in need of improvement.

The suggestion is made by Dr. Smith that the wells upon which a favorable report is made should be retained, that others should be improved and that bacteriologic examinations should be made at least once a year to determine the fitness or unfitness of the water for drinking purposes. He also suggests that wells considered safe should be so labeled. But is not the fact that some wells at a particular date contain fecal bacteria a sufficient reason for condemning the whole system?

The following report of bacteriologic examinations of thirteen wells made for the committee by Dr. J. J. Kinyoun fortifies these views of the general unhealthfulness of the well waters:

| Sam- ple No. | Location of well. | Result of Examination. | Condition of water. | Recommendations. |
|-----------------|--|---|------------------------|--------------------------------------|
| 1 | East side 7th street between M and N streets N. W. | Sewage bacteria. Col- on bacillus isolated. | Bad. | Well should be closed. |
| 2 | L street between 6th and 7th N. W. | Sewage bacteria. Col- on bacillus isolated. | Bad. | Well should be closed. |
| 3 | East side 7th street between M and N streets N. W. | Sewage bacteria. Col- on bacillus isolated. | Bad. | Well should be closed. |
| 4 | 10th and S streets N. W. | Sewage bacteria. Fe- cal bacteria. Colon bacillus isolated. | Bad. | Well should be closed. |
| 5 | 16th and Corcoran streets N. W. | Ordinary forms usu- ally found in water. | Good. | Should be kept under observation. |
| 6 | 17th and K streets N. W. | Ordinary forms usu- ally found in water, but in considerable quantities. | Suspicious | Should be kept under observation. |
| 7 | 10th street be- tween B and C N. E. | Sewage bacteria. Col- on bacillus isolated. | Bad. | Should be closed. |
| 8 | 3d street and Ind- iana avenue N. W. | Sewage bacteria. | Bad. | Should be closed. |
| 9 | T and 18th streets N. W. | Ordinary water bac- teria, but in large numbers. | Suspicious | Should be kept under observation. |
| 10 | 23d and G streets N. W. | Sewage bacteria. | Bad. | Should be closed. |
| 11 | 18th and S streets N. W. | Sewage bacteria. In great numbers. | Bad. | Should be closed. |
| 12 | K street between 21st and 22d streets N. W. | Sewage bacteria. Col- on bacillus isolated. | Bad. | Should be closed. |
| 13 | 6th and H streets N. W. | Ordinary water bac- teria in small num- bers. | Good. | Should be kept under observation. |

As long as causes of soil pollution exist, is not one well as liable, or nearly as liable, to contamination as another? And the fact that one well contains no bacteria, another a few and another many, is no proof that all are not liable in different degrees to become at some time infected. To be under the necessity of labeling each particular well as healthy or unhealthy, after annual examination is an endless task and a most unscientific procedure, for how many individuals who wish to quench their thirst will be influenced by the published statement impugning the reputation of a particular well? Even if the individual knows that bacteria are found, he will drink and take the risk. As sanitarians, we must condemn the whole system, and advise an early abandonment of all wells as the only solution of the question. The advice contained in the report of the Sanitary League we believe to be mischievous, and to involve a continued menace to health.

It should be remembered that the water of the sixteen wells reported upon by Dr. Smith is of those which have been permitted to stay, and that over sixty have within the last five years been condemned and filled up. Dr. Kinyoun finds sewage and fecal bacteria in nine out of thirteen examined. For how long a time will these now reported upon as free from fecal bacteria remain so, with the continued presence of typhoid fever among us? Shall we wait for the infection to take place, or shall we remove the possibility of the dissemination of the disease in this way? These are questions to which we should give no uncertain answer.

The lesson of Vienna should teach us what this answer should be. From 1851 to 1874 well water of an impure character was used to a large extent. During this time the deaths from typhoid fever ranged from ten to thirty-four annually in every 10,000 of the population. In 1874 spring water of great purity was introduced, and the well water of impure wells was given up. The annual mortality rate immediately fell to 5.0, and in three subsequent years to 1.1. A good sewerage system was in existence long before this, but it had no effect in reducing the mortality.

One fact to which separate attention should be drawn is that many of our cases of typhoid fever are imported from without. At the end of the summer it is a frequent occurrence for the disease to develop in individuals who have just returned from seashore and other resorts, and a much larger number of our inhabitants go out of town now than formerly. This is one means by which our mortality is increased, and fresh infection is added to that already existing.

INFECTION THROUGH MILK.

The dissemination of typhoid fever by the milk supply in the District has not been investigated fully enough to warrant any extended remarks or conclusions. It would be well to make this a separate matter of study. It is safe to assume from the experience of many observers elsewhere that typhoid fever is to a certain extent propagated by milk; there is nothing in the condition of the dairies from which our supply is drawn to make us think that we are better protected from this danger than other communities where epidemics have been traced to milk infection.

There are sixty-five distinct places in the District where cows are kept and from which milk is supplied.

It has been shown that in Washington there is a coincidence between a soil polluted with the leakage of the excreta from typhoid fever patients, the drinking of infected well water and an extensive distribution of typhoid fever; that where these two first conditions exist to the greatest degree typhoid fever is most prevalent. It remains to be seen whether the purification of the soil, and the abolition of the water supply from pumps, would lessen the disease.

The belief that typhoid fever spreads by "soil contamination" would be much strengthened if other cities with the same conditions have diminished the percentage of the disease by draining the soil and abandoning the use of well water.

Typhoid fever increases in proportion to the saturation of the soil with decomposing organic matter, especially human excreta.

Typhoid fever decreases in proportion as a city is well sewered.

The greatest diminution in typhoid fever has taken place in England and Germany, where expert engineers and liberal municipal governments have combined in the work of sewerage in the principal cities. In the cities of Spain, Italy, Russia and Mexico, where the sewerage systems are less complete, the diminution has not taken place.

The history of Munich offers the strongest evidence on this point.

From 1854 to 1859, when no means existed to prevent the fouling of the soil, the mortality was 24 to 10,000 inhabitants.

From 1860 to 1865 the sides and bottoms of the pits of the privies were cemented, and the mortality fell to 16.80.

From 1866 to 1873, with partial sewerage, it was 13.30; from 1874 to 1880, with improved sewerage, it was 9.26, and from 1881 to 1884, with still greater improvements it fell to 1.75 to 10,000 inhabitants.

The experience of Berlin is very instructive to Washington, as showing the difference in mortality in houses with sewer connections and in houses without them where privies were used.

1. In houses with sewer connections there were 15.5 cases and 4.5 deaths to 10,000 population.

2. In houses without sewer connections there were 56.0 cases and 17.9 deaths.

1. In the sewered houses there was 1 case to each 49.3 houses and 1 death to 137.5 houses.

2. In non-sewered houses there was 1 case to each 9.3 houses and one death to 43 houses.

(To be continued.)

SOCIETY NEWS.

West Baden Medical Society.—The annual meeting of Mitchell District Medical Society will be held at West Baden, Ind., July 26 and 27, 1894. Season tickets on sale at all principal railroad offices. Programs will be issued in a few days.
G. W. BURTON, Secretary.

Colorado State Medical Society.—Prize Essays.—Prize of \$100 voted by the Colorado State Medical Society, June 21, 1894, for the best essay on the following subject: "The Diagnosis of Tuberculosis by Microscopic Examination of the Blood."

Preference to be given to new evidence and the detection of the pre-tubercular stage. All stages, however, to be included and microscopically differentiated. Paper to be condensed to read in thirty minutes time; to be typewritten and the authorship kept secret till the award of the examining committee is made known. Prize open to any one; essay to be written in the English language in comprehen-

sive style and as free from purely technical expressions as possible; accuracy of definition and clearness of diction considered. The committee to reserve the award for an essay they deem sufficiently meritorious, *i. e.*, the rules to be observed enabling a diagnosis to be made from the blood alone without the patient being seen. A prize committee of three was appointed: Dr. Charles Denison, H. A. Lemen, both of Denver, and Dr. S. E. Solly, of Colorado Springs.

All essays to be handed in by April 1, 1895; under seal.

The following test is suggested as not unreasonable: Seven persons being in one room representing a person in health, a case of anemia, one of leucocythemia, one pretubercular, and three representing the three stages of consumption, *i. e.*, 1, infiltration; 2, softening and; 3, excavation (advanced and extensive). In another room the microscopic examination of the blood of several of these to determine from whom the specimens were taken. It is expected that the ordinary use of the 1-6, 1-10, 1-12 or 1-16 immersion lenses will answer. If not or there is any doubt, full explanations as to instruments or lenses used should be furnished.

BOOK NOTICES.

A Clinical Manual. A Guide to the Practical Examination of the Excretions, Secretions and the Blood, for the Use of Physicians and Students. By ANDREW MACFARLANE A.B., M.D. New York and London: G. P. Putnam & Sons. 1894. Pp. 134.

This little book is greatly to be commended, for it brings within the reach of all, the practical application of the recent great advances in physiologic chemistry and bacteriology. As a volume to depend upon in the office in examining excretions for diagnostic purposes, it will be found very useful.

PUBLIC HEALTH.

Milk for the Poor.—Six milk depots for sterilized milk have been established by the Nathan Straus Charity in the tenement house centers of New York city. The milk is sterilized under the supervision of a competent bacteriologist who examines the supply at stated intervals, and the cows which furnish it are inspected for tuberculosis and other diseases. Raw milk is sold at 4 cents a quart, 2 cents a pint, 1 cent a glass; pure milk sterilized (four 8-ounce bottles) 5 cents a quart; diluted sterilized milk in 6-ounce bottles at one cent a bottle.

Diphtheria in London in 1893.—The Registrar General's summary of mortality in London for 1893 shows a net loss of 3,989 lives during the year. That is to say, if the death rate in 1893 had not exceeded the average rate of the preceding ten years there would have been 3,989 fewer deaths registered in London for 1893 than there actually were. Among the causes of death contributing to this excess were preëminently diphtheria, cancer, premature births and diseases of the nervous system. The excess of deaths from diphtheria was 1,985, the total deaths from the disease being 3,265. This is the most disturbing factor of the death rate, amounting to 0.76 per 1,000—by far the highest yet recorded and exceeding the average of the previous decennium by 0.46 per 1,000.

"Naturforscher."—American physicians and sanitarians attending the International Congress of Hygiene at Budapest next September, will have an opportunity also of witnessing the "Naturforscher"—a gathering of scientists peculiar to Germany. Its sixty-sixth meeting takes place at Vienna, September 24-30, and the Austrian Parliament has voted \$5,000 for its objects, which include investigations in astronomy, mathematics, geography, medicine, hygiene, etc.

There will be thirty sections, dermatology and syphilis being added as a separate section this year. Comprehensive preparations are being made and all the resources of the Imperial University will be utilized for the success of the meeting.

Anti-Cholera Inoculation.—During the past fifteen months Dr. Haffkine has inoculated over 25,000 persons with the so-called anti-cholera "vaccine," in Northern India. From such reports as have been made public it would appear that the protection afforded is perfect; many instances are cited where cholera has broken out in places after the inoculations had been performed, with the uniform result, so far as made public, that those who had been inoculated escaped, while numbers of those who had refused or neglected the protection were attacked with the disease and died in the usual proportion. It is stated that M. Haffkine will continue his work in India for another year.

Resuscitation from Asphyxia.—While the drowning season is "on" it may be useful to familiarize one's self with Dr. Laborde's method of restoring the respiratory reflex. It is so simple—using an ordinary tongue forceps, such as is on hand during chloroform or ether inhalation, the tongue is well pulled forwards and regular rhythmical movements are given to it—that it is proposed to issue some plain directions that can be posted in every hospital and be in the hands of every midwife, or any one who may be liable to see asphyxia, such as those who give anesthetics and those called to cases of drowning, etc. It has been tried a great deal in France in the last two years in all sorts of cases of asphyxia, by drowning, electric shock, lightning stroke, and in the cases of apparent death in the newly-born. Some sixty-three cases are given where patients were recalled to life by this method.

Our Diminishing Birth Rate.—There is apparent an increasing tendency to the belief that there are too many people in the world and that thereby the struggle for existence is made harder. Those holding this belief and in whom the logical faculty is strongly developed, naturally decry all sanitary effort on the ground that its success renders more easy the survival of the unfit, who thus live to become not only competitors of, but burdens upon *nous autres*. Without going to this extreme the editor of the *Medical Standard* evidently believes in the general proposition and thinks that the decrease of the birth rate of the United States is a matter for congratulation rather than pessimistic prophecy. "With a rise in the scale of evolution in animals comes a decrease in births and an increase in the period between them. The resulting animal receiving maternal care longer, from a better nourished ancestor, is better qualified to survive the 'struggle for existence.' Not only is the birth rate decreasing in the United States, but the period of pregnancy is most probably increasing, the age of puberty growing later, as also is the age of marriage. All these factors tend to decrease the birth rate, fortunately for the race."

Smallpox in Massachusetts.—The *Boston Medical and Surgical Journal* (July 12, inst.) takes the opportunity of the recent smallpox epidemic being practically at an end to review the situation as presented by the experience of recent years. As compared with the epidemic of 1872-73, and the still greater prevalence in pre-vaccination times the recent outbreak is scarcely worthy of mention; but the collection of more careful records during the past ten years furnishes data for conclusions as to the effect of better methods of control. During the forty years ended with 1893, there were 4,720 deaths from smallpox in Massachusetts, of which 4,412—or at the rate of 170 per million annually

—occurred during the first twenty years (1854-73); and 308 — or 8 per million annually—occurred in the second twenty years (1874-93); during the decade ending with 1893 the smallpox deaths were at the rate of 2 per million annually. By carefully compiled tables of smallpox in the State from 1885 up to and including the first six months of 1894, it appears that the mortality from smallpox among the unvaccinated was 27.8 per cent. as compared with only 4.3 per cent. among the vaccinated—the former being more than six times as great as the latter.

Diet of the National Guard.—The large total of "effectives for duty" and the light sick-list speak well for the medical service of the National Guard in the various States where they have been called out for active duty. This duty will probably largely take the place of the usual summer encampment—an occasion which is generally more or less trying to the medical officer in the supervision of the hygiene and more especially of the diet of his command. Assistant Surgeon Galloupe, of the Massachusetts Light Artillery, furnishes (*The Medical Age*, June 25, inst.,) a timely article on this subject, in which he says: "An experience of six years has shown me that within forty-eight hours of their proud entry upon the field, 5 to 10 per cent. of the men are *hors du combat*, and the enemy that has accomplished this decimation is acute indigestion." Based upon this experience he offers the following suggestions: Sickness in summer camps is due principally to injudicious diet; this could be remedied in great measure by a medical inspection of food: Permanent kitchens would secure better cooking: Issuance of cooked rations by the State would render efficient inspection possible: The duty of such inspection would be a practical training for medical officers: The fixed army ration is not applicable to volunteer troops, and never desirable if better rations can be obtained: State catering would reduce the cost to companies 50 per cent.

Vaccination and Re-vaccination.—During the lull in the smallpox incidence, due to the warm weather and consequent aerial disinfection, it is worth while to add to the arguments for vaccination and re-vaccination. It is by no means certain that there will not be a recurrence of the disease during the fall and winter, and in any event the "anti" we shall always have with us. To the mass of facts and figures furnished by Dr. Quine¹ should be added these from a memorial of Dr. Goldschmidt, of Strasburg:

"Germany is the sole country where compulsory vaccination and re-vaccination have been practiced since 1875, and a glance at the following figures show the striking result of this practice as a means of effectually exterminating smallpox:

"Annual average of deaths from smallpox among 100,000 inhabitants, in Prussia, 1860-69, before the compulsory law, 33.84; between 1875-84, after vaccination and re-vaccination (compulsory) 2.23."

In Berlin, Dresden, Breslau and Bavaria, under compulsory vaccination the smallpox deaths per 100,000 (1875-84) have been 1.68, 1.48, 1.61 and 1.11 respectively; in the following cities where vaccination is voluntary, the deaths per 100,000 during the same period were: Paris, 28.95; Vienna, 84.37, and in London, where one vaccination only is compulsory, the deaths were 25.50 in the 100,000 inhabitants. As to re-vaccination, it has been shown that the proportion of successful operations increases with the age of the subject. Thus the percentage of success in those vaccinated between 6 and 7 years of age, was 32.60; 7 to 8 years, 64.00; 8 to 9 years, 72.52; 9 to 10 years, 79.63; 10 to 11 years, 85.94; 11 to 12 years, 88.64, and adults, 90.00. These facts, and others like them which are accumulating constantly, prove the absolute necessity of re-vaccination, since they show that, in 85 to 90 times

in the 100, the immunity against smallpox conferred by the first vaccination has disappeared in twenty years; they also demonstrate in a most striking manner how certain as measures of public defense against the spread of smallpox are compulsory vaccination and re-vaccination. Health authorities should remit nothing of their recent energy in pushing these measures.

Ne Sutor Ultra Crepidam.—Arthur James Balfour, the eminent English statesman, has been advising the British public to "stick to its last"—to mind its own business and refrain from meddling and muddling in matters of science, and especially in matters of medicine. At a recent meeting of the British Economic Association he told his hearers that he thought the public had never yet mixed themselves up in scientific investigations without spoiling the investigations and doing themselves a great deal of harm. "Take medicine, for instance—if it is not flattering to call it a science; at all events those who pursue it do their best on scientific principles. Directly the public mixed themselves up in it there was a party feeling—which is essential in all public action—that had the most paradoxical, and in many cases the most disastrous results." He would, for a moment, consider the question of vaccination. He was not a doctor and had never studied the medical theory to pronounce upon the subject as an expert. Therefore he looked with a sort of remote interest at the quarrel between the doctors on the one side who had, or thought they had, settled the matter in a scientific spirit, and that section of the public who had never studied the question in a scientific spirit, but who were determined that their feelings should override science. He did not say who was right or who was wrong. Science had been before proved in the wrong and popular feeling, even uneducated popular feeling, had in many cases been proved right. But there could be no doubt that if they were going to allow questions of scientific interest to be decided by universal suffrage, they would not do much good to universal suffrage and they would absolutely ruin science. If science was wrong it could only be got right and placed in the direction of truth by being allowed free play outside altogether of influence of popular forces. The idea that any large body of the public has any opinion worth having on difficult economic or scientific subjects appeared to him to be absurd.

Cholera and Plague.—Baltic sea commerce is seriously threatened by the western extension of the cholera from Russia. The disease has invaded Finland by the northern route, and while the western movement from Poland seems to have been checked, there has been an increase of cases in Poland itself. In St. Petersburg it is reported as assuming alarming proportions; the present visitation is said to be of "a more intense and more fatal character than were the outbreaks of the two previous years." Unusual sanitary precautions are being taken to check the further spread of the disease, and it is announced that the Russian Imperial Sanitary Commission will henceforth continue in permanent session. Public prayers have been offered up in the cathedral at St. Petersburg, by the Metropolitan, that the scourge be stayed. Elsewhere in Europe the disease is disappearing or is well under control, except in Belgium where there still seems to be some spread; but the authorities are on the alert and no alarm is felt as yet. It has again broken out in Mecca and still prevails in many places in Asia Minor. As against Mecca the Sanitary Council at Tangier has taken measures to prevent returning pilgrims from landing at any of the ports of Morocco before they have been subjected to quarantine restrictions on the Island of Mogodor; and, since the death of a traveler from Sivas, in Asia Minor, after his arrival in Constantinople, all persons coming to Constanti-

¹ Vaccination. The Address on State Medicine. By Wm. E. Quine, M.D. JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, June 23, 1894.

nople from the Turkish coast of the Black Sea must now submit to medical examination at Sinope, and also at the entrance of the Bosphorus. Recent advices, received July 14, by the Northern Pacific steamship *Victoria*, from Hong Kong, say that cholera is spreading throughout the Chinese Empire and that the Government officials are suppressing the number of deaths. In Canton alone, Chinamen say that 40,000 deaths have occurred.

A cable from Berlin, July 17, reports an outbreak of the disease in Dantzic, an important Prussian seaport near the mouth of the Vistula, and at other places in West Prussia. A death from cholera is also reported, under the same date, at Kelder, in North Holland.

As a result of the policy of suppression of information and secretion of patients in Canton and Hong Kong the plague is appearing in all the neighboring country places and its appearance at the great shipping port of Shanghai is hourly expected. It is reported that it was by a mere accident that the European authorities first learned of the disease in Hong Kong as the natives carefully concealed the spread of the contagion. One Lau Wai Chuen, a member of the Sanitary Board, proved to be hard-headed. He insisted upon having patients sent from the great native hospital of Jung Wah to the European Hygeia, and then, after examination, to the hulks in the harbor. This was done for a few days. Then the feeling among the Chinese became so bitter that the procedure had to be abandoned. Native members of the Sanitary Board stimulated hostility to European methods and the reports read like those of the anti-vaccination and anti-inspection riots in a civilized American city. When the physicians began house-to-house inspection for patients suffering from the plague there was a tremendous clamor. Placards were posted warning people not to permit the "foreign devils" to enter their homes and declaring that many who were removed were not suffering from the dread disease. These placards and rumors created such an outburst of fanaticism that the doctors were forced to give up the house-to-house inspection for two days. Before they relinquished it, however, they were actually stoned by crowds which followed them in the streets. The police detailed armed Sikhs to accompany the doctors, but this was found to promote danger of an insurrection, and it was finally decided to yield to native clamor. After two days the inspection was resumed, the native Governor having issued a proclamation warning every one from interfering with the doctors. How necessary the inspection was is shown by the fact that no fewer than five dead bodies were found in a single house, with four patients far gone with the disease. The house was reported by the Chinese to be empty, but had been employed by the Chinese to secrete patients. A disease resembling the bubonic plague is reported to have broken out in many Russian provinces and cases are said to have occurred at St. Petersburg, Moscow and elsewhere.

MISCELLANY.

The St. Louis Clinique has passed into the hands of Dr. Emory Lanphear, Professor of Surgery in the College of Physicians and Surgeons. Dr. Lanphear will conduct the journal in the interests of that school, and of the medical profession of the West.

Medical Registration in Massachusetts.—Adverse criticism of the new Massachusetts registration law continues to increase and it is said that there seems to be good reason to doubt whether it "will stand the test of the courts if it is ever brought there. Blunders have been discovered in its phraseology and amendments made in one branch of the Legislature were left out in the other."

No Fee-Bill in Kansas.—Lest physicians should form a trust or combination to the detriment of their patients' pockets the adoption or use of physicians' fee-bills in Kansas is void and unlawful. A physician in that State bringing suit to collect pay for services, basing his rate of charges upon any such fee-bill or agreement, loses the entire account and the legal costs in the case and, if prosecuted in turn, is liable to fine of from \$100 to \$1,000, or one to six months

imprisonment, or both fine and imprisonment. The contention of the law is that such fee-bills prevent that free and fair competition in all trades, professions and callings which is for the best interest of society.

Spanish Smugglers Seized.—One of the most dangerous sources of the introduction of yellow fever along our South Atlantic and Gulf coasts is the smuggler. Lieut. Willey in command of the revenue cutter *McLane*, has made a report to the Treasury Department from Tampa Fla., stating that he had seized six Spanish schooners from Havana for violations of the State quarantine laws and regulations and the federal customs and navigation laws. For some years past fishing schooners from Havana have been suspected of carrying on smuggling operations along the Florida coast on a small scale and the *McLane* was sent to investigate. This vigorous action was found essential to the efficiency of quarantine along these coasts. Previous raids in former years have had the same result.

Physicians in the French Parliament.—The physicians of the French Parliament held a caucus June 21 at the Palais Bourbon, and decided to form an extra-Parliamentary committee to investigate the numerous pending questions which relate to the medical profession, the organization of relief to the poor, and the protection of the public health. The following were selected as officers of the committee: Honorary President, M. Berthelot, (senator); President, M. L. Labbe, (senator); Vice President, M. M. Cornil, (senator), and Lannelongue, (deputy); Secretary, M. M. Dellestable, (senator), and Pedebidou, (deputy); Treasurer M. Guenau (deputy).

There were present at the meeting, according to the *Journal de Médecine* of July 1, twelve Senators, and twenty-two Deputies. Among them were many well-known names.

The course of medical legislation in France should run smoothly when the profession is so ably represented in the legislative body.

The Necropsy of M. Carnot.—We publish a minute of the testimony of the autopsy of M. Carnot, President of the French Republic, assassinated at Lyon, June 24: The undersigned doctors have proceeded to-day to the autopsy of the President; they have found the following lesions: The wound was seated immediately under the depression of the right side, three centimeters below the xiphoid appendix, it measured from twenty to twenty-five millimeters, and the blade had completely divided the corresponding costal cartilage. The blade of the poniard had penetrated the left lobe of the liver about five or six millimeters. About the suspensory ligaments it had perforated the organ from left to right, and from above, downward, wounding in its passage the vena porta which was opened in two places. The length of the wound in the interior of the liver is eleven to twelve centimeters; a fatal intra-peritoneal hemorrhage was the result of this double perforation.

DRS. LACASSAGNE, HENRI CONTAGUE, OLLIER, REBATEL PONCET, MICHEL, GANGOLPIE, FABRE.—Lyon, June 25, 1894. *Journal De Médecine De Paris*, July 1, 1894.

Dr. T. S. Robertson Scores Mr. Croker's Health Officer.—(Special to the *Chicago Tribune*).—Health Officer Jenkins, upon hearing that Dr. T. S. Robertson had publicly stated that he had treated Eugene V. Debs for dipsomania, took the doctor to task for a violation of the ethics of the medical profession.

"If Dr. Robertson," said he, "has been rightly quoted he has been guilty of a gross and unpardonable breach of professional confidence in giving out to the public a statement in regard to Mr. Debs' physical ailments based on knowledge gained in the course of professional treatment."

As soon as this came to the eye of Dr. Robertson he sent this telegram to Health Officer Jenkins:

"Dr. W. T. Jenkins, Health Officer, Quarantine: Your impudence in speaking for my profession, which never rec-

ognizes you, and your ingratitude after I tried to have the Senate confirm you last winter, show that I little understood the man. The whole press will not forget how you treated them. I am willing to be criticised by any educated man, but not by a man not intelligent enough to be my valet. Now try again.
T. S. ROBERTSON."

Dr. Robertson explains that his door man gave the information out thoughtlessly to a reporter and permitted the copying of the message that was sent to Debs.

Medical College Notes.

MISSOURI MEDICAL COLLEGES.—At the recent annual meeting of the Howard Medical Alumni Association, Chancellor W. S. Chaplin of the Washington University at St. Louis, indulged in some comments on St. Louis culture and on medical education in Missouri which have aroused the ire of the St. Louis daily press. Commenting upon this indignation the St. Louis *Medical Review* says:

"We have more medical schools in St. Louis than either France or Italy, and at a time when the great center of medical learning in Joplin was still flourishing, the State of Missouri had the proud distinction of closely approaching the number of medical schools in Germany. Since the enterprising doctors of that mining camp closed the door of its college in consequence of an inexplicable want of appreciation on the part of medical students, our Missouri schools have fallen to the discouraging number of seventeen."

Touching this multiplicity of medical colleges in Missouri and its effect upon medical education the *Review* does "not believe that there is one professor of medicine in this city to-day who is not convinced that there are too many medical colleges and that it would be a blessing if a speedy death would remove them with the exception of one or two—provided, of course, that his college was included in the surviving number." The *Review* thinks that after Chancellor Chaplin has lived in St. Louis "a little while longer he will probably recognize the *raison d'être* of this multitude of medical colleges. We are sorry to say that we feel in duty bound to increase his chagrin over existing conditions, and to impart to him the glad news that at no distant day the dozen of medical colleges will be full. We hear that a number of enterprising young doctors and some dissatisfied older ones, backed by knowledge and capital, are about to start a new college which for facilities of graduation will throw all the rest in the shade."

By the way, Dr. Lutz, whose communication concerning one of the St. Louis colleges appears elsewhere in this issue of the *JOURNAL*, is one of the editors of the *Medical Review*.

UNIVERSITY OF NASHVILLE AND VANDERBILT.—The death of Dr. W. T. Briggs and the resignation of Dr. Menees on account of illness, have led to several changes in the faculty of the Medical Departments of the University of Nashville and of Vanderbilt University. Dr. Charles S. Briggs succeeds his father in the chair of surgery; Dr. S. S. Crockett succeeds Dr. Menees in the chair of anatomy; the following named gentlemen have been transferred or appointed to the chairs specified: Dr. Ambrose Morrison, physiology; Dr. J. H. Callender, diseases of the brain and nervous system and forensic medicine; and these as demonstrators and lecturers: Dr. S. S. Briggs, anatomy; Dr. Larkin Smith, histology and microscopy; Dr. E. A. Riddiman, chemistry and pharmacology; Dr. Owen H. Wilson, operative surgery and gynecology; Dr. J. W. Waters, physiology; Dr. John M. Bass, prosector of anatomy. Hygiene has been added to the chair of principles of medicine and pathology.

Hospital Notes.

INCORPORATED.—Mercy Hospital, Des Moines, Iowa, has become an incorporated institution.

FINLAY HOSPITAL, Dubuque, Iowa, has been thoroughly repaired and reconstructed.

DEACONESSES' HOSPITAL.—A meeting in the Second Reformed Church, Cleveland, Ohio, was held recently by the Deaconesses' Society of the Reformed Church of Cleveland.

It was decided to build a new hospital, to be known as the German Hospital and Polyclinic. The building will be located near the West Side Circle, and as soon as completed the temporary hospital on Scranton Avenue will be abandoned.

STILLWATER, MINN., CITY HOSPITAL.—The annual report of the city hospital board of Stillwater, Minn., shows the receipts the past year to be \$5,227.73, of which \$1,783.60 was paid by the county for the care of county patients, \$1,037.60 was paid by private patients, \$1,363 was from the sale of tickets and the rest was made in smaller sums, by giving entertainments, dinners, etc. The disbursements figure up \$5,135.75, of which the principal item was for help—\$1,576.38; the other items being fuel, groceries, etc. The cash balance on hand is \$90.98. The number of patients cared for during the year was 131, of which 103 were males and 28 females. There were fourteen deaths and three births.

FLOATING HOSPITAL ST. JOHN'S GUILD.—The Floating Hospital, gayly decked in flags and bunting and loaded with over one thousand women and children, was towed down the Hudson River yesterday morning on her first voyage of the season. The Floating Hospital is the property of St. John's Guild, and all last summer she made trips down the Bay to give the poor little ones of the city some sea air, a bath in salt water, two square meals and a good time generally. The boat went down the Bay to New-Dorp, S. I., left a few of the children at the hospital and then cruised around the Bay, returning to the city at 5 o'clock.—*New York Tribune*.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from July 7, 1894, to July 13, 1894.

Major EGON A. KOERPER, Surgeon, granted leave of absence for one month, on surgeon's certificate of disability.
Capt. PAUL CLENDENIN, leave of absence granted for seven days, is extended twenty-three days.
Capt. JAMES D. GLENNAN, Asst. Surgeon, now on leave of absence, will report without delay to the commanding General, Department of the Missouri, for temporary duty.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending July 14, 1894.

Asst. Surgeon AMMEN FAENHOET, ordered to Naval Laboratory and Department of Instruction, New York.
CHARLES F. KINDELBERGER, appointed an Asst. Surgeon in the U. S. Navy.

LETTERS RECEIVED.

- (A) Ayer, N. W. & Son, Philadelphia, Pa.
(B) Bridenstine, S. J., Port Orchard, Wash.; Battle & Co., St. Louis, Mo.; Bau J. Thomas, Colorado City, Col.; Bernd & Co., St. Louis, Mo.
(C) Church, W. S., London, England; Connor, Leartus, Detroit, Mich.; Cleaves, Margaret A., New York City; Conner, Milton C., Middleton, N. Y.; Church, W. F., Gibsonburg, Ohio.
(D) Davis, Thos. A., Chicago, Ill.; De Courcy, J. O., St. Libory, Ill.; Denison, C., Denver, Col.
(E) Eichelbacher, W. C., Terre Haute, Ind.; Eschner, A. H., Philadelphia, Pa.; Eliot, Lewellyn, Washington, D. C.; Eskridge, J. T., Denver, Col.
(F) Frazee, A. B., Kipple, Pa.; Favil, H. B., Chicago, Ill.
(G) Grindon, Joseph, St. Louis, Mo.; Griffith, W. H. & Co., New York City; Gillman, R. W., Detroit, Mich.; Griffiths, L. M., Bristol, England.
(H) Herald Dispatch Co., Decatur, Ill.; Hummel, A. L., Philadelphia, Pa.; Harrington, C. W., Knob View, Mo.; Hofmann, J. A., San Francisco, Cal.; Hibberd, J. F., Richmond, Ind.
(I) Irwin, L. C., Washington, D. C.
(J) Jelks, J. T., Chicago, Ill.
(K) Kebler, J. B., St. Louis, Mo.; Kerrick, H. C., Brocton, Ill.; Kars-ten, A. C., Horicon, Wis.
(L) Lippincott, J. B. Company, Philadelphia, Pa.; Lanpher, Emory, St. Louis, Mo.; Loving, Starling, Columbus, Ohio; Love, I. N., San Francisco, Cal.
(M) Moore, R. C., Omaha, Neb.; Micheal, J. Edwin, Baltimore, Md.; McDougal, J. G., New Lexington, Ohio; McEnroe, J. F., Schenectady, N. Y.
(N) Niles, S. R. Newspaper Adv. Agency, Boston, Mass.; New York Polyclinic, New York City.
(P) Portman, A. E., White Oaks, N. M.; Porcher, F. P., Pineopolis, S. C.; Parke, Thos. E., Downingtown, Pa.; Phillips, C. W., Scipio, Ind.; Pollak, S., St. Louis, Mo.
(R) Rose, J. W., Sewanee, Tenn.; Reyburn, J. A., Elkhorn, W. Va.; 2; Rea, John J., Urbana, Ill.
(S) Smith, W. S., St. Clair, Minn.; Stockwell, C. B., Port Huron, Mich.; Stuver, E., Rawlins, Wyo.; Scheffelin, W. H. & Co., New York City; Stechert, Gustav E., New York City; Sternberg, Geo. M., Washington, D. C.; Storrs, M., Hartford, Conn.; Shaw, Edwin B., East Las Vegas, N. M.; Sundberg, John C., Bagdad, Turkey; Scott, X. C., Cleveland, Ohio.
(T) The Railway Surgeon, Chicago, Ill.; The Sanitarium, Battle Creek, Mich.; Thornton, Wm. M., Charlottesville, Va.; Taylor, L. H., Wilkes-barre, Pa.; Taylor, D. B., Norwalk, Ohio.
(V) Vetter, J. C. & Co., New York City.
(W) Würdemann, H. V., Milwaukee, Wis.; Walker Bros., Fargo, N. Dak.; Woodbridge, J. E., Youngstown, Ohio.

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ORIGINAL ARTICLES

THE STRUCTURE OF BLOOD AND ITS RELATION TO PRACTICAL MEDICINE.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY J. H. WYTHE, M.D., LL.D.

PROFESSOR OF HISTOLOGY AND MICROSCOPY, COOPER MEDICAL COLLEGE, SAN FRANCISCO.

Physicians have always realized the importance of the study of blood. The ancient Hebrews regarded it as the life of the body, or the meeting point of body and soul. The humoral pathology, first elaborated by Hippocrates, and which was the prevailing doctrine of all medical theorists for hundreds of years, gave great importance to the evacuation of the blood by the lancet, the scarificator, and the cupping glasses. So universal was this practice, that it attracted the censure and witticism of the literary world, culminating in the immortal "Doctor Sangrado" of Le Sage. Many who are still living can remember the careful directions given respecting blood-letting—how it should be drawn by a full stream into a warm deep basin, so that it may be set aside to coagulate gradually. Then the appearance of the clot, and of the buffy coat, had much to do with the judgment of the physician. A soft and uniform clot indicates deficiency of fibrin, as in typhoid fever, etc. A uniformly great contraction shows a predominance of fibrin over red corpuscles, as in chlorosis. Blood highly buffed and cupped occurs in acute rheumatism and other severe inflammations. These, and similiar aphorisms, were based upon observation of the general structure of the blood as seen by the naked eye. May it not be that the modern practitioner has gone too far in the opposite extreme?

With the invention of the microscope, the study of the blood has been greatly promoted. No part of the animal organism has been more frequently examined, and yet its true structure is but partially known. It may be said of the blood more than of any other histologic structure that there is no end to investigation and research. It has been examined under a variety of physiologic and pathologic circumstances and exposed to different physical and chemic conditions. It has been boiled and roasted and fried, and cooked in all sorts of menstria, in the hope of torturing nature to reveal her secrets, and it has also been treated kindly and delicately with the same hope. Under such circumstances, the opinions of observers have naturally been different, and sometimes contradictory. Many of these discrepancies were due to the imperfection of early microscopes, and the almost universal habit of using too low magnifying powers. The optical improvements of the past few years have doubled our ability to penetrate the arcana of nature. The numerical aperture, or

standard measure of excellence, of the best objectives of eight or ten years ago was but .75 or .80 per cent., compared with 1.33, or 1.50 of our present lenses, or as a circle of three-fourths of an inch diameter compares with one of an inch and a half. With such improved power of research, nothing but lack of industry or care can prevent more accurate knowledge of minute structures. The delicacy of adjustment in our best objectives has also rendered more perfect mechanical appliances and optical accessories a real necessity. In addition to the widest possible numerical aperture in the objectives, the microscope of the future will have a wide-angled achromatic condenser with coarse and fine adjustments equal to those required for the objective itself, and with an iris-diaphragm for regulating the illuminating cone of light. No really critical work can be done without such provision. The images given with high powers and such appliances are so different from those of low powers in inferior instruments as hardly to be recognized as the same structures. It is certainly quite reckless to give testimony affecting human life based on observations made with inferior means.

The brilliant discoveries in bacteriology during the last few years seem to have eclipsed all purely histologic investigation, yet within a recent period microscopic examination of blood is assuming the importance which it deserves, and although it remains to a large extent an unexplored territory enough is known to justify its careful study by the practical physician as a guide both to diagnosis and treatment. To the young graduate, desirous of distinction, no more inviting field is open in all the realm of medical science. To tabulate the microscopic analyses of blood in different ages and diseases, with a comparison of clinical symptoms, will require years of labor, but will be a priceless boon to the medical profession.

When we speak or read of blood, it is natural to think of it as the red stream which courses through the arteries and veins, yet in strict propriety the fluid plasma, continuous with the lymph which bathes every tissue and organ of the body, is the real blood, conveying life to every cell and fiber, while the white and red corpuscles are incidental accompaniments, conveyed by the fluid blood for special purposes. Much has yet to be learned respecting the chemical and vital properties of the plasma, yet there can be little doubt that much of the immunity against zymotic diseases is due to these properties. Dr. Prudden has shown that serum and non-inflammatory exudations in the living human being possess a marked germicidal power, and this has been confirmed by several European observers.

This serum is not only a solvent for bacteria, but for other structures. In August, 1891, I published in the *Pacific Medical Journal* some observations of

the blood in a case of lymphadenoma, in which the red corpuscles were seen to dissolve in their own plasma, but after a month's treatment with iodid of iron and manganese, the corpuscles resisted dissolution. Sterling tells us in his "Histology" that the red corpuscles of a rabbit or guinea-pig are completely dissolved in a few minutes in the blood serum of a dog. The corpuscles of a frog or pigeon dissolve more slowly and their nuclei remain. The dog's serum loses this power after being heated to 50 or 60 degrees for half an hour.

In pathologic conditions, as relapsing fever, anthrax, tuberculosis, etc., the serum loses its germicide power, and bacilli may be found with the microscope, with or without staining.

Changes in the specific gravity may be found by using a single drop of blood in a mixture of chloroform and benzole. When it is just suspended in the fluid, the specific gravity of the latter is taken in the usual way and is the same as that of the blood. The specific gravity of blood varies with the proportion of hemoglobin in the red blood discs, so that this simple mode may be used in anemia, and so forth, instead of resorting to costly apparatus.

Changes in the acidity or alkalinescence of the blood occur in various diseases, and the time of coagulation also varies. The solution of ptomaines resulting from decomposing bacteria is doubtless irritant or poisonous to the tissues, but the leucomaines which are formed by decomposing detritus, of the blood corpuscles or other albuminoid substances, unless eliminated by excretion, will lead to auto-infection, or an alteration of structure or function by a blood poison originating in the body itself.

Dr. Prudden well expresses the significance of the germicide power of serum in the living human being by saying that it consists chiefly in recalling "the attention of therapeutic adventurers from germicidal warfare to what appears to be a natural defense of the organism against bacterial invaders, namely, a healthy condition of the blood."

"Proud of our already long list of well-defined bacterial species; consciously masters of the morphology of many forms of bacterial disease; well on the way to an intelligent and efficient prophylaxis, and glorying in the possession of ptomaines so definite as to enter at our will into the composition of tangible and even formulatable metallic salts, it is a little humiliating, though doubtless salutary, to find ourselves face to face with a series of phenomena, which seem to lie at the very basis of the knowledge of the acute infectious diseases, and yet be able to say only that they are the result of the vital forces, vitality, life. It is fortunate that we have these words and phrases, however, which conceal so much and express so little, since, under their cover, we may take breath for the assault on another of Nature's tantalizing and well-fortified secrets."—*Microscopical Bulletin*, February, 1890.

The white corpuscles are found in lymph as well as in red blood. They are merely embryonic or detached particles of living matter of different sizes. With the best homogeneous immersion objectives, they appear as spherical or ovoid, but are often quite irregular in shape, and made up of a convoluted or sponge-like reticulum. They may have one or more nuclei which consists of a denser or finer network than the rest of the corpuscle. They have amœboid motions, by which they change their shape

and place from time to time. The conventional pictures repeated from one text-book to another give no adequate conception of them.

The white corpuscles are normally increased during digestion, and are in excess of a normal proportion to the red cells in a number of pathologic conditions, as typhoid fever, erysipelas, anemia, etc. In leukemia, the abnormal proportion is long continued and very marked, in some cases showing one white to ten or twenty red cells, or even greater proportion. Ehrlich has shown that the leucocytes or white cells are variously affected by certain aniline stains. In leukemia only he finds some which are distinctly stained with eosin, and calls them eosinophile cells. It was thought at one time that Ehrlich's method of staining would indicate whether the leukemia depended on disease of the lymph-glands, the spleen, or the medulla of the bones, but recent investigations have thrown doubt upon such discrimination, and Jaksch has found eosinophile cells in tuberculosis, in pneumonia and in anemia.

The red corpuscles normally are flat roundish discs with thick edges, so soft and flexible that they readily adapt themselves to the curves and angles of the blood vessels. They are of different sizes, not only in different animals but in the same animal. A few microscopists believe that by careful measurement of a large number of discs and comparing the average sizes, a discrimination may be made between the blood of one kind of animal and another. Some have made themselves ridiculous by testifying that they could distinguish the blood of a man from that of a woman. The consensus of opinion among prominent writers is that the size of the red corpuscles is insufficient for the purposes of medical jurisprudence. A view of the red corpuscles in the field of a modern microscope, with a power of 1000 diameters or more will show such a variety of size, above and below the average, as to render an accurate judgment doubtful.

As to the presence of a nucleus, or of an investing membrane in human red blood corpuscles, writers differ greatly, doubtless because of the imperfection of the instruments or reagents employed.

The protrusion or retraction of knobs, projections, or bead-like processes from the corpuscle has been often described, and termed "angular," "rosette" "stellate," etc. Brucke, Stricker and others consider the red corpuscle as really double, consisting of a stroma or matrix which is permeated by a softer or more fluid substance containing the hemoglobin, or coloring matter. Treatment with astringent solutions, as tannin, boracic acid, etc., causes these constituents to separate.

Klein, Heitzman and Flemming describe a fibrillar network in the nuclei of reptile blood, and others speak of fine radial filaments proceeding from the nucleus to the surface.

Elsberg, in Heitzman's "Microscopical Morphology," describes the examination of fresh human blood in a 40 or 50 per cent. solution of bichromate of potash, with a one-twelfth of an inch immersion objective, and a magnifying power of 1,000 diameters. He states that in a short time, indentations occur in the red corpuscle, producing irregular and stellate forms, which may persist or lead to separation by constriction of minute portions, or the corpuscle may become rounded again. After about half an hour protrusions of knobs take place, which may be again retracted or a pedunculated knob may be de-

tached. Sometimes several corpuscles unite, forming chains or compound bodies. Others appear with one or more vacuoles in their substance. In many corpuscles, a distinct reticulation is seen, with thickened points at the intersection of the filaments which, without careful focusing, might be mistaken for granules. Some of the corpuscles become pale, and mere rings or "ghosts," detached portions of which accumulate as detritus.

The reading of Elsberg's descriptions several years ago impressed me with the thought that such a variety of forms and activities indicated a corresponding variety in the structure and functions of the red corpuscles, and I instituted a series of experiments with analogous but even more complex results than those of Elsberg. The very best instruments were employed, as Zeiss's largest microscope stand, and the modern Van Heurck stand made by Watson. For objectives, I had Powell & Lealand's one-tenth apochromatic of 1.50 N A, the Bausch & Lomb H I one-eighth of 1.40 N A, a Gundlach's 1.20 H I, and several others. I used also an Abbe condenser or a Powell & Lealand's apochromatic condenser of 1.40 N A, together with the compensating eye-pieces of the latter firm. The magnifying powers varied from 900 to 3,000 diameters.

Various solutions were used in the examinations, as 1 per cent. solution of osmic acid, Flemming's solution, and 20 to 50 per cent. solution of bichromate of potash. The latter fluid gave most satisfaction. According to Rollett and Elsberg, bichromate of potash does not alter or seriously impair the living matter, but acts as a preserving medium, and enables us to trace normal development or natural degeneration. I found, however, that the alterations of the red corpuscles occurred sooner in strong than in weak solutions, so that some astringent action seemed due to the menstruum.

A small drop of blood was placed upon the cover-glass and quickly put on a drop of bichromate solution upon the slide. Blood from different persons and of different ages was examined, and although differences in amount and in time of alteration were perceptible, nearly all showed great irregularity in the shape of the red corpuscles.

Many of the corpuscles appeared as concentric rings in a flat disc around a central nucleus. Some showed protuberances around the edge, as if a semi-fluid substance had exuded, or had been squeezed out of the corpuscle. These protrusions differed both in size and number. By the use of the sub-stage condenser and oblique illumination, occasional glimpses of fibers radiating between the rings were obtained. The shape and size of the discs greatly varied. Many were round, but others were oval, square, triangular, finger-like, and sometimes branched, but nearly all exhibited traces of ring structure. Some were merely flat plaques or discs, notched at the edge; others were more globular. Many had irregular knobbed protrusions both on the edge and on the flat surface, as described by Elsberg. Many of these protrusions became detached, and some of them would remain at rest while others showed amoeboid changes of shape, and would rotate or move across the field of view in different directions. Portions of protruded semi-fluid substance would remain for some time attached to the edge of a disc, then with a vibratory or oscillatory motion would detach themselves and form independent masses, some stationary and other motile. Some were attached to the disc by a fiber or

thread, and often such a thread would bind several masses together. In one instance two masses pulled apart so as to form quite a lengthy fiber. In others the fiber formed a tail with serpentine motion or would entirely separate from the mass. Careful focusing showed some of these fibers to be really chains of small granules, many of which appeared as scattered detritus. So similar were these granules, isolated or in chains, to micrococci, that they would have been deemed such if they had not been seen in the act of stripping themselves from the edges of the viscid red corpuscles.

The result of my observations convinced me that the phenomena described were the result of a natural degeneration of the red corpuscles, hastened perhaps by the action of the bichromate solution. The variety in the appearances may be due to essential differences in the corpuscles themselves; differences which are both morphological and physiological. Considering the various offices which the blood performs in the animal economy, embryonic, nutritive, metabolic and excretive, we may reasonably expect the structure of the corpuscles to differ, and the effects of chemical and physical agencies upon them to be far from uniform. The more embryonic forms may not exhibit the fully formed structure, while those engaged in carrying away effete matter may be ready to disintegrate. Thus we may account for the variety in the appearance of the corpuscles and for the ready decomposition of some, while the structural integrity of others persists longer.

Under the name of poikilocytosis, some have described the irregular forms of blood discs occurring in debilitating diseases, especially in pernicious anemia. A large number of minute cells has given rise to the term microcythemia, and abnormally large cells to macrocythemia. Such terms are really unnecessary, and are but additions to a list of technicalities already too large. The varying appearances of decomposing cells, especially when the normal process is exaggerated by morbidly depressing influences can not be described by such terms.

One of the effects of the bichromate solution on the red blood corpuscle is to harden and contract the outer surface so as to wrinkle it in such a manner as to simulate the plasmodium malariae. This has occurred so many times as to throw doubt upon some preparations and observations. I have not been able to examine many specimens of malarial blood, but some European slides, stained after Ehrlich's method, and marked plasmodia can scarcely be distinguished from the wrinkling of the cell in the bichromate solution. The amoeboid and flagellate forms of the organism will afford proof of its presence, but an irregular vacuity in the cell is no proof.

As an example of the relation which such examinations of blood as have been described bear to practical medicine, reference may be made to an examination made by the writer some years ago, of the blood corpuscles in eighteen cases of beri-beri, which had been transferred from a Brazilian corvette to the Marine Hospital in San Francisco. A full account, with microscopic illustrations, may be found in the Annual Reports of the Supervising Surgeon General at Washington. Specimens of the blood from each patient were sent to me, and examination showed that the red corpuscles were in various stages of disintegration. The ring structure of the broken cells and the resemblance of the detritus to micro-

cocci was evident. The clinical history of each case fully confirmed the microscopic examination, although the patients had not been seen and the slides of blood drops were merely numbered from one to eighteen. Acting upon the suggestions of the microscope, iron and quinin were given in large doses, with a generous diet. Under this treatment, the blood corpuscles of the patients speedily recovered their normal appearance, and in a short time all the seamen returned to duty. The surgeon in charge of the hospital (Heber Smith, M.D.), in his report to Washington, says: "It is possible that a microscopic examination of the blood of all the men on board the corvette before she sailed from Brazil, would have revealed just those members of her crew who were to suffer from the disease."

FEVER, AND THE RELATIONS OF MICRO-ORGANISMS TO THE DISEASE.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY WASHINGTON AYER, M.D.
SAN FRANCISCO, CAL.

In the discussion of this question I shall assume the negative position. During the past ten years the medical mind has expended much of its force in the investigation of bacteriology, and no one in our country has more enriched the literature of this department of science than Dr. George Sternberg, and he is entitled to great consideration for the industry with which he has pursued his labors; yet I consider his efforts to be without practical results.

The subject of organisms is as familiar as household words and is filling the human mind with wonder, fear and amazement, and it is proper that the medical profession should pause for a season, take its reckoning and learn the true position it is occupying upon this question. We know much that was unknown to the founders of the healing art, and yet know but little of all that relates to the art and science of medicine; and the student at the close of his life-work will exclaim with Newton: "Alas! I have been but a child picking up pebbles upon the shore of the great ocean of truth!"

Like a dark shadow that creeps over a landscape, obscuring its beauty, transient causes stealthily invade the body until health vanishes into the gloom of disease with its true etiology unknown.

Fever is an important factor in nearly every form of disease, whether idiopathic or traumatic, and its various attendant phenomena can not be explained upon the germ theory, that microorganisms are the only true *materies morbi*. The ebbing of the tides of the ocean is influenced by planetary movements and changes, and so is lunacy, while the electric phenomena of the clouds and the seismic convulsions of the earth produce nervous prostration, fear and consequent disease.

Intelligence and learning are not evolved from any organisms, nor from light and heat, but spring into force and energy by individual application, and the maxim, *mens sana in corpore sano*, finds support in the world's philosophy and the sayings of men.

The different departments of learning belong to the different conditions of mind. We can not all think and reason alike, yet the healthy brain of the cadaver does not enable us to point out the specific differences in the quality and quantity of the minds of men.

Results of these conditions are the sequences of mental toil, as the harvest is gathered in by the strong arms of the yeoman and the charm of plenty fills the household.

So in the abstract does mental toil beget thoughts which enrich the world of learning and become our choicest companions, but the thinking and reasoning must be in the right direction to become profitable. Speculations mislead and error follows, and men of one idea cease to be useful.

"Nature is true to herself." Nature does not deal in fiction but in the great problems of reality, and the earnest medical student is willing to yield his life-work to add one more truth to human learning, still evolving and educating good, ever striving to relieve the sufferings of his fellow men.

While the literature upon the subject of fever is so great and so comprehensive as to appear nearly exhaustive, there yet lies much before us to be learned, and the physician who shall give to the world its positive cause and prevention will build to himself an enduring monument in the hearts and affections of the people, and they will be led upon the borders of the Utopia of human happiness by such a discovery.

Fever, in its generic acceptance, is an exalted or increased temperature of the blood coursing through the body, feeding the surface with accumulated heat as the result of friction and decomposition, and is attended with increased action of the heart, pain in the head and back, weariness in the limbs, a feeling of general exhaustion and great thirst.

By the increased heat of the blood the various functions of the viscera are changed, nutrition is interrupted and gradual decay follows, until the function of assimilation is restored to its normal condition by the slow processes of change in the multiple phenomena of life. Why the exaggerated mutations of temperature and restlessness are greater in one than in another person, in the same type of fever, is a subject which awakens a controversy in the minds of all diligent students of medicine. Here we may inquire what is the fuel, and where is the fire kindled that causes the increased temperature of the body, and why are not similar remedies always employed to extinguish this heat?

Were the theory of germs correct would they not continue to flourish, and why could not some germicide be employed to destroy the microorganisms at once, and place the patient on the highway to convalescence, and not allow him to waste away upon the bed of sickness for a period of three or six weeks?

When convalescence begins, does this change denote that the germs have ceased to proliferate, or that they have become alarmed at the fusillade of remedies that have been discharged into their ranks, and made their escape out of the mouth into the surrounding air to seek some new fields of operation and bring new subjects to the chamber of disease?

As all fevers have their periods of exacerbation, of pyrexia and anorexia, which may be determined at least twenty-four hours before their occurrence, what part of this program do the germs take? What are they doing during this interval? Are they waiting for some new neoplasm to spring up to feed upon?

Typhoid fever upon the Pacific coast is of a much milder type than is found upon the Atlantic seaboard, and, according to the Pasteur theory, the same class of typhoid bacillus is the *casus belli* here as there, when the body is invaded by the fever, and must be

subject to typical climatic influences; and accordingly a humid atmosphere must be the soil where the most virulent forms of these microorganisms are developed and propagated; and the mephitic gases of the sewers can have very little influence over the economy of the physical functions of the various organs of the body of man in producing disease, and this undoubtedly is true. The carburetted hydrogen gas of sewers is one-fifth lighter than common air, and when disengaged flies away, while the sulphuretted hydrogen gas is one-fifth heavier than common air and does not rise high enough to seriously incommode any one sufficiently to affect the standard of health.

Fancy can scarcely picture a more bewildering subject in histology and causation of disease than is witnessed in the disintegration of tissue and general exhaustion of the forces of life, nor better portray the magic effects of the microorganisms of the germ theory than is presented in the various phenomena of intermittent fever.

Were, then, specific bacilli endowed with intelligence and formed into communities of labor unions, with hours assigned to accomplish their work and for rest, they could not possibly be more systematic in deceiving and destroying the comfort of those they have prostrated by their presence. But, unfortunately, they are not discovered until disease makes their presence known, and we are led to conclude they are the spontaneous developments of unknown causes, and should be classed as the sequelæ of unknown forces, rather than the prime cause of disease.

The evidence that these specific microorganisms are alone the *materies morbi* is wanting, and their presence is not *prima facie* evidence of the fact beyond controversy.

The true interpretation given to fever depends upon the thorough knowledge of the functions and changes in the structure of the organs principally affected. One coming from a malarial district, suffering from chills and fever, to the casual observer would be considered as having either remittent or intermittent fever, while upon a close inquiry the fever might be traced to an ovarian cyst or an abscess in the cul-de-sac of Douglas, or to some localized disturbance of the liver, spleen or kidney, and the aid of the microscope would not be required to make a differential diagnosis, nor would the presence of specific germs be required to determine these different lesions involved.

In the two former cases the only germicides required for the student to become familiar with, would be the surgeon's instruments and the technique treatment.

Exalted temperature and increased cardiac action are important factors in nearly all functional disturbances as well as organic disease, and should be carefully studied in the clinics.

Is there a prescient, instinctive reasoning force in the protoplasm which marshals the armies of microbes into distinct and expressive forms of battle array, and assigns to each class or species a specific office to perform, so that one shall destroy the functions of one set of organs, and another overcome the possibilities of health in some other organ, and thus establish a variety of diseases? Is this the teaching of the germ theory? Is the microbe the siren that first pleases, then stirs the soul to fears and moves to resistance the sorrowful tear? Is this the modern ogre that must be banished into eternal exile before

human life can become secure from the ravages of disease? The task is too great to be undertaken; every sunbeam is full of restless germs, and every drop of water full of insect life busy as the coral insects building reefs beneath the waves of the ocean, and the dawning light of every new day will scatter the germs over the earth. They have a perpetual existence, and we must not forget that disease and death are the inevitable sequences of human existence.

The announcement that sterilized milk and sterilized water are the only fluids suitable for domestic use fills the timid with daily fear, and they naturally ask why the air is not sterilized so that the "nasty things" can not get into the milk and bring sickness to their homes.

Hoc opus, and the labor which the advocates of the germ theory must perform to make it of practical importance. As we study the conditions of the atmosphere, as indicated by the barometer and thermometer, we shall find ample reasons why exposure should cause disease, and greater cleanliness should be observed to preserve the purity of the air. While the nursery is reeking with the aroma of neglected duties, the secretions become vitiated and the restlessness of the infant repeats the story of responsibility, and the cause of its sickness.

The art of medicine is the highest expression of medical thought, which has advanced so far that at the close of the nineteenth century we are living in the midst of conditions that were but the shadowy dreams of the early founders of the healing art. These things must not be forgotten.

I have a conscious conviction of the necessity of being conservative in the discussion of this question, that admonishes me that practical knowledge alone offers the greatest encouragement to progressive medicine, while microscopic visions and day dreams lead into the walks of speculation and error.

There are habits of thought that are as earnest in their necessities for the development and health of the mind, as the habits of the body are necessary to be observed for physical comfort and health. The growth of the former is derived from application, and the growth and nutrition of the latter is the result of the assimilation of the elements of concrete foods adapted to the support of physical life.

In the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION an article appeared from the pen of Charles Smart, M.D., Surgeon U. S. A., upon drinking water, in which he states the following, viz:

"Not long ago I saw it asserted that a cholera germ had no more chance of passing along the current of the Potomac undetected by the bacteriologist, than a mad dog had of careering along Pennsylvania Avenue at midday without being detected."
"When the germs of typhoid fever or of cholera are present in a water, they generally enter the water along with sewage, for it is known that these pathogenic organisms are cast out of the sick person by way of the intestinal canal."

The question that is here first presented is, How do these organisms first enter the *prima via*? Certainly not from the sewage, for according to this writer's views, which I believe to be correct, the sewage is the secondary place where the germs are deposited, and in the reports from Marseilles and Toulon during the cholera epidemic in these cities in 1884, in the immediate vicinity of the sewage dumps cholera was scarcely known.

From the simultaneous appearance of cholera in different parts of an infected city it is at least rational to conclude that there is a morbid choleraic wave which falls upon the people like a shadow from a passing cloud, and neither sewers nor sewage can be made responsible for the rapid spread of the disease.

When a relapse follows a slow convalescence, no one can properly say another brood of hungry bacilli have left the sewers and entered the body to bring back the disease and prolong the suffering. Common intelligence points to some imprudence as the cause of the relapse; yet our analysts and germologists cry, Germs! Germs!! Germs!!! and revel in fictitious exclamations, though truth to the contrary be stronger, and stranger than their fictions, they have entered the groove, made their discoveries in histology, and like Bellamy have been looking backward and failed to make a practical application of their learning so as to arrest disease. The death rate remains unchanged *pari passu*, as population increases.

To-day the educated medical thought is leading its research into the occult domains of biology, with the view of raising practical medicine to the high standard of an exact science.

At the present time all investigations have only proved the existence of microorganisms, and have failed to demonstrate that they are primarily the cause of the various morbid conditions of the body.

While light and heat are essential to the healthful growth of vegetation, some species of the algae flourish only in bogs and along the margin of pools of stagnant water. The proper understanding of the correlation of existence—life and growth of vegetation with the life of animated creation—man and his surroundings, is of great importance while considering the influences which change and develop the extraneous growths on the hardy plants and cause disease—decay and death to the tree—and pain and death to man.

DISCUSSION.

DR. W. N. MILLER—While I am a believer to a certain extent in microorganisms, I think in a great many cases it is very uncertain. Yet, at the same time, all that is necessary for a person in diagnosing a case is to tell the patient, "you are a subject of microorganisms." Then you are sure to hit his case, no matter what it is. It is very important for a person to diagnose a case satisfactorily to the patient, and when this diagnosis is given you are sure not to have to go back upon it, and you are always sure in case death ensues that you have been right.

LEPROSY IN SAN FRANCISCO.

Read in the Section on Practice of Medicine at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY DOUGLASS W. MONTGOMERY, M.D.

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In all ages and in all countries the mass of mankind has believed in the contagiousness of leprosy, and even now, when exposed to the sharpened criticism of scientific inquiry, contagion is still the only basis on which we can explain the facts. It is not known how the contagium is carried or how inoculated. We do not know what manifestation it makes at the seat of inoculation, or whether it makes any capable of being clinically appreciated. It is not understood why one person may become infected

from what seems a short exposure, while another may dwell most intimately and for long stretches of time with lepers, and never contract the disease. We are not in a position to explain these nor a host of other facts, but we do know that when we find a leper, we immediately inquire for other lepers with whom he has been in contact and we find them. The fact of lepers being aggregated in localities is so notorious, and so within the ken of every medical man or even layman that it does not need the citation of examples.

If the disease be contagious and in no other way can we understand its propagation, and if it have a tendency to become fixed in a locality because of the continued residence of lepers, or as it might be put, if a locality may become saturated with the germs of this disease, then the question before the citizens of San Francisco and of the United States becomes a grave one, for, instead of passively receiving lepers we may assume the active rôle of a distributing point, and give out abundantly what we have received so thoughtlessly. All the factors going to the formation of a leper focus seem to be present in the San Francisco Chinatown. The Chinese here all come from the Province of Kwang Tung, where leprosy is abundantly endemic; most of the lepers here are Chinamen; most of the Chinamen in San Francisco live in the Chinese quarter, and under unhygienic, overcrowded, filthy conditions. Under such circumstances, from what we know of germ diseases, everything seems favorable to room after room in Chinatown becoming impregnated with lepra bacilli from the occasional sojourn of leprosy Chinese. On the other hand, I must say that although I have seen quite a number of Chinese lepers here, I have never run across one who was born in this country. This may be due to the circumstance that very few of them are native here, as a Chinaman seldom brings his wife with him. They are all married prior to emigrating, and they leave their wives at home. But the failure to find Chinese lepers of American birth might be brought forward as an argument by those who consider the fear of San Francisco becoming a leper center trivial.¹ They might say that leprosy introduced by the Chinese into California would probably take a course similar to the same disease brought to Minnesota, Wisconsin and Iowa by the Norwegian immigrants, not one of whose descendants, according to both Hansen and

¹ From the length of time some of the Chinese lepers have been in this country before showing any signs of the affection, one might infer the possibility of having acquired it here. It is not wished to put it any stronger than a possibility, because in leprosy the time that elapses between an inoculation and the first manifestations of the disease seem to vary within wide limits. The following is a list of some Chinese lepers, with the date of their arrival in this country, and the length of time after that before they noticed the first symptoms of their disease. The figures in either case are just as they were given to me either directly from the patient, or through the intermediary of an interpreter, and I make no pretensions to being scientifically accurate:

Lee Yen, 33 years of age, laundryman and cigarmaker, came to America in 1873, and went back to China for a short visit about eleven years afterwards. A leprosy patch appeared on the right buttock three years ago.

Chan Mui, female, 31 years of age, came to America in 1868, and a small tubercle appeared on the nose in 1888, twenty years afterwards.

Dang Hlung Kuen, male, 50 years of age, came to America in 1881, and about five years afterwards noticed half dollar sized patches on the right side of his forehead.

Ngô Wong, male, 25 years of age, ragpicker, came to America in 1878, and three years afterwards noticed the left ear became swollen.

Chang Kim, male, 25 years of age, farm laborer, came to America in 1884, and five and a half years afterwards tubercles appeared on the anterior surfaces of the knees.

Chung Kan Foke, male, 31 years of age, miner in a silver mine, came to America in 1876, and lumps appeared on the face sixteen years afterwards.

Ma Ying, male, 25 years of age, farm laborer, came to America in 1881, his right hand withered and a white patch appeared on the left side of the face seven years ago.

Gronwald, are lepers.² But one of these observers, Armauer Hansen, thinks the failure of the disease to propagate itself in the case of the Norwegians is due to the improved social conditions in this country. The isolation of separate beds, clean toilet articles, distinct food receptacles, plenty of water, is enough to prevent the spread of the disease. And this brings me to a point which ought to be accentuated; the difference in social conservatism between the Aryans and the Mongolians as we see them in this city.

The European, of whatever nation, comes here to form a home, and the more prosperous he is, the more comfortable the home becomes. The Chinaman, no matter how prosperous he may be, lives under mean conditions and saves his money that he may realize his ideal of living in splendor on returning to China. And besides this he has a conservatism of which the restless dissatisfied Anglo-Saxon can only form an imperfect conception. Look at their colossal conservatism in regard to food. The Italian will give up his polenta, and the Irishman is only too glad to add good juicy beef to his potato diet, but a walk down Dupont Street shows not only shop after shop filled exclusively with imported Chinese food stuffs, but fresh meat stores filled so predominantly with pork that it is difficult to find beef, and apparently never a piece of mutton, in a land where both beef and mutton are cheap.

The Chinese in California live practically the same way they do in China and, as far as social conditions are concerned, leprosy would have an equal chance of propagating itself among them here as there.

We might look upon the presence of leprosy in Chinatown with indifference, thinking of it as simply confined to an alien population, but the possibility of their afflictions being transmitted to us should make us alive to the importance of warding off the danger. Some Americans are necessarily employed in Chinatown, and many Chinese are domestics in American houses. In fact we are intermingled in a thousand ways and unavoidably so. And moreover on a former occasion I have shown that an American, who was never out of the United States acquired leprosy on this coast, probably in a Chinese camp in Nevada, so that there is no doubt of the possibility of Americans becoming lepers in this country.³

² Die *Ätiologie der Lepra* von G. Armauer Hansen. Rudolf Virchow's Festschrift, Bd. III., Page 63. Leprosy in Minnesota, U. S. A., by Chr. Gronwald, M.D. The London Lancet, March 26, 1892.

³ On Feb. 29, 1892, there died at the San Francisco pesthouse a leper with the following history:

B., aged 43; an American; was born of American parents in Massachusetts, and never was out of the United States excepting a few hours in passing from Buffalo to Detroit over the Canada Southern Railway. About twenty years ago he acquired a sore on the penis after connection with a white woman in Nevada; no history of secondary symptoms could be elicited. He did not deny that previous to this he might have had frequent connection both with Chinese and Indians, but he said that if so, it was a long time before, and had no connection with the sore. Shortly after the acquisition of the sore, and while still in Nevada, he had charge of a gang of Chinamen on the railroad. There were several Chinese prostitutes in the camp with whom he had frequent connection. He did not remember that any of the Chinese showed any of the symptoms of leprosy, but admitted that they might have had the disease and escaped his notice, as he did not know anything about leprosy at that time. About seven years ago he noticed areas of brown discoloration on the body and limbs, which were diagnosed and treated as syphilis by the doctors whom he consulted. His malady was first correctly interpreted by Dr. Geo. L. Fitch, of San Francisco, about five years ago, and about six months later he entered the San Francisco pest-house, where he remained for two years. He again entered on Feb. 17, 1890, and remained till his death.

The patient was above medium height, with a well developed bony skeleton. He was bald on the vertex, the remaining hair was brown, and rather dry looking as if not well brushed, but otherwise healthy. The scalp was in good condition. He had neither eyebrows, eyelashes, nor moustache, and the beard was very sparse. The disease was situated especially in the face, hands and forearms, and feet and legs.

San Francisco is a young city, only a little over fifty years old, and leprosy can not yet be said to be endemic here, for it has not had the time to become so. It is therefore not a leper city in the full sense of the term, and we should see to it that this misfortune does not happen. There will always be some lepers coming in from surrounding countries, but the disease ought not to be allowed to gain a foothold.

As an example of a city where leprosy has become firmly seated, Constantinople is instructive. Von Duhring says⁴ that leprosy in that city is only endemic among the Spanish Jews, and that all other cases he has seen came in from the neighboring towns. These Jews, driven out of Spain in 1492 by Ferdinand and Isabella, settled in a quarter of Constantinople set apart for them, where they yet dwell. They still, after the lapse of four hundred years, speak Spanish, wear a peculiar garb, live poorly, and are very crowded and filthy, in all of which respects they form a striking and instructive parallel to the Chinese in our city.

A paper drawing attention to the contagiousness of leprosy, especially when even the laity believe it to be far more virulently contagious than it really is, would seem to be superfluous, but allow me to give you an example of civic carelessness in this very particular:

Until lately our lazaretto was also our smallpox hospital, and the lepers had the free run of the wards, which were liable at any time to be occupied by smallpox patients. The bed occupied by a variola patient might have been used as a lounging place by a leper a few minutes before. The variola patient was forced into the hospital, and he might be a very

There were large nodules on the site of the eyebrows, and from there the disease shaded off upwards into the clear scalp above. The eyelids moved a little stiffly from the infiltration, but there was no lagophthalmos, as is so frequently the case in leprosy. The skin of the nose, and of the whole of the lower part of the face was very much thickened, especially the lower lip, which stood out stiff and useless. The patient originally had a light complexion, but when I saw him the skin of the face, hands, and lower part of the legs, and of the feet was a dark copper color. The skin upon the lesions of the face had the silky soft appearance so often seen in patients suffering from tubercular leprosy. On the skin of the arms and hands, and of the legs and feet there were excoriations, the seat of previously existing pemphigus blebs, which appeared from time to time. The last joint of the ring finger of the left hand was enlarged and stiff; the movements of the hands were not nearly so deft as formerly, but there was no paralysis, and no wasting of the muscles. He had lost appreciation of touch, and on being handled felt as if a substance were between the fingers of the person and his skin. His extremities were analgesic, and he had recently burnt his fingers in picking up something hot without experiencing any pain. His appreciation of the sensations of heat and cold was not tested. There was a discoloration, such as he said constituted the first symptoms of his malady, on the inside of the left leg. It was an irregular, fairly well circumscribed, brown patch about the size of a silver dollar, joined by a narrow isthmus to a similar patch. At the edge of this discoloration there was a lepra nodule, well raised above the level of the skin, and very dark in color. It might have been mistaken for a melanotic sarcoma. This nodule was cut out, and lepra bacilli were found in scrapings from its cut surface. Sections prepared for the microscope showed that its black color was owing to an extraordinary amount of lepra pigment.

The eye-balls were clear and moved normally, and the sight was good. The skin covering the auricles was normal, a remarkable circumstance considering their liability to be affected, and the advanced stage of the disease. The hearing was good. Both nares were almost completely blocked so that he could scarcely breathe through them. The epithelium of the dorsum of the tongue was a glittering white, and the surface was marked off by deep furrows running in all directions, but principally longitudinally and transversely. This condition of the tongue is usually found associated with syphilis, and it was the only symptom I could find at all indicative of that disease. He complained he could not eat fish, because of the difficulty in detecting the bones with his tongue, so that the sense of touch was evidently obtunded. The voice was husky and the breathing was difficult; in speaking he frequently had to pause to take breath, and at times the hospital attendants were afraid he would smother to death. He said he had not had any sexual desire since the commencement of the disease seven years before, and he blamed, as this class of people frequently do, the mercenary treatment for its extinguishment. The skin of the penis and scrotum was absolutely normal, but there was a small solid swelling in the left cord, and the left epididymis was slightly enlarged but of normal consistency. His mind was clear and his answers terse and to the point.—Reported in the *Pacific Medical Journal*, April, 1892.

⁴ *Lepra und die Frage ihrer Contagiosität nach Beobachtungen in Konstantinopel* von Dr. med. E. von Duhring. Monatschrift für Praktische Dermatologie, 15. März, 1893.

decent fellow—as a matter of fact a physician enjoying a good practice died there a few years ago—and it is not fair play to put a man in a bed on which a leper had been taking his noonday nap, thereby exposing him, because of a temporary disease, to the possibility of contracting a malady that would make him an outcast from society for life. This matter is mentioned rather by way of example than as a complaint, as the management has been changed lately and the discipline is better, but even now we ought to be on the outlook for a lapse of city morals in this direction, for, in case of a smallpox epidemic it is to be feared the main building would again be used as a smallpox hospital.

PRIMARY TUBERCULOSIS OF THE PERITONEUM, CURED BY CELIOTOMY. FOUR CASES.

Read in the Section of Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1894.

BY W. F. McNUTT, M.D.

SAN FRANCISCO, CAL.

These four cases of primary tubercular peritonitis, are reported on account of the doubt and speculation that still exist as to the etiology of this disease. Most writers maintain that tubercular peritonitis is necessarily secondary. There can scarcely be a question about these cases being primary; the fact that there were no indications of the presence of tuberculosis, or any other disease, together with the fact that the cases all recovered after operation, and show no evidence of disease since, is almost proof positive that in these cases the disease was primary and confined to the peritoneum. The question might arise as to those inflammatory products being the result of Koch's bacilli. In each of these four cases on opening the abdomen, the peritoneum, both visceral and mural layer, was studded with thousands of miliary tubercular bodies, that is shiny, hard little granules on the surface of the membrane. Unfortunately in only one of these cases were these little bodies examined histologically and inoculation experiments were not instituted. One case illustrated the variety which gives a fibrinous exudation, plastic adhesions with scarcely any serum and greatly thickened membranes; one case the exudation was sero-fibrinous or gelatinous and non-plastic, not adhesive; in the other two cases the exudation was serous.

Case 1.—Mrs. E., aged 58; I was called in consultation on April 7, 1891; her physician stated that for three months she had suffered with abdominal pain and much tenderness; coated tongue; anorexia; bowels irregular, most of the time constipated. For the last two weeks the bowels had only been partially evacuated with large enemata thrown up into the sigmoid, and all cathartic medicine had been rejected. The tympanitis intestinalis and borborygmus were characteristic of obstruction. We tried still larger injections by gravity and by long tubes without effect. A few days after I made a laparotomy finding the peritoneum greatly thickened and studded with miliary tubercles and the fibrinous exudations as described. Plastic adhesions had caused an obstruction of the colon at the juncture of the ascending and transverse. The adhesions were easily broken up, the bowels moved freely a few hours after, a drainage tube was kept in and the recovery was complete.

Case 2.—Age 8, tubercular family history; the family physician brought the child to my office December, 1892, on account of extreme distension of the abdomen. On examination it was evident that the enlargement was due to fluid, but from the shape of the abdomen and dense condi-

tion of its walls there was some doubt if the fluid was not contained in a cyst. I advised celiotomy and assisted in the operation. The peritoneum was found studded with tubercles and the fluid sero-fibrinous. Notwithstanding the tubercular family history (the mother being consumptive) the child is perfectly well at present.

Case 3.—Mrs. W., age 58, was sent to me August 18, 1893, by her physician being in doubt as to the cause of her abdominal distension, whether it was ascites or cystic. The protruding rounded condition of the abdomen resembled cystic disease rather than ascites. Having diagnosed the case as one of ascites, and finding no heart, or liver, or kidney disease, I concluded it was a disease of the peritoneum and made a celiotomy, finding the peritoneum thickened and studded with tubercles. The fluid, about eight quarts, was serous; no adhesions, no fibrinous exudation; drainage and complete recovery with excellent health since.

Case 4.—A boy aged 7; no tubercular history; had been complaining several weeks, when the abdomen was observed to be enlarging; a physician was called in and flaxseed poultices and other appropriate treatment instituted for peritonitis. After a week's treatment and the enlargement increasing, I was called August 29, 1893; finding the enlargement due to a fluid and the disease apparently confined to the peritoneum, I advised a celiotomy. On opening the peritoneum it was thickened and studded with miliary tubercles. A drainage tube was left in; the recovery was complete; the fluid was serous. This last case was the only one examined microscopically; the following is Prof. D. W. Montgomery's report:

"I have examined the small piece of tissue from the M. child, and it shows the structure of tubercle. There are a vast number of giant cells with their nuclei arranged around the periphery, and the center occupied by coagulation necrosis. I have stained repeatedly for the bacilli of tuberculosis but I have been unable to find any. This is not strange, however, as it is very often, I may say in the majority of cases impossible to demonstrate the bacillus of tubercle in the tissue. But as this case shows the presence of miliary tubercles when looked at with the naked eye, and also shows the same minute anatomic structure as tubercle, we must call such cases tuberculosis, till we get proof to the contrary."

DISCUSSION.

DR. McNUTT, (at the conclusion of his paper).—These are the four cases. I simply want to report them. I do so because of the doubt that exists as to whether tubercular peritonitis is primary or secondary. In these cases there was no meningeal tuberculosis, and no tuberculosis of the lungs or of any other organ.

One point, however, I will note upon the diagnoses, and that is that these cases do not resemble ordinary cases of ascites. In ordinary ascites when the patient is put on his back the abdomen flattens, while the abdomen in tubercular peritonitis stands out. That is why it was doubtful in each of these cases whether it was cystic or not. When one cuts into the abdomen and sees the thickened condition of the peritoneum, and sees the exudation into the peritoneal wall, it is easy to understand why in tubercular peritonitis we expect to find the abdomen standing out as if the person was suffering from cystic disease. In each one of these cases there was an indication of cystic disease; there was no flattening of the abdomen as there would ordinarily be in ascites.

DR. J. T. CARPENTER, Pa.—I would like, Mr. Chairman, to ask the operator whether he made thorough drainage, and whether there was any medication of the peritoneal cavity?

DR. McNUTT—I would say that the first two cases were treated with a carbolic solution; in the others, the fluid was simply evacuated and all drained.

THE CHAIRMAN—I would like to ask whether in any of the cases bacilli were found?

DR. McNUTT—No; an examination revealed that it was a tubercular structure.

THE CHAIRMAN—I supposed that referred to the last case mentioned, only.

DR. McNUTT—Yes; that was the only one that was examined microscopically.

LUNG GYMNASTICS IN THE TREATMENT OF CHRONIC DISEASE.

Read by title in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held in San Francisco, June 5-8, 1894.

BY L. P. WALBRIDGE, M.D.

DECATUR, ILL.

Oxygen is the sustaining principle of animal life and of all the ordinary phenomena of combustion. It is indispensable in respiration, and in general is the most universally active and efficient element.

Respiration is the most important function in the human economy. By this method life is sustained. When we consider the tremendous importance of the lungs it must become apparent that any neglect of these great central boilers of the body may result in disease.

Man does not live by bread alone. The food we eat would not nourish us if we did not breathe. The air we breathe burns up the food, and by so doing produces energy and vital force.

It is the air we breathe that supports combustion, and combustion maintains life by creating heat. But the ultimate source of the heat is contained in the potential energy taken into the body with the food we eat and the air we breathe absorbed during respiration. The food stuffs are used up in the body chiefly by a process of combustion. The kinetic energy is liberated only in the form of heat while the mechanical and electrical energies are developed from the potential energy taken into the body by the food we eat and the air we breathe.

Air is free to us all, but it were better if the over-civilized people of our age had to pay for it. Then they would value it. Oxygen is one of our principal nourishments. It is to the lungs what food is to the stomach.

The stomach and its relation to food stuffs have been described from time immemorial, also its relation to digestion. But no mention is made of the tremendous influence the lungs play in the ultimate appropriation of the food to our existence.

To learn to breathe properly is to learn the foundation of physical health. In the evolution of our earth there was a time when the higher order of animal life could not exist, because of the universal abundance of carbonic acid which fulfilled its purpose by filling the granaries of the earth with fuel for man's use. But at the coming of man there appeared another gas for his sustenance, and by that gas we live, move and have our being.

By lung gymnastics is meant the exercise of the lungs by deep and prolonged breathing, expanding and contracting the chest. By this means the lungs are strengthened, the body nourished, and the impure gases of the blood removed. To breathe properly we should take in a full long breath until the lungs seem full, taking care not to strain the lungs. Hold the breath while the lungs are filled, for a few seconds. Then gradually let it leave the lungs. If these practices are indulged in several times a day they will, in a short time become a habit, and under these exercises the respiratory movement will become less frequent, the capacity of the lungs increased, and the substance of the lungs strengthened.

Natural breathing in some people is a mere gasp. The air cells of the lungs are not properly filled and consequently the blood is not thoroughly oxygenated. The person becomes anemic, flat-chested with stoop-

ing shoulders, the lung tissue suffers and becomes an easy prey to disease.

In natural breathing the apices of the lungs are not as completely filled with air as they should be. This may be due to abdominal breathing in man, while intercostal breathing is more common in woman; hence the more frequent lung disease found in man.

To fill the upper part of the lungs one should stand or sit erect, take a deep full breath, and expand the chest upwards and outwards, holding the breath a few seconds, then gradually let it leave the lungs. By this method the apices of the lungs are thoroughly filled, the air pressure acting as a stimulus to the lung substance, strengthening the parts and giving them greater resisting force to disease.

Long breaths represent strength. Brute creation is almost universally found to possess strength in proportion to the length of the respiratory movements; *e. g.*, the hippopotamus who breathes once a minute, the elephant, lion and horse eight times, the tiger six, down to the rat who breathes two hundred and ten times a minute.

In slender developed people where there is slight development of the bust there is nothing that will develop the chest and strengthen the lungs as much as lung exercise. How many are there who know nothing of the exhilarating influence of a full long breath! People who are confined to the house and those accustomed to a sedentary life, who are shut up in small rooms probably never getting a good full breath of fresh air only as they go to and from their places of business, have stooped shoulders, the chest contracted, the head bent forward causing a pressure upon the abdominal organs, and to some extent checking venous circulation, rendering the blood sluggish, and the brain congested from mental strain. The mind has become tired and worried, the respirations lessened, the blood poisoned from impure air benumbing the center of respiration. By five minutes exercise with the lungs in the open air, by deep and prolonged breathing, the poisonous gases in the blood are changed, the headache and tired feeling disappear, and the blood is better oxygenated carrying new life to the tired muscles.

Without good blood one can not maintain good health, but with good blood, health and long life are sure to follow. It is then through the blood that we have our being, acting as a medium of exchange for the outer world and the tissues. Into it are poured those substances which have been subjected to the action of the digestive fluids, and into the lungs it receives oxygen. It thus receives new substances, both from the stomach and lungs. But in its passage through the tissues it gives up some of those new substances and receives in exchange certain waste products; *e. g.*, carbon dioxide and urea. It is then of the greatest importance that the blood contain those natural substances which supply the waste that is constantly going on in the body.

The object of respiration is to supply the oxygen necessary for the oxydation process that constantly goes on in the body, as well as to remove the carbon dioxide formed within the body. An increase in the number and depth of respirations causes an absolute increase in the amount of carbon dioxide given off, and an increased metabolism. Every respiration favors the passage of the venous blood and also of the lymph toward the heart.

Among the Greeks the harmonious development

of all the organs of the human body formed the foundation of education, not only of the youth alone, but of the nation at large. This sentiment pervaded their works on philosophy and is found embodied in all their laws. Lycurgus ordered the establishment of training schools, consisting of jumping, leaping and running. He said that by these exercises they acquired a temper like steel.

My opinion is that the greatest good derived from exercise is brought about by an increased respiration which burns up the food and tissues with greater rapidity, bringing about an increased appetite for food, replacing the waste product by new material, increasing nutrition and a more active metabolism.

The method of treating disease by exercise was practiced more among the ancients than with us. In the oldest literary records of the Hindoos and Chinese, mention is made of the successful method of treating deformities by exercise, and the successful method of treating spinal curvature by definite muscular movements simultaneously with deep and prolonged respiration.

Herodicus, a teacher of Hippocrates, was the first to lay down principles for rational treatment in chronic disease by exercise and breathing. He carried these methods so far that he compelled his patients to walk up steep places and suffer their bodies to be rubbed, and the more the disease weakened them the more he endeavored to overcome that weakness by strengthening the muscular power. He had the good fortune to lengthen the lives of many enfeebled patients, so that Plato reproached him with having acted very unjustly toward these unfortunate people in prolonging their lives.

Hippocrates extended on a scientific basis the principles laid down by his master, and his doctrines in preventing and curing disease by exercise were accepted by the most celebrated physicians of Greece and Rome.

Demosthenes overcame his natural bodily infirmities and his inarticulate and stammering pronunciation by exercise; *e. g.*, he would take long full breaths and run up steep places and declaim while the air was leaving his lungs. In this way he overcame his stammering by gaining control over his respiratory movements.

It was only in the period of her decadence that Rome substituted for these healthful exercises that were the foundation of her developing greatness, the more brutal and coarse athletic circus sports.

During the Middle Ages, medicine was relegated into the background, and the treatment of disease was left to those who believed disease to be of evil spirits, and the method used to drive away these evil spirits was by sorcery and witchcraft.

In the year 1680, Borelli published his work describing the ancient method of treating disease by exercise, and gave his methods and reasons by which chronic disease could be successfully treated by exercise. About the same time Bacon gave those learned theories to the world which have opened new pathways to the science of medicine. His genius embraced every branch of science. He thought the question respecting the prolongation of life worthy his attention and research. He recommended exercise in developing the body, and that running up steep places would strengthen the lungs. Life he considered as a lamp, that would burn out if not replaced by new fuel, and that exercise increased the

desire for food, resulting in an increase of vital phenomena. The most powerful impetus, however, given to the revival of this lost art originated with a Swede, the creator of the modern movement cure, whose methods have spread through the greater part of the civilized world.

What cases are benefited by the treatment of lung exercise? In all constitutional troubles when the object of treatment is to simultaneously improve the quality of the blood and the tone of the heart and lungs. To stimulate the action of the glandular and venous currents the newly oxygenated blood going to all parts of the system feeds it with new life and energy.

In anemia where there exists a morbid condition of the blood, probably both in quality and quantity, increased respiration by lung exercise increases the lung capacity and oxidizing powers of the blood, creating a more active combustion in the body. The blood is constantly loaded with fresh oxygen going to the tissues, feeding them with new life, stimulating the lymphatics and venous currents to an increased activity, stimulating a more active nutrition, improving the quality of the blood, and increasing the weight generally.

In cases where there is a congenital morbid tendency, the aim of all treatment is to modify both qualitatively and quantitatively the process of nutrition. Lung exercise will keep the blood in an oxidizing condition, altering the morbid state by the process of combustion, and an increased desire for food supplying the waste by new material. The seeming uselessness of all medication in some of these cases has long been recognized. Some drugs, however, retain their place as tonics and reconstructives; *e. g.*, quinin, strychnin, iron and arsenic. These may be used in combination or separately in conjunction with other treatment.

Of all drugs that seem to me to be of the greatest value in cases of anemia where there is a condition of mal-nutrition, strychnin is the most useful. It stimulates the circulatory and glandular system, increases nutrition and puts on fat. It is most generally given in too small doses to be of much benefit. It should be given in doses of one thirtieth to one-tenth of a grain three or four times a day. I have given it in doses of one-tenth of a grain three times a day with marked benefit.

In delicate narrow-chested persons where there is a tendency to phthisis, as a prophylactic, lung exercise is of the greatest importance. The lungs are strengthened, the quality of the blood improved, and the vitality increased. Living in the mountains, or the inhalation of ozone, creasote or blowing the spirometer, all have the same object in view. In my opinion the inhalation of medicated substances, in the treatment of catarrh and phthisis, do good only through the increased respiratory movements rather than by the drug used.

In breathing, the breath should be drawn through the nose instead of through the mouth. Hypertrophic rhinitis is more common among mouth breathers than among those who respire through the nostrils. It seems that the mucous membrane lining the nasal cavity requires a certain amount of atmospheric pressure to keep the vessels contracted, and if this pressure is not sufficient the vessels become relaxed, the mucous membrane becomes turgid and congested, and the nasal cavities become occluded.

I will cite a case of mouth breathing and hypertrophic rhinitis:

Mr. E., who had been a sufferer from what he called asthma for more than a year was a mouth breather. He called it asthma because as he stated his nose became so full at times that he could hardly breathe through it at all. On inspection the nasal passage seemed entirely obstructed. After several applications of cocain, a 2 per cent. solution, there was considerable contraction of the mucous membrane, and the breathing became easier.

I enjoined on him the necessity of breathing through the nose, and requested him to return to me in two weeks, and told him if he was not better at that time I would try other means for his relief. At the appointed time he returned stating that he could breathe freer than for months. I told him to continue the lung exercise as I had directed him and to return again in two weeks. At his return his breathing had improved and in two months from his first visit he was well as far as the trouble the asthma gave him.

The only medicine this case had was, at the first visit, a few applications by spray of a 2 per cent. solution of cocain, to determine if the obstruction consisted in congestion or was due to some growth. The remainder of the treatment consisted of lung exercise breathing entirely through the nostrils. The exercises were indulged in four times a day lasting about five minutes each time.

I will cite one case of phthisis treated and cured by lung exercise and the use of strychnia.

Mr. S., 27 years old, a farmer; had been in poor health for more than a year. Had been confined to the house for two months. There existed the usual signs of phthisis; *e. g.*, anemia, cough, diarrhea, night sweats, loss of appetite and a sub-crepitant r le heard over the infra-clavicular region on the right side; chest flattened and shoulders stooping. I prescribed for him strychnin sulphate in one-thirtieth of a grain three times a day, with plenty of good food consisting of eggs, cream, butter and beef, with a cold sponge bath every morning followed by a good rub down.

I then directed him to use lung gymnastics, with long, deep and full breathing, expanding the chest upwards and outwards, breathing through the nose with mouth closed. I directed him to inhale while raising arms from side over head, holding the breath for a few seconds. Then gradually let the air leave the lungs and at the same time bring down the arms to side. Fill the lungs again, bring the arms in front to a horizontal position, then throw the arms backward as far as possible while retaining the air in the lungs.

He was requested to remain out doors during the day and take long walks, and to fill the lungs while walking, holding the breath for a few seconds and then gradually letting it escape from the lungs. These exercises were repeated several times a day.

At the end of three weeks the strychnin was increased to one-tenth of a grain three times a day. His appetite began to improve and the sub-crepitant r le cleared up, nutrition improved and the lung expansion increased. At the end of three months he was discharged cured.

My object in bringing this paper before this meeting is to impress upon the minds of the members of this society the importance of lung exercise in debilitated subjects. The lungs have been neglected to the expense of other organs.

Properly conducted lung exercise will aid digestion, increase the desire for food, improve nutrition, increase the weight, add to the vital force and lengthen life.

A STUDY OF SCARLET FEVER AT HIGH ALTITUDES.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY J. N. HALL, M.D., AND WM. P. MUNN, M.D.

DENVER, COL.

We wish to present briefly the data which we have at hand upon 285 cases of scarlet fever treated by us separately in Colorado during the years from 1855 to 1894. They were all seen at altitudes varying from 4,000 feet above sea level to 5,500 feet. It is to be regretted that many details which would have added

much to the interest and value of the report are lacking in certain of the cases. One hundred of these cases occurred in adults, this unusual proportion being accounted for by the fact that many homeless adults were seen in hospital, while suffering from the disease, whereas children were doubtless more generally cared for at home.

Two hundred and forty-six of the cases were comparatively mild in nature, recovery ensuing without serious symptoms. In these no exact record was kept of the presence of albumen in the urine, but it was found in very many of them. The cervical glands were enlarged in about 20 per cent. of the cases, suppurating in about 2 per cent. Quite a number had serous or bloody discharge from the nose but not of a serious nature, apparently.

One case was complicated with spasmodic laryngitis, and two with nephritis, all recovering without serious developments. Several had otorrhea, one double, but the exact number is not at hand. Two had mild attacks of rheumatism, with complete recovery.

Of the thirty-nine severer cases, two adults died of uremia, one child of 5 years of convulsions on the second day, and a babe of 2 years on the fourth day of broncho-pneumonia. The other thirty-five cases presented membranous exudation in the throat, nine dying, making a total of thirteen deaths out of the entire 285, or 4.5 per cent. The nine deaths out of forty-three, mentioned as occurring from membranous exudation, give a percentage as compared with the total mortality of sixty-nine. The two uremic cases formed 15 per cent. of the total mortality, the other causes combined also making 15 per cent. (Fractions omitted.)

If we omit the cases complicated with membranous exudation, we have 250 cases with 4 deaths, a percentage of only 1.6. Counting only the membranous cases the percentage of mortality is 25.7 per cent.

Of the thirty-nine severe cases, nasal discharge existed in most of the fatal ones. As in diphtheria, its appearance was indicative of great danger. Abscess of the neck occurred in one case, and paralysis of the soft palate in one, both being of fatal character.

There were observed thirty-five cases in which practically scarlet fever and diphtheria were coincident, if we apply the latter term to those cases in which a membrane having the clinical characteristics of the membrane of diphtheria appears in the throat. There were thirteen instances in which diphtheria alone was contracted from the two diseases combined, two instances in which diphtheria alone was contracted from scarlet fever without membranous complication, and two instances in which scarlet fever was contracted from exposure to diphtheria alone.

These facts furnish very strong arguments in favor of the view that the membranous cases of scarlet fever are really what they appear to be clinically; that is, combinations of the two diseases in question. It should be mentioned further that most of the fatality was in the cases where the combination was seen, these cases assuming the dangerous character of diphtheria rather than the comparative mildness of scarlet fever.

As to the bacteriology of the disease in question, in the present series of cases no investigations were made, this being simply a clinical study. The only logical deduction to be drawn from the work of Klebs, L ffler, Prudden, Morse, Park, Baginsky, Heubner and

Jansen is, it appears to us, that at present diphtheria is a term which is used clinically to cover a number of diseases independent of each other to a certain extent bacteriologically, but of greater severity when the Klebs-Löffler bacillus is present, either alone or in combination. As no constant association of bacteria of any given type is found with the membranous cases of scarlet fever, we should certainly think it best at present to fall back upon a clinical diagnosis, and speak of scarlet fever with membranous exudate as complicated with diphtheria and not as an independent variety of scarlet fever.

In the treatment of the disease, there can be no doubt of the propriety of keeping the patient confined strictly to bed, until desquamation has been practically completed, nor of the advisability of milk diet. Liquor ammoniæ acetatis in large dosage has seemed beneficial. Calomel has been used freely for the bowels, and most of the patients have received the biniodid of mercury in doses of from one-thirtieth to one-tenth of a grain every two to six hours.

The beneficial effects of whisky, given freely where indicated by great prostration, and particularly in cases with throat complications, have been too clear to admit of doubt. We should certainly class it among the most powerful weapons for combating the depressing effects of the poison of the disease.

Before the general use of the peroxid of hydrogen, potassium chlorate and iron were used chiefly for the throat symptoms, but the former drug is, we think, much superior. There can be no longer any doubt of the propriety of attempting to destroy the bacteria of the disease upon the mucous membrane of the throat, and especially as it appears that in this way we are most efficiently promoting the avoidance of the exudation seen in the severer class of cases. Care should be exercised that in the liberation of gas from the use of the peroxid the middle ear is not harmed by its passage through the Eustachian tube, and especially as it might possibly carry the germs of disease into previously exempt territory.

For the discharge from the nose a 1 per cent. solution of carbolic acid has been used with satisfaction. Suppuration of the deep tissues of the neck has been relieved by incision as soon as distinctly made out.

We believe that the use of vaselin as an inunction after scaling has begun does not meet all the indications of the disease so far as the skin is concerned. By beginning the use of a 2 or 3 per cent. solution of carbolized vaselin at the first appearance of the rash, there can be no doubt that the burning and itching of the first stages of the disease are very greatly relieved, and it is rather for this effect that we should recommend its use early in scarlet fever than because of its antiseptic nature. It should be continued throughout the desquamation, as is commonly done by many practitioners.

The uremia, high temperature and other symptoms seen in connection with the severer cases, have been met by such measures as are indicated by their presence in other diseases with which they may be associated.

In conclusion, we may say that so far as appears from the cases considered, there seems to be no reason for thinking that this disease is especially modified by altitude, as it has seemed to us much like the same disease as seen in other localities.

LESIONS OF THE SENSORY FIBERS OF THE INTERNAL CAPSULE.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY H. G. BRAINERD, M.D.

LOS ANGELES, CAL.

Many years ago I observed that in certain cases of hemiplegia of central origin, there was a peculiar burning, neuralgic pain in the paralyzed limbs, arising some weeks or months after the apoplexy and continuing with more or less severity until death relieved the sufferer. In regard to this distressing symptom I could learn little from text-books concerning its cause or treatment. Recently having had a number of such cases occurring within a few months, I have tried to find some rational explanation of the symptom. To show the data from which I draw certain conclusions, I will briefly relate the history of five cases which suffered from post-hemiplegic pain of a burning, neuralgic character:

Case 1.—M. T., age 61. While walking on the street in the evening of Sept. 28, 1890, was suddenly seized with a peculiar sensation, and some loss of strength in his right arm and leg; felt dizzy and faint but was able to walk several blocks to his hotel; was not unconscious at any time, and never wholly lost the use of right arm and leg; face not affected and no aphasia, and in two weeks had made marked improvement so that he could walk without assistance; but the paresthesia and numbness have made but slight improvement. His condition in June, 1892, was as follows: General health fair; walks without limping, but says right leg is not so strong as left; the grip of the right hand as shown by the dynamometer is 42; left 78; decided loss of muscular sense in right hand, but can button his clothes with it if he can see the buttons. The muscles of the right shoulder and upper arm are not so large and firm as those of the left side. There is no reaction or degeneration nor has there been in either arm or leg. There is slight choreic movement of right arm and hand, but no rigidity or contraction, although he says they often feel as if there were. From these symptoms we diagnosed a lesion, probably hemorrhage, involving the posterior limb of the internal capsule, posterior to the facial fibers. Four or five months after the seizure he began to have, in the right side of face, right upper and lower extremities, a burning pain, feeling, he says: "As though the skin were too tight and a mustard plaster were applied." Pain is now worst in shoulder, arm and hand. It is not increased by motion, massage, electricity, or any local application, nor is it improved by them. He has worn out the coal-tar derivatives and now frequently resorts to opium to get relief.

Case 2.—P. O. R., male, age 59. In September, 1891, had an attack of brief unconsciousness followed by left hemiparesis, which was most marked in the lower limb. His heart failed steadily. Complained of pain of a dull character in his head, and of a severe burning pain in the left lower limb, which began a few weeks after the seizure and continued until his death in June, 1892. I saw him first in January, 1892. He was then much emaciated, tongue foul, complained of constant pain in head, mind somewhat impaired; face not involved. Grip in right hand 57; left 23; could move left leg, but could not sustain his weight on it. Knee jerk exaggerated. Complained of numbness and burning pain in left leg, especially in the calf; on account of latter was obliged to use large amounts of opiates. As he had a heart murmur and had the history of several attacks of acute rheumatism, the diagnosis was made of embolism of right lenticulo striate artery and subsequent softening, involving posterior portion of internal capsule.

Case 3.—J. Gould, female, age 35. In June, 1891, became suddenly unconscious and remained so for several hours, which was followed by left hemiplegia. The facial impairment, which was slight at first, soon cleared up; but the paralysis of arm and leg continued until her death sixteen months later. The diagnosis of hemorrhage involving the posterior portion of right internal capsule was made. About a month after the apoplectic seizure the numbness in left arm and leg began to be replaced by pain of a burning and neuralgic character, and soon became so severe that life was

a burden. Galvanism, faradism, ether spray, massage, and numerous lotions and liniments were tried in vain to relieve it; but nothing was of any avail except opiates.

Case 4.—A. H., female, age 61. In August, 1892, was suddenly seized with numbness over whole right side, and half an hour later could not move hand or leg; but there was no aphasia. The paralysis began to improve in a couple of days and the improvement continued for about two months until she could walk without much limping, but the hand remained much weakened. At time of examination, nearly a year after seizure, grip of right hand 15; left 39 on dynamometer; much impairment of tactile sense in left hand, and there is some trophic disturbance as shown by swelling and by the appearance of the skin. Diagnosis: Hemorrhage affecting a portion of both sensory and motor fibers of the posterior limb of the internal capsule. A few weeks after seizure she began to have burning pain throughout right side, which has been very distressing ever since, no relief being obtained from any external applications which she has been able to use.

Case 5.—N. B., female, age 25. In August, 1890, became suddenly unconscious and remained so nearly two weeks. Following this had paralysis, numbness, and various paresthesie of left arm and leg. As she had suffered from several severe attacks of rheumatism, the diagnosis was made of embolism of right lenticulo striate artery with softening affecting internal capsule posterior to facial fibers. Two months after seizure she had recovered the use of leg so she could walk with a crutch; but her hand and arm never regained any usefulness. About the time she regained the use of the leg, she began to complain of burning pain in her arm and leg. This pain was excruciating in character. For the relief of it massage, galvanism, faradism, and all sorts of liniments were tried with no relief. For a time antipyrin, phenacetin, and other remedies of that group relieved her, but eventually nothing but large doses of morphin would keep her comfortable. Nov. 17, 1892, the patient died, and an autopsy showed the cerebral lesion to be a softening of the larger part of the right lenticular nucleus, about one-third of the anterior and external portion of the optic thalamus, and about three-fifths of the posterior limb of the internal capsule, beginning about one-fifth posterior to the knee and extending to the posterior fifth; involving all the motor fibers posterior to the face fibers, and nearly all of the "sensory crossway" of Charcot.

In all of these cases the symptoms would indicate a lesion of the internal capsule involving, more or less extensively, both the sensory and motor fibers, and in Case 5 such was proven to be the case by the autopsy.

In all the cases the pain was of the same sort, being described as a "burning pain" by each of them, though each of them added other disagreeable sensations to their descriptions of the pain. Its severity varied, but each one complained more of it than of the motor paralysis, and more than of any other symptom resulting from the apoplexy. In each of the cases no relief was obtained from local applications to the painful limbs, such as ether spray and anodyne liniments, but was obtained by the administration of drugs that produce their effect upon the cerebrum. The character of the pain was much like that in peripheral neuritis; but I think we may exclude peripheral neuritis, from the fact that manipulation of the painful limbs did not increase the pain; no tenderness along the line of the nerve trunks was elicited on pressure; the failure of external applications to give relief and the absence of the action of degeneration. Neuritis being excluded, it would seem that it must be due to the central lesion. Landois' "Physiology," page 912, in enumerating the numerous sensory and trophic disturbances which may arise from irritation of the fibers of the internal capsule, does not mention the pain which I have described, but I believe that it should be added to the list. My theory is that it is a "referred sensation" very similar to that felt in an amputated limb and is

due, as in the latter case, to an irritation by the lesion of the sensory fibers passing from the periphery to the cortex, and hence is registered in the cortex of the brain as though it really had arisen at the periphery.

THE TREATMENT OF ERYSIPELAS.

Read in the Section on Practice of Medicine at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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The subject of the treatment of erysipelas falls naturally into three subdivisions: 1, dietetic treatment; 2, constitutional; 3, local.

1. Dietetic.—The proper attention to the diet is of first importance. It must be generous and composed of highly nutritious articles. If the temperature be high, liquid forms of nourishment alone should be administered, giving them in small quantities at definite short intervals. Rectal alimentation should be resorted to if the stomach rejects a suitable dietary. Based on considerable practical experience, I have been convinced of the fact that liberal feeding is of greater service to the patient than any recognized form of medicinal treatment.

This method pursued from the onset of the attack will not only serve to render the course of the disease more favorable than if less energetically fed, but will also lessen the liability to the more frequent complications.

Erysipelas is, as shown elsewhere, a self-limited disease in uncomplicated cases, when occurring between 20 and 50 years of age. In such, the necessity for vigorous alimentation is not greater than in other acute infectious diseases having a comparatively short course. Relapses occur in 11 per cent. of the cases and lack of attention to the patient's diet during the primary attack does unquestionably increase the frequency of their occurrence.

When the disease occurs in persons over 50 years, when complications arise and when the vital processes have been lowered on account of previous chronic disease, such as chronic nephritis, chronic phthisis, organic disease of the heart, etc., the course is much more protracted. The fact that these chronic affections also increase the receptivity of the human organism to the specific germ of erysipelas, as well as the mortality rate, must be recollected. Now it is in the classes of cases just mentioned, or in those in which the duration is prolonged, that correct alimentation is of paramount advantage, fortifying the vital functions, thus abridging the course of the affection. And since death is directly ascribable to exhaustion, with few exceptions in these instances, the life of the patient is thus frequently savable. Again when nourishment is exhibited judiciously, stimulants are required but rarely.

There can be no question but that the typhoid state of the system met with in this and other acute infectious diseases is often attributable indirectly to hypnutrition. I fear we have come to rely too much upon the local and constitutional agents in the management of this disease, to the neglect of proper dietetic means—a more potent factor.

2. Constitutional.—When, however, despite appropriate diet the pulse becomes feeble, the first sound of the heart indistinct and the tongue dry, undoubted

indications for the use of stimulants are present and must be heeded. When needful they should be given with a comparatively free hand. Stimulation is most apt to be required in aged and enfeebled patients suffering from the disease. I frequently order to be taken, from 16 to 20 ounces of whisky or brandy daily in divided portions.

The promptness with which strychnin acts leads me to place it among stimulating agents in the first rank, in these cases. In marked gastric irritability champagne is to be preferred. Numerous antiseptic remedies have been recommended but they have not been, up to the present, available in doses large enough to be of decided advantage. In view of the fact, however, that the disease is known to be caused by the streptococcus of Fehleisen further trial of antiseptic agents should be made. I have been for a decade or over, exhibiting to erysipelas cases, bichlorid of mercury in moderate sized doses throughout the febrile stage, and have found some degree of amelioration of the symptoms as the result.

The tincture of the chlorid of iron first used extensively by English authorities, was formerly regarded by most clinicians as a truly specific remedy. Perhaps the majority of authorities no longer accept this dictum. The profession, as the result of abundant experience, are for the most part of the belief that other preparations of iron are at least equally efficacious. While engaged recently in making a collective investigation into the etiology, complications, mortality rate, etc., of erysipelas, many facts relating to the treatment of this disease were met with and noted. They were taken from the records of several hospitals in Philadelphia. In this connection, reference will be made to points bearing upon the internal treatment alone, the local treatment being discussed subsequently. Through the kind assistance of Dr. M. Booth Miller, important data were obtained from the records of the Pennsylvania Hospital. The cases had been under the care of Drs. Lewis, DaCosta, Longstreth, Meigs and others. From 1872 to 1876 inclusive, there occurred in this institution seventy-four cases of erysipelas, which were treated by the use of the tincture of the chlorid of iron alone (the average quantity being 1 drachm daily in divided doses), with three deaths, or a mortality of 4 per cent. Of these, thirty-six were so-called idiopathic cases and thirty-eight traumatic, those proving fatal being idiopathic. The ages of those who died were 66, 49 and 20 years respectively. The immediate cause of death was noted as exhaustion in the first two instances. No complications were recorded in the first instance, but extensive bed-sores developed in the third, while the second fatal case, (aged 49) developed edema of the glottis. Twelve of the cases reported from the Johns Hopkins Hospital were treated with iron and stimulants, the results being about the same as in those reported from the Pennsylvania Hospital.

From 1877 to 1892, inclusive, some of the erysipelas cases in the Pennsylvania Hospital were treated by other methods which will be spoken of presently. In sixty-six cases, however, during the latter period, iron alone was administered. A single death occurred, and in this instance the fatal termination was due to edema of the glottis. Forty-eight cases were classed as idiopathic and eighteen as traumatic. It is quite probable that during the period in which this series of instances occurred iron was depended upon

only in the milder forms of the complaint for the following reasons: In the first place quinin was exhibited with the iron in very many instances and here the percentage of deaths was, as shown hereafter, quite high. In explanation of this fact we find that quinin was combined with iron in all of the severer types of the affection. That quinin is to be justly held responsible for the increased mortality (which occurred in the cases in which it formed a part of the internal treatment) is altogether unlikely. The value of iron is more reliably shown by the first group of seventy-four cases, above mentioned, than by the second, consisting of eighty-four cases, since in the first group *all* of the cases during the period from 1872 to 1876, inclusive, were treated by this remedy singly, while the death rate was only 4 per cent. These are favorable results when the status of the vital powers of hospital patients in general is kept in remembrance.

I have shown elsewhere that the general average mortality rate in hospitals is 6.57 per cent.; in private practice 4.16 per cent. Not a few of the seventy-four cases treated by iron alone manifested complications, and since some of these modify unfavorably the prognosis they should be mentioned here. In thirteen there were abscesses, (though it has been shown that this complication does not augment the death rate to any extent); in two, delirium tremens occurred; in two, general articular rheumatism and in one, scurvy. As pointed out in a previous paper,¹ preëxisting chronic affections render the outlook gloomy, but we find that one of the cases developed in the case of chronic pulmonary tuberculosis, another in a hemiplegic, both of which, however, recovered under iron.

The number of cases treated by iron and quinin in combination from 1877 to 1892, inclusive, was eighty-one, and of these fifty-five were idiopathic, and twenty-six traumatic. The average daily dose of quinin administered was from 12 to 16 grains. Ten cases proved fatal—a mortality of 12.3 per cent. The cause of death in two instances was acute Bright's disease; in two, delirium tremens; one, pyemia; one, exhaustion during fourth relapse; one coëxisting leg ulcer, and one cerebral sclerosis and bed-sores.

The complications noted from which recovery ensued, (while being treated with iron and quinin) were: Three suppurative otitis media; three abscess of the eye-lids; two delirium tremens; and bronchitis, sciatica, diarrhea, acute nephritis, bronchopneumonia, lobar pneumonia, iritis, abscess of foot, tonsillitis, angina pectoris, mastoiditis and fracture of the skull, one each. One instance arose during convalescence from typhoid ending in recovery. When such facts as the gravity of the type of the present series, and the character of the complications are kept in remembrance, the high mortality on the one hand and the apparent inefficacy of these remedies in combination on the other hand need excite no surprise.

My own experience in the use of quinin in erysipelas has been quite encouraging. During the past decade I have employed it in not less than twenty-four cases, its use being confined to instances in which the temperature touched 103 degrees F. With a single exception, in uncomplicated cases, (eighteen)

¹ The Complicated Conditions, Associated Diseases and Mortality Rate in Erysipelas, International Medical Magazine for October, 1893.

the nocturnal remissions were decidedly greater and the evening exacerbations less marked. In every instance, iron in some form (usually the tincture of the chlorid), was administered simultaneously.

During the years from 1881 to 1892, inclusive, twenty-six cases were treated in the Pennsylvania hospital by the use of pilocarpus, quinin being also associated in four of the cases, and in two, iron. There were seventeen of the idiopathic and seven of the traumatic variety, while the complications consisted in one delirium tremens, one acute articular rheumatism, one diarrhea and in two a relapse occurred. None of these proved fatal. These results create a favorable showing for pilocarpus, but it is to be stated that in but few cases were there manifested serious complicating conditions. Pilocarpus tends to produce increased nocturnal fall of temperature. The fact, however, needs to be emphasized that there is a strong disposition to spontaneous nocturnal remissions in temperature in this disease. Prof. J. M. Da Costa first used pilocarpus in erysipelas at the Pennsylvania hospital. His experience soon showed clearly that when given in the very early stage in one-sixth of a grain doses, hypodermatically, repeated three or four times at intervals of two or three hours, it often aborted the attack. It has been used by myself and others to a considerable extent at the Philadelphia hospital for its antipyretic effect.

If we accept its use to abort the affection, it is only in cases attended with high temperature, without decided morning fall, that pilocarpus should be employed. As a guide to the administration of this drug the conditions of the pulse and the heart can be relied upon. Pilocarpus, then, deserves a permanent place in the therapy of erysipelas.

But though I have been unable to obtain complete data, showing the treatment and its results from the records of the Philadelphia and Episcopal hospitals, the facts so far as ascertainable indicate that for twenty years the tincture of the chlorid of iron in large doses has been most frequently used with the same good results as at the Pennsylvania hospital. Quinin has been another favorite, administered in doses of 2 grains every three hours or 10 to 15 grains once or twice daily. In twenty-four cases gathered from various sources, ergot gave decidedly favorable results.

The treatment of severe symptoms. Of drugs, as antipyretics, phenacetin, acetanilid and antipyrin have been used at the Philadelphia hospital—a method of practice which I regard as being fraught with grave consequences. The best mode of reducing temperature is by means of cold sponges and cold or cool baths. The ice-bag applied to the crown of the head lowers temperature and simultaneously allays delirium and nervous excitement. For the marked nervous phenomena, such as pain, sleeplessness and active delirium, hyoscin hydrobromate, .01 grain hypodermically has been tried in numerous instances at the Medico-Chirurgical, Pennsylvania and Philadelphia Hospitals, and has given promise of being a valuable remedy. It should not be employed where the heart power is found to be greatly deficient. To fulfil the same indications the following remedies and recipes named in the order of their value and importance, have been utilized: Sodii bromidi grs. v, every two hours; or grs. xx-xxx at night; morphin one-eighth grain, and chloral grs. x in combination

every half hour for three doses; potassii bromidii gr. x, and tincture cannabis indica mx. at bed-time, atropin one-eightieth of a grain and morphin one-sixth of a grain hypodermatically.

Local Treatment.—Local measures have always held a prominent place in the treatment of erysipelas. The list of agents which have been used topically is long and embraces all classes of therapeutic substances. Thus in the three series of cases before cited, which were treated at the Pennsylvania Hospital together with a few collected from other sources, no less than fifty different remedies and preparations have been employed. Among those most frequently used were: Elm in thirty-seven cases, lead-water and laudanum in twenty; subcutaneous injections of carbolic acid (1 to 40) in eighteen; oxid of zinc in fourteen; corrosive sublimate in solution in fourteen; vaselin or cosmolin in thirteen; solution of bicarbonate of soda in nine, and benzoated zinc ointment, cocain with laudanum, and ichthyol ointment with lanolin, eight each. Among the many measures of which trial has been made in a smaller number of instances are, collodion, glycerin, laudanum, unguentum potassii et belladonna, unguentum plumbi, liquor acid carbolic, liquor chloralis, liquor sodii hyposulphites, liquor sodii sulphatis, aqua calcis, mistura ol. lini et bismuthi, unguentum sulphur, mistura ether et camphor, (employed until a distinct coat is obtained), iodoform and dry gauze once daily, together with such simple and yet curiously varied measures as to dust affected parts with flour, zinc and starch; sassafras, hot flaxseed, poultices (every two hours), cold water cloths, warm water cloths, ice-bag, wet cloths, lotions and so on.

I have mentioned a large number of external applications—by no means all of them, at the risk of exhausting the patience of my hearers, for the express purpose of showing thereby the highly unsatisfactory condition which has characterized the local treatment of this disease down to the most recent times. Doubtless many of the preparations before mentioned were prescribed for their effect in excluding the air. To my mind this is a leading indication, and to meet it I prefer carbolized vaselin or cool carbolized oil.

A knowledge of the microbic nature of erysipelas has led to the employment by the profession of various antiseptic drugs and their application in various ways. I do not doubt that it is along this line the greatest advances are to be expected. Allusion has been made to the injection of carbolic acid. Here the aim is to check the spread of the inflammatory process by inserting the needle at numerous points just beyond the inflamed border. This method, introduced by Heuter, has been much practiced by Henry at the Philadelphia Hospital, and more recently by Osler at Johns Hopkins Hospital. The success thus attained is encouraging and the method is especially applicable in erysipelas migrans. As before stated, the solution of the bichlorid of mercury, (1 to 4000) was used locally in fourteen instances; and to these I can add the results of twelve others, treated at the Medico-Chirurgical Hospital and in private practice. It may be applied in the form of lotions to the inflamed surface, or it may be injected beneath the skin, just beyond the border of the inflamed area as in the case of carbolic acid. Quite recently it has been recommended to scarify the affected part and follow by

the application of a solution of mercuric bichlorid. This method of treatment I regard as being most promising as well as rational. It was certainly, in three instances in which it was resorted to in my own practice, followed by rather brilliant results, moderating more particularly the severity of the local inflammation.

Dr. Morris Booth Miller observed in the wards of the Pennsylvania Hospital quite uniformly good results from the local use of ichthyol ointment with lanolin, in the service of Dr. Da Costa and others. Before making trial of the corrosive sublimate solution I had used ichthyol locally, but the results were not brilliant. Dr. Charles J. Whalen has reported, in a recent issue of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (April 28, 1894), most strikingly favorable results in four cases of facial erysipelas, from the use of external applications of guaiacol—a mode of treatment which richly deserves a more extended trial.

Lastly, from the results of these statistical investigations into the subject of the treatment of erysipelas by personal observation and experience, I have arrived at the few brief conclusions following:

1. Proper attention to the diet is of paramount importance.

2. Stimulants are rarely necessary if the dietetic requirements are fully satisfied, but may be freely exhibited when indicated.

3. Of drugs, iron has been widely tested and found to be of great value, though it matters little which salt or preparation is employed.

4. Quinin when administered with iron, reduces the temperature, supporting at the same time the vital functions.

5. The use of antiseptics *per oram* is to be recommended.

6. Pilocarpus is in a small proportion of cases, powerful to abort the affection. To reduce temperature merely, pilocarpus should be employed in intense pyrexia, particularly where the favorable morning remissions do not occur.

7. The question of the local treatment of erysipelas has not as yet been set at rest, but agents intended to exclude the air and such as possess a germicidal power, especially corrosive sublimate, are highly useful.

8. That the erysipelococcus of Fehleisen which is found chiefly in the more superficial channels of the corium, may be attacked directly by the corrosive sublimate solution when the latter is used after scarification, is quite probable.

9. In erysipelas migrans the germicide should be injected beneath the skin, just beyond the edge of the part inflamed.

CHAMPAGNE AND STRYCHNIN IN CHEST TROUBLES OF THE AGED.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held in San Francisco, June 5-8, 1894.

BY G. EDWARD BUXTON, M.D.
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From these few remarks, which shall be presented briefly, do not conclude that my dependence upon the *vis medicatrix nature* is sublime, and faith in the medicinal value of drugs microscopic.

It is true my graduating thesis was upon the action of mind in medicine, but that was nearly a score of

years ago, before the faith cure fad and, as the years increase so does my confidence in medicine intelligently administered; when failure comes, as frequently it does, it is because the situation has not been fully grasped or the vital forces have ceased to act.

A physician living on the shores of San Diego Bay sees many invalids from east of the Mississippi, a large proportion of whom come from the Atlantic seaboard; and among them are many advanced in years who come expecting to find in our perfect climate the perennial spring of youth and by partaking of its waters live forever.

While the tendency of this equable climate is to prolong life and, in some instances to an astonishing degree, as has been shown by Dr. P. C. Remondino in his researches in this direction, still the aged come to us sick, and here the aged sometimes die.

It has always seemed to me important that the sick, the feeble and advanced in years, should make the long journey across this entire continent, not in a few days as is now customary—from the Atlantic to the Mississippi, from the plains of Kansas to the high altitudes of the Rockies, and then drop down again to the sea—but on the other hand, that they should come in slow stages from point to point, occupying weeks or months in covering this great distance.

I have myself witnessed great distress on the trains bringing invalids, due to these changes; and patients have repeatedly told me of their sufferings on the way, especially in the higher altitudes.

In former times when the journey was made by team from the Missouri, west, the change came gradually, and when this "golden shore" was finally reached the health seeker was in full harmony with environment and likely long to outlive the time limit set by Holy Writ.

We do not see in the region about San Diego Bay the same good old pneumonia, double and otherwise, that we used to treat, for instance, in Boston or Pittsburg.

There is pneumonia and pneumonia; and this probably in some measure accounts for the great variety of treatment which has been and still is in vogue; why should we follow the authority recommending phlebotomy who wrote fifty years ago, and of patients living in the humid, insular climate of England, and about the disease as seen among those malt liquor drinkers—those roast-beef and plum-pudding eaters. Why should such medical experience be taken as the guide to proper treatment of cases in the high altitudes of the upper Missouri Valley, or among the corn- and hog-fed malarial dyspeptics of the lower Mississippi Valley, or how can we reasonably follow treatment appropriate to the sturdy young farmers of New England, and apply the same remedies in cases among the closely confined factory operatives? Or how apply any one of these methods, successfully, to the health seekers coming, physically bankrupt, from the Eastern States, to our land of perpetual sunshine, fruits and flowers; here where he may freely partake with no restrictions, of ozone from nature's vast laboratory reaching thousands of miles to westward and from which, wafted by the gentle Pacific zephyrs, it comes to these Californian shores.

There being then chest troubles—pneumonia is the name which like the broad mantle of charity

covers so much—manifesting their symptoms under such a variety of conditions in the old, the young, the feeble and the strong, it does seem to me impossible to settle upon any one plan of treatment which shall be appropriate to all cases and fit all alike well; and so I have used for my theme not pneumonia, but chest troubles, that the range might be sufficiently wide to still embrace a treatment applicable.

I am ready to believe that all the methods of treatment recommended by men of large experience have been appropriate and helpful in many cases to which they were suited.

But it is to the condition of the lungs, alone or mainly, that we are to look for guidance in our treatment; or, rather, shall it not be in a large proportion of these cases to a tired and worn out heart, which if not relieved gives up the struggle; thus rendering all treatment useless and the end fatal.

“Find out the cause of this effect,
Or, rather, say the cause of this defect,
For this effect, defective, comes by cause.”

Bartholow says: “The mortality from pneumonia has been and continues to be a subject of warm discussion on the part of those who advocate some special plan of treatment. Accuracy in diagnosis and skill in treatment are such uncertain elements in the statistics of mortality, under different plans of treatment, that but little reliance can be placed on the statistical method as applied to therapeutic questions. In determining a fatal result in pneumonia so much depends upon the condition of the individual attacked, or the diathesis with which his system is tinctured, that no comparison of systems of treatment can be accurate that does not take note of them.

“Death is usually due to collapse—that is, cardiac failure, and obtunding of the nervous centers. This state is not necessarily caused by purulent transformation—it may be due to failure of heart, and lungs, and brain, before the end of the stage of red hepatization. The effects of the pulmonary changes are enhanced by the stasis in the cerebral veins and ischemia of the arteries and by cardiac paresis.”

It is surprising how little breathing capacity will suffice to carry on the functions of existence, as witness the model fashion plate for instance, or the “one lungers” in Southern California; which reminds me of the inspector on the boundary line who stopped three Chinamen trying to steal across to the United States; their names suggested Lung, and having lived some time in a health resort he entered them on his report as One Lung, Two Lung and Three Lung.

While we do not see any patients of the three-lung variety in San Diego County we do have many with but one, and often those with less than a whole one; and while these individuals do not, perhaps, consider themselves as strong as ever, still well enough to dispense with the doctor and able to attend to their daily duties.

And so in many of these pneumonias the lung capacity would seem sufficient to prolong life, but the blow falls upon the heart; it labors to force blood through choked channels and obstructions; the blood is impoverished by deposits of important elements; the heart muscles and others involved in the circulatory process weakened; the stimulating presence of oxygen in the blood current to encourage the over-worked organ absent, but, on the other hand,

unusual quantities of carbonic acid present with its enervating influence on nerve and brain. And just here is the indication for the treatment mentioned; champagne and strychnin.

I am not going to tell you just how these do good—presenting this, that and the other theory with which you are all familiar; maintain that the alcohol is a food, or that it prevents rapid metamorphosis, conserves force, soothes and anesthetizes irritable nerve centers and satisfies a complaining stomach; but I simply say they do good and recommend, if you do not already use them often, to hereafter use them oftener. The strychnin as a tonic to the heart and muscles involved, seems to back up and sustain the good work begun by the champagne.

Whiskey does not act as favorably when given in these cases and the benefit, I conclude, does not depend solely on the alcohol administered.

Do not ask me what particular brand of champagne I recommend, for no fee having yet been paid by the proprietors, and having before my eyes the recent and awful warning of Hart's Apollinaris water and Hammond's testicular juice I forbear to name the mark. I do not say California champagne is the best in the world—it is unnecessary, for the doctors are on the ground, and they will test the matter for themselves and so be able to determine.

In 1884, while practicing in the city of Pawtucket, R. I. I was called in consultation to an aged lady of 74 years; she had been sick a week with pneumonia: both lungs badly involved; temperature 105 degrees; pulse 140, weak and irregular; respiration rapid; expectoration of prune juice character; delirium of a low muttering type; mouth open, tongue dry and dark brown; with picking at the bed clothes and involuntary evacuations. The case seemed altogether hopeless.

I suggested champagne and strychnin, and her attendant requested me to carry out that line of treatment and assured me he would esteem it as a great personal favor if I would assume the entire care and take charge of the case, for he frankly admitted he believed the patient would surely die.

Hypodermics of strychnin, 1-60 grain each, were given until the system manifested an increase of the reflexes especially of the lower extremities, every two or three hours at first, then at longer intervals and, as matters mended, granules of the same strength were administered by the mouth twice or three times a day; and a tablespoonful or two of meat juice was given every two hours, followed with pepsin and washed down with two or four tablespoonfuls of champagne.

Within twenty-four hours there was improvement; the heart steadier and less rapid, pulse fuller, the muttering ceased, the muscular agitation was quieted and the bed pan called for when needed; additions were made to the nourishment, of hot milk and Vichy water; the champagne was given in larger quantities but less frequently, and in a few days the old lady was convalescent.

No cast-iron rules are given to regulate the administration of these remedies; every case will be a law to itself, and the amount required will vary—give here, as always, remedies for results—give until the pulse steadies, becomes slower and fuller, until the heart does its work better, and then be governed by the subsequent needs of the particular case.

Under our heading, “chest troubles,” we may speak of cases following la grippe; when the acute symptoms have subsided and that state supervened of prostration, with general collapse threatening, and the weight falling upon heart and lungs, with impeded circulation and the lungs in an edematous or hydrostatic condition; then, champagne and strychnin is appropriate treatment, and with suitable nourishment become ministering angels to restore and lead back to better things.

Quite recently an aged lady came to our city from Phila-

delphia; her family physician had carried her through an attack of la grippe and sent her here to Southern California, hoping she might more rapidly gain strength; but, in crossing the mountains by train she had taken what she called "a fresh cold," and reached her destination seriously ill; and when I saw her soon after she had a pneumonic deposit in the lower lobes on both sides.

She passed her eightieth birthday delirious with fever, rapid respiration and brick-dust expectoration; and the consulting physician did not help quiet the now thoroughly alarmed family by saying she would die; but she got her strychnin, champagne, meat juice and milk regularly, and in quantities which to my judgment seemed necessary to meet the indications; and she made a good recovery notwithstanding her last will had been made and her friends had said good bye.

In continued fevers, especially of that type which in Kansas City in the old days we called typhomalarial, this treatment is of great value; when the heart and lungs are distressed it arouses nature to make the supreme effort, and thus free the patient from those depressing influences which if not relieved would end in death.

In these days when the coal-tar products are so recklessly administered, the warning voice can not be too often raised, and a heart stimulating rather than a depressing course advised.

These few thoughts are presented rather as suggestions and not as dogmas; having no pet theory to promulgate and sustain at all hazards, no long list of cases and statistics has been made out, with quotations and extracts from an exhaustive roll of writers and authorities.

Some one has said: "The bibliography has become what the bearskin is to the British grenadier—it makes him look tall and imposing.

"You may be excused for being abashed in the presence of one who reels off a list twenty pages long of authorities consulted; unless he remind you of certain persons who make it a point of parading before you the names of all the eminent men with whom they have a bowing acquaintance."

My experience with this line of treatment during the past dozen years has not been invariably successful—what man saves all? But in a large number of cases, both in my own practice and coming to my knowledge, under the care of *confrères*, the results have been highly satisfactory; and such as that when compared with other methods have recommended this to more general use.

And while I do not expect to carry universal conviction by premises somewhat narrowly drawn, still I may expect this treatment or some modification of it in chest troubles of the aged, not only to maintain an excellent reputation but to increase in favor on closer acquaintance.

DIGITALIS IN THE TREATMENT OF CROUPOUS PNEUMONIA.

Read in the Section on Practice of Medicine, at the Forty fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1894.

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It is not my intention to claim that digitalis is a specific in the treatment of croupous pneumonia, nor to insist upon its administration in every case of the disease that presents itself, but simply to state why it may be used and when, in my opinion, it ought to be used.

During the last three years there has been consid-

erable discussion, both in Europe and America, upon the use of digitalis in the treatment of pneumonia, and the various writers may be divided into three classes: 1, those who claim that digitalis is a specific in the treatment of pneumonia cutting short or, as they express it, jugulating the disease if given in the first stage; 2, those who have found that the disease is but little if at all influenced by the use of digitalis; 3, those who on theoretical grounds maintain that the administration of digitalis in the treatment of pneumonia is inadmissible. It is not necessary for me to trouble you with the names of the gentlemen holding those different views; it is sufficient to state that in each class will be found men who are recognized in Europe and this country as prominent clinicians and reliable observers.

The objections urged against digitalis are that in pneumonia the congestion and consolidation offer an obstruction to the flow of blood through the lungs, so that the strain on the right ventricle is increased until that chamber is over-distended, and, as it can not empty itself, the blood accumulates in the venous system behind it; it is therefore urged that the administration of digitalis is liable to result in the heart becoming paralyzed in a heroic attempt to overcome the resistance. Such are the only important objections that have been offered, although one or two writers have devised a pharmacology of digitalis to suit their own views, as in the statement that "digitalis stimulates a weak heart by contracting the arteries and arterioles, by throwing the blood back upon the heart itself," a statement which is absolutely at variance with the results of experimental investigation. In estimating the value of a drug we must look upon all its effects and not only upon one. Briefly stated, digitalis increases the force of the systole by directly stimulating the cardiac muscle and intra-cardiac ganglia; it produces contraction of the arteries and arterioles which, together with the increased force, results in a rise in blood pressure; and lastly it shows the heart's action by stimulating the vagi and thus prolonging the diastole. Clinical experience shows that one result of these combined actions is to diminish venous plethora.

It would appear that in the study of the question before us there is a tendency to regard the divining power of the right ventricle as the only power by which the pulmonary congestion and the tendency to venous stasis can be overcome, and also to look upon the obstruction to the pulmonary circulation as the essential cause of cardiac failure; a very few minutes reflection will show that both experimental and clinical observation makes such a position untenable.

The depressed cardiac action in pneumonia is due to a variety of causes, chief among which are: 1, the toxic influence in the nervous system of the specific poison and the proceeds of tissue waste; 2, the pyrexia influencing not only the cardiac muscle but also the nerve centers; 3, the obstruction to the circulation through the lungs. It would be foreign to the purpose of this paper to enter into a discussion of these causes at present, but nearly every one can recall cases of pneumonia occurring in persons of fairly robust constitution where the disease assumed an adynamic type from the commencement, and cardiac depression was marked before the pulmonary congestion was at all extensive, affording positive evidence that other causes than obstruction to the cir-

culatation through the lungs are accountable for the cardiac depression. Again, when crisis takes place the pulse becomes slower and steadier although physical examination shows that the consolidation is fully as great as it was twelve hours previously when the pulse was rapid and irregular. Surely if the embarrassed heart action be entirely due to the condition of the lungs the change in the pulse should not be sudden but a gradual improvement as the process of resolution progresses. A recognition of all the causes that may lead to depressed cardiac action in pneumonia is a very important aid to the proper treatment of the case.

The motive power of the left ventricle is an important aid to the onward flow of blood through the lungs into the left ventricle. Some years ago Goltz and Goule conducted a series of experiments upon dogs which showed that the endocardial pressure during ventricular systole was:

Left ventricle on an average about 140 mm. (mercury).

Right ventricle on an average about 60 mm.

At the commencement of diastole a negative pressure was established.

Left ventricle varying from — 52 mm. to — 20 mm.

Right ventricle ranging from — 17 mm. to — 16 mm., or that the average motive power of the left ventricle at the commencement of diastole corresponds to about two-thirds of the propelling power of the right ventricle. It must be remembered, however, that this motive power does not remain constant throughout the diastole but is greatest at the commencement, and rapidly diminishes as blood enters the cavity. Further, this negative pressure is partly due to aspiration of the thorax during the respiratory movements, but a pressure of — 24 mm. has been obtained in the left ventricle after the thorax has been opened.

Again, the driving power of the left ventricle is nearly four times that of the right, and the increased momentum given to the stream of blood by its more forcible systole will do much to overcome venous stasis; furthermore the more vigorous and complete the contraction of the left ventricle the greater is its motive power, and consequently the more active will it be in abstracting blood from the lungs.

The prolongation of the ventricular diastole is of great advantage as it rests the cardiac muscle, gives longer time for the blood to pass from the overfilled lungs into the left ventricle, and permits the ventricles to become fully dilated. The contraction of the blood vessels is the only action that remains to be considered. It is very questionable whether this is an objection, certainly it is not so with all men, as many physicians recommend the use of ergot for the purpose of producing this condition in a marked degree. Personally, I never have known digitalis produce more than that slight amount of tension which most of us are pleased to find. It should be remembered that any strain consequent upon contraction of the systemic arterioles must come upon the left ventricle; and the increased motive power due to the more complete systole of the left ventricle will go far to compensate for any pulmonary resistance due to contraction of the vessels in the lungs. There are only two conditions in which it is evidently a disadvantage: *a*, when pneumonia occurs in a patient who has fatty or degenerated heart; *b*, when the patient is extremely plethoric and the physician

desires to distribute the blood as much as possible throughout the general system so as to delay its return to the right side of the heart. Under such circumstances the arterial contraction may be overcome by occasional doses of nitro-glycerin administered whenever the arterial tension rises higher than is desired.

While for the above reasons, and as the result of considerable clinical experience it is my belief that the administration of digitalis is not only permissible, but may be of great advantage in the treatment of pneumonia, I do not wish to be regarded as claiming for it any specific action; the hunt for specific remedies has not been profitable so far as the treatment of any disease is concerned, and the best results are still obtained by the physician who, as a consequence of knowledge and careful observation of each individual case, is able to recognize the approach of unfavorable changes and anticipate their effects by his treatment.

Recently some clinicians have given digitalis from the commencement of an attack of pneumonia, on the basis that the increased force of the cardiac contractions will tend to prevent or diminish pulmonary congestion; this is unnecessary. So long as the heart is doing its work well it should be left to itself and attention devoted to other parts of the treatment, such as reduction of temperature, elimination of waste matter, maintenance of the patient's strength, etc.; but just as soon as there is any sign of the heart becoming weak, digitalis should be given in such doses and with such frequency as the case demands. An average dose for such purposes is 15 minims of the tincture every three hours until there is some influence on the pulse, after which the dose may be gradually reduced.

Should the patient not come under observation until the venous system and right side of the heart are engorged to such an extent that there is too much blood for the ventricle to conveniently handle, I do not know of any treatment that will give better results than the administration of digitalis and the simultaneous removal of blood by venesection. In plethoric persons the same line of treatment is preferable to the administration of the vaso-dilators and cardiac depressants, such as aconite or veratrum viride, a process that has been justified under the claptrap phrase, "bleeding a man into his own veins," but which really means an effort to increase the capillary area and leave the tissues full of imperfectly oxygenated blood without diminishing the amount of blood that the right ventricle has to accommodate. As the systemic is quite distinct from the pulmonary circulation, an increase in the systemic capillary area will only relieve the resistance against which the left ventricle contracts by allowing a more ready flow of blood into the venous system, but will not diminish the current of blood that has to pass through the right ventricle and pulmonary capillaries in order that it may be properly oxygenated.

Digitalis frequently fails in the treatment of pneumonia because its action is essentially on the nervous system, and this is often deranged by the effects of temperature and toxic agents, so as to be insusceptible to the influence of the drug. Under such circumstances the simultaneous administration of strychnin will frequently increase nervous sensibility so that the effects of the digitalis can be obtained.

In closing, let me again protest against the indis-

criminate use of digitalis, and urge that the condition of the pulse should be the guide. Unfortunately, the introduction of the thermometer, sphygmograph and other mechanical aids to diagnosis have greatly supplemented the use of the fingers, and comparatively few of us can equal the physician of thirty years ago in interpreting the pulse. The thermometer and similar agents are invaluable in showing the existence of certain conditions; the fingers on the pulse show how the patient is being affected by them. When we give as much attention to the pulse as did our predecessors, and view the condition of the pulse in its relations to morbid anatomic conditions and the changes which these are liable to undergo, then shall we be able to follow a more rational line of treatment and more frequently conduct our patient through a serious illness.

DISCUSSION.

DR. AYER—Mr. President, I was very deeply interested in the paper just read. One thing that presented itself particularly to me was the Doctor's approval of venesection. I believe there are some cases of pneumonia in which no remedy is so efficacious as the lancet, but it needs to be used with very great discrimination. When the pulse becomes extremely feeble the expectoration is of a cellular mucous nature, respiration is very difficult and the patient appears to be in *articulo mortis*, I believe that venesection is the only agent that will restore him, or give him any prospect of recovery. I have used digitalis in my practice for many years, and in certain conditions of the heart I believe it is indispensable, but it should not be used, as has been stated by the author of the paper, without proper consideration. But that which specially impressed itself upon my mind was that we ought to return again to the much abused lancet in the severe and dangerous forms of pneumonia.

DR. DEWITT, San Francisco—Mr. President, I want to say in regard to the dose in pneumonia and in the latter part of the treatment, the paper, as I understood the Professor to read it, advocated as much as 15 minims. I want to say that in my practical experience I do not go beyond that, and I have never been able to give 15 minims to my series of patients, especially in continued doses, without developing what I term reflex action, which would really make me fearful to continue the dose at 15 minims. In many instances with this dose I have found nausea to follow. I have talked with a great many physicians in regard to this very treatment and many of them agreed with me, while others do not. I would like to know if the practitioners find much nausea in the latter stages of pneumonia.

DR. YOUNG—Mr. President, I have listened with great interest to the admirable paper just read. I do not know of anything that pleases us more than to have this tribute paid to those of us who in the past have followed this line of treatment. While I do not desire to be regarded as among the back numbers, I feel that possibly the institution of so many of the newer devices may possibly relegate the natural senses to the rear. I am very sure that good practice has been done by the touch and by the ear and therefore I appreciate especially that portion of the Doctor's paper.

With regard to the use of digitalis, I presume there is scarcely a man here whose hair has grown silvery, who has not had experience with it. I have never been able to use digitalis in the doses suggested by the Doctor. I generally accomplish my purpose with smaller doses. Among the remedies used none has served me to better purpose. I rise to commend both the papers that have been read, and regret that some discussion was not elicited by the first paper read before the Society, for it is a very exhaustive one and very interesting one from a scientific standpoint.

DR. FIRTH, Indiana—Mr. President, in the paper just read I have felt an interest from the fact that in my early practice, some forty years ago, I think I saved two patients by being suddenly called in where digitalis had been given. In both of the cases they had been given digitalis in the form in which we all used to carry it at that time, in the leaves; taking out a pinch and making a tea. In the first case the man had severe pneumonia. The doctor was giving digitalis tea in teaspoonful doses every two hours. I found him with a pulse of 40, the sweat profuse and he was very sick at the stomach. I told them to give him some whisky and set the tea aside until the Doctor came back. The man recovered.

The next case was something very similar—that one died and I think he died from too much digitalis. My experience has been that doses from 5 to 8 drops are all that I have been able to give without producing some sickness of the stomach. I believe that it is a most admirable remedy and I believe, as has been stated in the paper also, that we frequently find cases where the lancet is as valuable as the digitalis or more so. I believe in later years we have neglected to use the lancet as much as we should, and I think those of us who were in practice before the thermometer came into use had our fingers better trained than we have at the present time, when we have relied almost entirely upon the thermometer. I think the paper a valuable one.

THE CHAIRMAN—The gentleman in the rear of the room inquired about the dose of digitalis. We should like to hear any experience in that regard.

A MEMBER—If there is a drug in our rational materia medica that is unreliable, I think it is ordinary digitalis. In some cases we get an immediate effect, and in others we get little effect or practical failure on the part of the drug.

DR. KERR—I used the tincture of the United States Dispensatory.

There are a number of tinctures in use throughout the country; some use the German tincture, some the extract, some the tincturine and so on. In answer to the question of the gentleman calling upon old practitioners, I will say that I have used it for a great many years in the treatment of pneumonia, as well as of other diseases, but never for more than one or two doses in the quantity recommended by Dr. Kerr, and I have generally accomplished my end with small doses—4 or 5 drops. Seldom have I had nausea, except where there was an idiosyncrasy. With regard to the action of the drug in the larger doses there is almost universally nausea. I think the paper is one of exceeding value and of great interest to us all.

DR. HOLTON, Vermont—Mr. President, I think much of the paper we have just listened to, but I think we are getting away from the point in a measure. We want to bear in mind the action of digitalis; how it affects the heart through the nerve centers. When you first begin to give digitalis you get an action upon the heart in which there is occasionally an intermission, and then that intermission increases, and the result of that increased intermission of the pulse is the slowness of the pulse which you get. If you give digitalis in the inflammatory stage, as has been recommended in large doses, it seems to me you are simply whipping up a horse that is going about as fast as he can go, and by and by down he comes. The place for digitalis is plainly indicated when the action of the heart has become weakened. I think there should go with digitalis the nitro-glycerin in the early stages of pneumonia, so as to produce paralysis of the vasomotor system, keeping the blood away from the heart and not requiring it to pump against a dead wall of consolidated blood. Keep the blood in the extremities by dilatation of the vessels as much as possible, and you are accomplishing what our friend referred to as the purpose of venesection.

I am not so sure that our fathers were altogether wrong in their constantly using the lancet. They may have gone too far with it, but we certainly have not improved upon their treatment of pneumonia. When the whole vascular system is dilated from the poison of the retained material with pressure upon the brain and upon the vasomotor system, then give digitalis in 4 or 5 drop doses. I think the effect is better with this than with the infusion. If you want to get the effect upon the kidneys, use an infusion of digitalis. If the effect upon the heart, use the tincture. That has been my experience for a long time.

DR. JENKINS, Iowa—Mr. President, I want to emphasize what the last speaker has said. So far as my experience goes, there is nothing better than digitals and nitro-glycerin, particularly when you come to that stage of pneumonia which is near the crisis. When you want to give strength to the heart and you have that slow irregular pulse, probably coming partly from digitalis, and partly from failure of the heart itself, it is then that I have seen a good many cases tided over. In such cases I give nitro-glycerin and digitals with plenty of whisky, and I am certain that I have within the last two or three years saved a good many cases of pneumonia that formerly I would have lost. I have watched this carefully, and for that reason I mention this fact. I am sure that with these two remedies, with careful nourishment and whisky, we can save a great proportion of our asthenic pneumonia—those that seem to have about reached the crisis, but have not quite power enough to recuperate.

DR. AYER—Just one word more, Mr. Chairman. When the heart becomes irregular under the influence of digitalis I have never used nitro-glycerin, but have given freely of whisky and carbonate of ammonia. It is more immediate in its effect. It must be resorted to and followed up with the same degree of diligence, otherwise that irregular condition of the heart which indicates a great weakness (I will not say heart failure because I think we are running "heart-failure" too far into the ground) that we want to stimulate; otherwise there will be anemic astasia, and we will find our patients get out of our hands and in the hands of the undertaker.

DR. KERR—In regard to the different points taken up by the gentlemen discussing the paper: First, about the dose. The dose I recommended for an adult was about 15 minims of the tincture taken every three hours for a few doses until you begin to find some action upon the pulse, then diminish the dose according to the condition of the patient. Strange to say, I have found less nausea; in fact, it is rare that I get any nausea in pneumonic patients when using digitalis. I often have this trouble in pure cardiac cases, but in ordinary hospital or private cases it is rarely I am troubled with patients suffering from nausea. I do not mean to approve of the indiscriminate use of digitalis in all cases of pneumonia. Many cases do not require it at all. I think a great deal of trouble has arisen—and many of the cases where digitalis has done harm,—are not to be attributed to the use of the drug so much as to the bad judgment of the doctor. The amount of literature issued, the cheap medical literature of the present day, goes a great way to injure the practice of medicine. Many of these text-books are simply therapeutic memoranda which consist of a list of diseases down one side and a list of medicines opposite them. They do a great deal of harm, especially with medical students. They turn to one of these books and see digitalis recommended for pneumonia, regardless of the stage or individual character of the case. It is under such circumstances that the most of the harm arises. Those works are positively injurious. When men had less books and less literature with more expensive, and perhaps the average quality of the

books was better, a man had but few books but he would digest them and would do some thinking. But with this cheap form of literature and these many books that are put under our noses comes the plea for the busy practitioner that he has not the time to read, and a man gets into a routine and does not think what he is doing.

DR. JENKINS—I did not recommend in every case the use of nitro-glycerin, but in those that I have referred to.

THE USE OF TURPENTINE IN THE TREATMENT OF DIPHThERIA.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY E. W. KELLOGG, M.D.

MILWAUKEE, WIS.

"I dressed his wound, and God healed it!" modestly exclaimed Ambrose Paré, and his trite saying contains a truth too often forgotten in theory, and overlooked in practice.

No remedy cures. The utmost we are able to do for any disease is to remove, as far as possible the cause, and allow natural forces to carry on the various processes of repair, and the rational treatment of diphtheria whether situate in the fauces, nose, larynx or trachea should include surgical cleanliness as far as it can be attained.

Primarily, we must have correct hygiene; secondarily, nourishment, and lastly, drugs. The selection of a well ventilated room, isolation of the patient, absolute confinement in bed, fresh air and sunshine, the toilet, frequent changes of linen, immediate destruction of soiled cloths, thorough disinfection of the fauces, nose, throat and mouth, should not give place in any stage to internal treatment.

Few facts in medicine are better established than that this is a disease of local origin caused by the Klebs-Löffler bacillus, and that the subsequent constitutional symptoms are due to a poisonous principle secreted by this microorganism.

If this be true how important it is that the lives of these microorganisms be rendered as short and ineffective as possible. But whatever care may be taken, in a certain proportion of cases the larynx becomes involved, we hear the stridulous inspiration and crowing cough, and every physician knows the usual sequel.

There are exceptional cases of recovery, possibly one in ten, but the great majority die. In hospitals with trained attendants and all the numberless advantages which attend hospital work, tracheotomy and intubation doubtless save many lives.

Johann Bokai reported 109 intubations with 37 per cent. recoveries; Rauchfuss 85, with 30 per cent. recoveries; Muralt, in 318 tracheotomies, had 35.6 per cent. recoveries, and in 56 intubations 37.5 per cent.

Van Runke reported 365 intubations with 40.5 per cent. recoveries.

Marseilles intubated 68 cases with a recovery of 30.8 per cent.

Dillon Brown 350 intubations with 28.5 per cent. recoveries; Moll 92 cases with recovery of 40.2 per cent.; Waxham reported 1,072 intubations with about 27 per cent. recoveries; Agnew 11,696 tracheotomies with 26.25 per cent. recoveries; Monte, 12,000 tracheotomies with 26.8 per cent. recoveries; Lovet Monroe, 21,853 tracheotomies with a recovery of 28 per cent.

But it must be borne in mind that these are the

reports of specialists and are largely hospital cases. Tracheotomy in ordinary private practice is a dismal failure, shocking to the survivors, adding terror to a terrible disease and in the great majority of cases the precursor of a fatal result, disappointing to both physician and friends. Intubation in skilled hands has somewhat increased the percentage of recoveries but requires an extraordinary manual dexterity not possessed by the general practitioner, and only acquired by extensive practice upon the cadaver or living subject. This is an insurmountable objection to its general employment. Friends of the patient often will not submit to either operation, because so little can be promised, and thus we are often obliged to depend upon drugs for aid.

Prof. George suggested the use of oleum terebinthinae several years ago, on account of its antiseptic action upon the air passages. It arrests fermentation and putrefaction and is very destructive to all forms of bacteria. The bronchial secretions are increased during its use, and without doubt its effect in croup is largely due to its local antiseptic action during its elimination from the system.

I do not advise turpentine as a certain remedy. The majority of cases will die in spite of any treatment, whether medicinal or surgical. But I wish to urge its employment at least as an adjuvant to other treatment, and to insist upon giving it in extraordinary doses. It is useless to give a few drops hourly. It must be given in frequent large doses and persisted in as long as there is any chance whatever. A child 2 years of age will take a teaspoonful every two hours without exhibiting any untoward symptoms whatever. I have given it in nineteen cases and have had eleven recoveries.

Dr. Shimonek, of Milwaukee, kindly reported three cases with one recovery. Dr. Malone, of the same city, four cases with two recoveries, making a total of twenty-six cases with a recovery of fourteen, or about 54 per cent.

Case 1.—The first case was a Polish child 2 years of age. She had diphtheria for four days when croup developed and she grew rapidly worse. In two days after the laryngeal symptoms began, Dr. Walbridge, of Milwaukee, was called in consultation. The child was cyanotic. The sternum was strongly retracted with each inspiration and we informed the father that the only hope for the child was tracheotomy or intubation. This he absolutely refused, and Dr. Walbridge proposed trying ol. terebinthinae as an experiment, relating a successful case in which he had used it. The child was put on drachm doses every four hours and when seen on the following day was decidedly better though the laryngeal symptoms, difficult breathing and crowing cough were still marked. On the following day she was still better, and in three days all symptoms of diphtheritic croup had entirely disappeared and the child made a slow but complete recovery.

Case 2.—German boy 4 years of age, one of four cases of diphtheria in one room. He developed croup on the fourth or fifth day. His pharynx and nose were filled with false membrane. He, with the others, had been taking corrosive sublimate and iron in alternate doses. This treatment was continued and ol. terebinthinae was given in teaspoonful doses every two hours. The cough was easier after a few doses. The retraction of the sternum disappeared. Inspiration became normal and he made a complete recovery.

Case 3.—German girl, 10 months of age. When first seen she had no visible false membrane. She was in the third stage of diphtheritic croup, cyanotic and greatly depressed. She was given brandy and ol. terebinthinae in alternate hourly doses, but died in twelve hours.

Case 4.—A Norwegian boy, 5 years of age. Membrane was confined to tonsils and pharynx with a small patch at one corner of the mouth. Developed croup on the second day; characteristic cough and inspiration. Was given ol. terebinthinae in drachm doses every two hours for four days and

nights. The effects of the drug in this case were especially prompt and efficient. Although the laryngeal symptoms were continuous and severe, the effects of each dose could be seen in slower, easier respiration and a stronger pulse. He made a complete recovery.

Case 5.—A Polish boy, 4 years of age. He had been under the care of another physician for a week. Croup had developed when I was called to see him. A sister in the same condition died on the day before I saw him. When first seen his respiration was very difficult. The sternum falling in about two inches with each inspiration. He was given drachm doses of ol. terebinthinae every hour for six hours; then drachm doses every two hours. The following day he complained of some strangury and the turpentine was given every three hours instead of every two. The strangury disappeared during the day, and on the following day he was so much improved that the family discharged the doctor. He was on the street three weeks later.

Cases 6 and 7.—Polish girls. Two of five cases in one room. The treatment was not carried out. Four of the five cases died, five successive physicians being called in four days.

Case 8.—German girl, 4 years of age. Third stage of croup. No membrane visible. Had only been sick twelve hours. Teaspoonful doses were given every two hours, alternating with brandy, but there was no appreciable effect and she died in four hours from suffocation. There was no visible sign of diphtheritic membrane in this case.

Case 9.—Three days later I was called to see a brother 3 years of age, and found his throat filled with false membrane. Four days later it reached the larynx. He was put upon the same treatment and took 8 ounces of turpentine during the next four days. Slowly but steadily all symptoms of croup disappeared and he made a complete recovery.

Case 10.—German boy, 6 years of age. Diphtheria followed by croup. He was given drachm doses every two hours for nearly forty-eight hours, but there was no effect. He grew steadily worse and died from suffocation.

Case 11.—A Polish girl, 2 years of age. Four children in the house had diphtheria, and her throat was filled with false membrane. When first seen she was breathing with the greatest difficulty. The parents positively refused to have further medical attendance as she was expected to die but they promised to keep up drachm doses of terebinthinae every two hours. She made a slow but complete recovery.

Case 12.—A Polish boy, 4 years old; one sister with diphtheria followed by croup had died within a week. Every inspiration could be heard in any part of the house or out upon the walk. His face was cyanotic and his extremities cold. He was given drachm doses every hour during the day and every two hours at night. He grew no worse though the improvement was but slight for two days, when he began to improve and made a rapid recovery.

Case 13.—An Irish girl, 4 years of age. Treatment began about twelve hours after laryngeal symptoms developed, and it was kept up steadily for twenty-four hours but without benefit and she died from exhaustion.

Case 14.—German boy, 2 years of age. Diphtheria for six days followed by croup. Drachm doses were given early and regularly but without visible effect. He died forty hours later.

Case 15.—Polish child 1 year old. Diphtheria followed by croup. Strong retraction of sternum, crowing cough and difficult inspiration. He was given half drachm doses every two hours and improved from the beginning. The laryngeal symptoms disappeared in three days and he recovered.

Cases 16 and 17.—Polish boys 6 and 7 years of age, living in adjoining cottages. Both had marked symptoms of diphtheritic croup. The friends of both were informed that they would in all human probability die. Both were put upon drachm doses hourly. One died within twenty-four hours; the other slowly recovered.

Case 18.—German girl, 1 year old. Malignant diphtheria with invasion of larynx. Given drachm doses hourly, but without effect. She died some time during the following day.

Case 19.—German boy 3 years of age. Diphtheria followed by croup. Glands of neck considerably swollen, crowing cough and difficult respiration. Given drachm doses of ol. terebinthinae every two hours alternating with brandy and iron. Recovered in four days.

Cases 20, 21 and 22.—Dr. Shimonek. All in one family. Turpentine was pushed until each one took a teaspoonful every two hours. The oldest, 6 years of age, recovered. The other two aged 3 years 6 months and 1 year 6 months, were

not improved. Both were intubated and both died. The turpentine was commenced as soon as laryngeal involvement manifested itself.

Cases 23, 24, 25 and 26.—Dr. Malone. All cases of diphtheritic croup. All were given teaspoonful doses in milk continuously. Two recovered and two died from strangulation.

SOME SUGGESTIONS AS TO THE TREATMENT OF ACUTE MANIA.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1894.

BY JOHN W. GIVENS, M.D.

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The phenomena of mind are of such infinite variety and complexity that it is impossible to describe or measure them accurately. Likewise the changing conditions of the mind organs that accompany these infinitely varying and complex phenomena are so minute and complicated that they are fully known only to Omniscience.

There is a wide practical difference, however, between the regular coherent mental phenomena of ordinary health and the wild, incoherent phenomena that we have labeled acute mania. And so there is a wide practical difference between the soft pulse, the clean tongue, the moist lips, the cool skin and normal temperature of ordinary health, and the quick, hard pulse, the furred tongue, the parched lips, the hot, dry skin and elevated temperature of acute mania.

The mind organs are, especially the brain and the end organs of the brain which constitute, not a simple, but an exceedingly complex structure. The cells of which this structure is composed are as unlike and as independent of each other as the cells of the liver are unlike and independent of the cells of the kidneys, and the blood supply of different portions of the brain is independent of other portions. These different cells, of which the brain is composed, are associated with the most varying phenomena. Some of them may be very active while others are correspondingly inactive.

The end organs of the brain, which are as surely instruments of mind as the brain itself, are even more complex, and a recognition of their place in the mind system widens the field of mind to a vast area, but anything less than this would not comprise the realm of mind and its disorders. This is a most difficult field to work and there yet remains very much for observation and experiment to reveal, but it is now settled that the brain is a complex organ, associated in its different parts with widely varying mental phenomena. This fact of complexity of the structure of the brain has much importance in the practical treatment of the various forms of insanity.

It is now a well established fact that function, or the manifestation of that mysterious something we call life, as surely affects structure as it is certain that structure affects function, and indeed it is true that the fact of function influencing structure is of greater practical importance than the fact that structure affects function.

In the trouble now under consideration, where there is excessive incoherent mental activity, it is a question of the greatest practical importance as to what is to be done towards controlling this incoherency and excessive mental activity.

The tendency of thought, in regard to this and kindred questions, has been that as there was underlying this incoherent excessive mental activity an abnormal structure, though ever so microscopic, of the brain cells or an abnormal condition of the blood, which was the immediate environment of the brain cells, or some disturbance of the end mind organs, as eye-strain, it was not worth while to try to do anything towards controlling or affecting at all directly the abnormal mental phenomena, but the patient was practically left uncontrolled, both mentally and physically, so long as he did not kill himself or some one else. In fact, it was thought to be as foolish to try to control these abnormal mental phenomena directly, while the abnormal structural condition continued to exist, as it would be to try to prevent the escape of steam through the safety valve by tying it down as long as the fire was kept up under the boiler.

One eminent author suggested that it would be as reasonable to hope to cure chorea by restraining the involuntary muscular manifestations of that disease. I do not know from what the practice originated, but this is undoubtedly the most successful method of treating chorea that has been brought to our notice; viz., enforced muscular rest. But to return to our question. We are learning that in all excessive functional activity there is great danger of the structure being permanently and injuriously affected, and that to prevent this and to aid the structure in returning to its normal type, rest; or, in other words, functional activity diminished to the smallest possible degree, is of prime importance. This principle of affecting structure is justly permeating the whole domain of treatment of disease, is bringing infinite blessing and relief from suffering to the human family, and is giving to every individual a better opportunity to live his little day with all of his parts fairly intact, instead of faltering out a wretched existence with a partially dead or distorted mind. This diminution of functional activity applies also to the end organs of the brain which may be perverted. I have found it easiest to obtain physical rest by confining the patient to his bed and allowing only quiet orderly nurses about him. To arrest the incoherent mental activity, I have found that requiring the patient to memorize prose compositions, insisting on absolute accuracy, to be of great service. This substitution of regular, orderly mental operations for the disorderly, incoherent mental activity can only be done with more or less success, but much can be accomplished by persistent effort.

This rest in bed will accomplish more for the patient in a few days than will months of ordinary treatment, allowing him to be about. If the patient with only incipient acute mania could be put to bed and kept there until his temperature, pulse and alimentary canal were brought into a normal condition, most cases of acute mania would be prevented. And if, after the full appearance of the phenomena of acute mania, this practice were invariably and strictly adhered to, I believe most of the cases would speedily recover.

Now in regard to the diet of the patient. It is certain that what goes into the alimentary canal will be a very important factor in influencing the various phenomena of the patient. The toxic or impoverished condition of the blood must be corrected largely by the influence of this factor, and it is one of the

defects of medical thought and study that they give too little attention to food.

It is not to the honor of medical teaching that the graduate knows more about the preparation and properties of drugs, than he does about the properties and qualities of suitable foods in disease.

The blood of the acute maniac is in both a toxic and impoverished condition. The toxic element is perhaps the more important, especially if the patient is now in bed and needing only a minimum of nutritive matter. The question of food is now, as always, of first importance and should receive as careful attention as the medicine. And be assured, oh ye of little faith, that the food of the acute maniac is not a matter of indifference in determining his condition, but is one of supreme importance and should always be recognized as such.

An ideal food in this condition would be one that, in the first place, would be attractive to the patient; 2, one that would not easily break up into toxic materials; 3, one that would afford that degree of nutrition needed by the organism in its diseased condition; 4, such as would be favorable to elimination to the end that the toxins in the blood might be eliminated.

Such an ideal diet is furnished by fruits in large variety, raw and cooked, fresh and dried, bread made without yeast, the very best butter, cream and milk. Meat should be given not more than once a day and in very limited quantity, much less than the average patient desires.

The fruit, mostly cooked, will afford a diet that is attractive to the majority of patients. It does not break up easily into toxic matter; it affords what nourishment is needed and it, above all other forms of food, favors the action of the eliminating organs.

In acute mania the circulatory apparatus seems to be in a tense, almost spasmodic, condition, and I know of nothing better to allay this irritation than equal parts of tincture of aconite and tincture of gelsemium in one drop doses with half an ounce of water every hour during the waking hours. This also favors gentle diaphoresis with its elimination.

Strychnia has justly a high reputation in the treatment of acute mania of alcoholism and I think it is very useful in the ordinary acute mania of debility, toxemia and overwork, and it may be safely used in all cases where there is not an acute inflammatory condition of the brain or its membranes, but this is an exceedingly rare condition.

In regard to the use of laxatives, they will rarely be needed with the diet mentioned, but when they are needed they should be used in small quantities and given as often as each meal time, with a view to establish a physiologic function of the alimentary canal and not the pathologic condition of even moderate purgation, much less the violent purgation of the good old navel divider.

In regard to sleep, which is usually disturbed, its physiologic character should be kept in view and, while drugs probably can not produce that balmy sleep, "Nature's sweet restorer," because natural sleep is a resultant of antecedent conditions and these conditions can not be produced by medicines, I believe that when medicines are given for the purpose of inducing some kind of sleep they should be given in sufficiently large quantities to secure the condition of profound slumber, but not oftener than every second or third night and less frequently if possible. If the organism is clean and well nour-

ished—and this means physiologic perfection, sleep will take care of itself, and it is this cleanliness and nutrition of the organism that is the aim and end of all treatment, whether it be curative or preventive.

The physician who studies the preventive side of insanity; the side of broadest and grandest service to the human race, must come more and more to consider the elements of rest and food in connection with those defective organisms to whom a slight variation from health means the darkness and despair of insanity. In this work of prevention of the most blighting evil of our civilization, no effort or experiment should be left untried, for though,

"The brain within its groove runs evenly and true;
But let a splinter swerve, 'twere easier for you
To put the water back when floods have split the hills,
And scooped a turnpike for themselves and blotted out the mills."

A CASE OF LITHEMIA SIMULATING CEREBRAL TUMOR.

Read by title in Section on Practice of Medicine at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, Cal., June 5-8, 1894.

BY H. G. BRAINERD, M.D.
LOS ANGELES, CAL.

The researches of Garrod, Haig, Herter and many others have shown so conclusively that a gouty condition may be the cause, or at least an important factor in the production of asthma, bronchitis, pleuritis, gastritis and nephritis, and the careful study of the urine in migraine, chorea, neurasthenia and many cases of hysteria and epilepsy, leave little ground for doubt that the retention of the uric acid in the system is an important factor in their causation, and often the sole cause; but the symptoms usually attributed to organic cerebral disease are so rarely due to gout that I report the following case:

On June 20, 1893, J. S. was brought to me by his attending physician (Dr. King) with the following history: Age 47, married, farmer, weight in health about 180, height 6 feet, family history good, with the exception that an older brother died from some brain disease; for many years was very dissipated, but for the past ten years has been a moderate drinker. Denies syphilis, and all his four children are healthy. In the last two years has had a short attack of rheumatism, and considerable gastric disturbance, and quite frequently severe headache. In March, 1893, began to have a constant headache, lost his appetite, became easily fatigued, and for two months has been unable to attend to his usual duties. Exposure to the sun increases the pain in his head, and often without any exposure has paroxysms of intense pain. Has spells of vomiting, explosive in character, and occurring most frequently in the night or early morning. Complains of sudden seizures of vertigo, at other times numbness and weakness of left arm and leg. Thinks he has never entirely lost consciousness in these attacks. On attempting to walk there is a constant tendency to go to the left. Has grown dull and moody, irritable and very forgetful. Lies in bed most of the time in a semi-conscious condition, but sleeps only two or three hours out of the twenty-four, and then is distressed by frightful dreams. Is obstinately constipated, and has lost about twenty pounds in weight in the last few weeks. Has little fever and often temperature is subnormal. To-day, his countenance indicates suffering. Gait somewhat uncertain. Can not walk in straight line with eyes closed, but goes to the left. Can not stand on left leg alone, but stands fairly well on right leg. Face and neck have a congested appearance. Speech slow and hesitating, which his attending physician says is unnatural. Pulse 80. Temperature 99 degrees. Pupils moderately dilated, left more than right. Reaction to light sluggish; no strabismus. Says he can not read much without blurring of vision and increase of pain in the head. Percussion on skull is painful but no locality seems specially

sensitive. Grip of right hand shows 85 on dynamometer, while left only gives 54; and there is great loss of muscular tone everywhere, and decided left hemiparesis. Ophthalmoscopic examination shows retinitis in both eyes. Urine scanty; about twenty-four ounces in twenty-four hours. Specific gravity 1024; sharply acid; no albumen. No casts, but immense quantities of uric acid, urates and oxalates.

This train of symptoms, viz., persistent headache with frequent exacerbations of intense pain, the mental change, slowness and hesitancy of speech, vertigo, sudden attacks of left-sided numbness and weakness, explosive vomiting, rapid emaciation, slight left hemiparesis and slight double retinitis, led me to strongly suspect an intercranial growth; but the examination of the urine gave me hope that his condition might be due to lithemia, and accordingly all alcoholic stimulants were interdicted. A rigid milk diet, with the free use of pure water, and the daily use of one to two drams of soda bicarbonate, well-diluted, was advised, together with broken doses of calomel sufficient to keep the bowels freely open.

A few weeks later was gratified to receive a note from his physician saying: "I placed S. upon the treatment suggested and he made a perfect recovery," and I learn (May 18, 1894) that he has with slight exceptions enjoyed good health since.

The rapid and continued improvement, together with the decided change shown in the character of the urine under the line of treatment outlined, convinces me that this was one of the protean manifestations of gout.

HYSTERICAL VOMITING, RESULTING IN DEATH.

Read in Section on Practice of Medicine at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, Cal., June 5-8, 1894.

BY H. N. RUCKER, M.D.
OAKLAND, CAL.

During the latter part of February, 1893, I was invited by my friend, Dr. J. H. Todd, of Oakland, to see a single lady, aged 21 years, who was suffering from severe vomiting, which had continued for several days without abatement. The Doctor had patiently tried almost every remedy recommended for such conditions, without benefit. The patient could receive no food except by enema; the vomiting was so frequent that but little sleep was obtained, and she was fast becoming exhausted. After a careful examination, I was ready to agree with his diagnosis—hysterical vomiting. Nothing short of large doses of morphin, a half grain hypodermically, gave any rest, and this afforded but a short respite from the vomiting. Thus the case went on till death took place; the vomiting continuing in the very last throes of dissolution. A careful examination of the abdominal viscera revealed nothing to account for the severity of the symptoms. The stomach was slightly enlarged, and its walls somewhat attenuated. The uterus was normal in size, and free from disease. The ovaries were natural, except they were dotted over with irregular white spots about the size of an ordinary pea, which resembled more the effect of an application of strong carbolic acid than anything else it could be compared to. The ovaries were removed and preserved in equal parts of alcohol and water, and in three or four days the mottled appearance had entirely disappeared. The father of this patient is now 63 years old, and in fair health. The mother died suddenly in a convulsion at the age of 49, while talking to a visitor. She was of high nervous temperament, but always retained fair self-control. She suffered from a severe fright a short time before the patient's birth. The patient began menstruating at the age of 13, and was never so well afterward. At the age of 16 she went a year without menstruating; during which time she had free leucorrhœa. Shortly after the death of her mother, she received quite a shock in a railroad accident; was ill for a time, being very nervous and much depressed; menstruating profusely every two or three weeks. She was treated two

months in the East for "womb disease," by local applications and with electricity. She then changed her residence to California and was for a time fairly well. One evening while playing the piano, she suddenly became pale, nervous and tremulous, and was pronounced on the verge of convulsions. This prostrated her in bed for two months, during which time she suffered greatly from nervousness. After getting better, was treated again for five months continuously for "womb disease;" took a deal of medicine but was not benefited. She then placed herself under the care of another physician who treated her four months for "enlarged ovary," by electricity, with no good results. She then went to a hospital under the care of still another physician, who treated her for two months for "enlarged ovary;" was kept in bed on milk diet. At the end of the two months she had an attack of vomiting lasting two weeks, and was for three days without any food whatever; then became better and her appetite returned. The womb was then treated locally for a time, and afterwards she was treated by another physician by very vigorous massage over the ovaries. This had the effect to greatly increase her nervousness, and she began vomiting again, and in this condition she came under Dr. Todd's care.

Cases of such gravity are seldom met with; but cases of striking similarity fall to the lot of almost every physician. Such an instance adds wonderfully to experience, and teaches a lesson that should not be forgotten during a lifetime. Viewing this case on its merits as revealed by its history and the result of the autopsy, we become profoundly conscious of that lack of intuition and professional acumen which as physicians we strive to attain. There are two dominant features that simply eclipse everything else in considering the case of this unfortunate young woman: 1, a pernicious inheritance; and 2, the treatment during nearly all her adult life for something she never had. To a hasty consideration of these two propositions I invite your attention for a few moments. The physician's skill may be totally inadequate in eradicating the faulty inheritance which the hysterical or otherwise neurotic patient brings to him for treatment, and his duty lies, in so far as is possible, in recognizing its protean forms and directing the most intelligent treatment, chiefly of a hygienic nature. The laws of heredity and the survival of the fittest, pervade all nature. While we are powerless to change the temperament and character of individuals, we may do much to aid in maintaining their mental equilibrium, the preservation of health, and the well-being of their offspring. Impressionable subjects are so by inheritance; but nearly all show sufficient nerve stability till the age of puberty, at which time one of the great metamorphosing periods takes place, and a test of the equalizing forces is made. If perchance the individual has been surrounded by the best influences, moral and hygienic, the predisposition may remain passive, and the tendency to disease averted.

It has been said: "Every being has thousands of complex inherited traits that it can not use—latent gifts from the past." This thought suggests the boundless scope of our professional science in dealing with the hygienic conditions of mankind. In some respects our obligation is coequal, if not paramount to that of the clergy in directing and developing those traits which will best conduce to the welfare of the individual, and to that of his progeny for all time to come.

There is nothing in all the realm of nature that differs so essentially from its primitive type as does the human race; and on this account no one knows better than the intelligent physician the difficulties in the way of the successful practice of medicine.

The activity and vigor which gave such promise in early manhood, suddenly yields to inherent taints and the rapid oxidation of tissue; while the apparently grave physical condition will be changed by a renewal of normal functions, and existence crowned with ripening years. In one instance there is a fitness for adaptability to the exigencies of life as they may arise. In the other, there is sorrowful evidence of violated laws somewhere in the economy of nature. While the physician may find it impossible to bring health to one cursed by faults of inheritance, yet in passing to the consideration of the second proposition, the observation is offered, that too much care can not be used in the proper diagnosis of ailments in neurotic subjects. To tell a young, nervous, hysterical girl, that she has ovarian or womb disease because she may have leucorrhœa, menorrhagia or neuralgia, may have the effect to blight her life, and make an invalid of her during the remainder of her existence. Yet that is the mistake that was evidently made in this patient's case, and is too frequently made to the discredit of our profession. When she received the intelligence that she required treatment for ovarian and uterine disease, she was prepared to believe it; for her first thought was, that she had some of the symptoms that were common to those diseases. The suspicion and dread which she formerly entertained took full possession of her, and she became morbid on the subject.

When the treatment she was receiving did not afford her relief, she became despondent and expressed the fear that it would be but a question of time until she would be obliged to submit to the removal of her ovaries. When her physician failed to give her the hoped-for aid, she sought others in turn, with but one fixed purpose; that of being cured of disease affecting her generative organs. Had she received in the beginning kind encouragement, and the assurance of her medical adviser that she had no disease of her generative organs, but that the symptoms which she had observed were but the signs of anemia from an over-taxed nervous system, how different her life might have been. If with changed environments and proper medicinal treatment she had not grown strong and rugged, she would have at least been relieved of the horrible phantasm that haunted her day by day, and was in the main the expression of morbid mentality. During all the months of treatment she says she did not grow any better, but on the contrary grew worse. When we consider her history it does not seem surprising. What good could we expect from making topical applications at stated intervals to the uterine and vaginal canals of a young woman suffering from exhausted nerve force with all its attendant ills?

Exhausted nerve cells produce disordered circulation, resulting in general and localized anemia. Deficiency of blood supply, or of improper quality, result in irritation and instability of muscular tissue together with trophic changes. Hence in cerebral anemia, we may look for headache. Tremor is the chief symptom of weakened muscles. The heart deprived of nourishment, beats rapidly and unsteadily. Unnatural erethism, is due to exhaustion of the sexual powers, the result of lascivious thoughts and sexual excesses. The bladder may be affected with spasm, and become so irritable as to give rise to the suspicion of stone. In this connection I venture the assertion, without fear of intelligent contradiction, that in eight-tenths of

the cases of tenesmus and frequent micturition in females, when there is not positive evidence of organic disease, the fault is in the nerve centers of the sympathetic system. Through disturbed functions of the great sympathetic nervous system whereby the caliber of blood vessels are regulated, we may account for the increased secretion, at times, of mucous membranes. I offer the opinion, after a somewhat varied experience, that a large proportion of the cases of leucorrhœa, and menorrhagia, especially in young unmarried women, are due simply to neuroses. The best examples of this kind are to be found in the modern boarding school; or among those who have passed the regular course in such institutions.

A few lines from Dr. Thomas A. Emmet are pertinent to this question: "On the approach of puberty the nervous system becomes dominant in the female organization, and is as susceptible to external influences as the barometer is to atmospheric changes. But the simile is not applicable later on, since an impression for good or evil once made upon the nervous system, especially while in the adolescent period, is permanent. It may lie dormant in the after-life of the individual, but will almost surely be transmitted to future generations. . . . The girl's transition to womanhood is rapid; her organs of generation acquire a preponderating influence in her complex organism, and her nervous system is fully taxed to secure and maintain that general harmony of function which constitutes health. The slightest defect in her sexual organs may, through the medium of the sympathetic nerves, produce functional derangement elsewhere. . . . At the period of life when the young girl's whole nerve force is taxed for the full development of her organs of generation this force is deflected by hard study. . . . She is subjected to the emotional influences of music and light literature, which, in a sensitive nervous system, are capable of arresting the development of the uterus and ovaries. The spirit of emulation which is encouraged in all schools has a deleterious influence on the nervous system of girls at any age, but particularly about the time of puberty."

No examination of the brain and spinal cord was made in the case of this patient; nor would such examination have revealed anything, except, perhaps, a most patient and searching microscopic one. When the elements of an electric cell become unduly consumed or corroded, or the fluid too weak, the current loses force, becomes unsteady, or ceases entirely. In one sense, the illustration would seem to offer a ready solution of the real condition of this patient. The nerve cells were exhausted, had lost their functions, were worn out. Nerve counter-balance was gone, and the muscles of the stomach were thrown into spasms which nothing but death relieved. Two of her many physicians informed her she had enlarged ovaries; one claiming the left ovary to be as large as a man's fist; and said she would not be better till it was reduced. She continued worse instead of better, and I submit these morbid specimens for your judgment as to whether they bear evidence of ever having been enlarged.

Ingratitude.—Two of the principal hostelrys in the famed Adirondacks region notify the world that consumptives are not wanted as guests under their roofs. Another instance of kicking away the ladder after one has mounted. It was the consumptives who largely advertised and built up the region.

DIAGNOSIS AND TREATMENT OF DISEASES OF THE STOMACH BY THE STOMACH TUBE.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY ALFRED W. PERRY, M.D.
SAN FRANCISCO, CAL.

The diagnosis and treatment of diseases of the stomach, which had been so uncertain, has during the last few years become as satisfactory by the employment of modern means of investigation as that of any important organ. The use of the stomach tube and improved chemic methods of testing the stomach contents dates historically back only about fifteen years, yet it is within the last five or six years become popular.

Most disorders of the stomach depend chiefly for their painful symptoms and consecutive disorder of nutrition on fermentations, or abnormal accumulations in quantity or quality of the stomach contents. These fermentations may be the acetic, lactic, butyric, cellulose and others less known, which last produce various lately discovered poisonous alkaloids or so-called ptomaines.

In health the so far known conditions for normal gastric digestion are: Gastric juice containing 14 to 24 parts for 1000 of hydrochloric acid; an active peristaltic motion of the stomach; a proper amount of pepsin; a temperature of about 100 degrees F.; a complete emptying of the stomach within six or seven hours.

An absence or deficiency of any of these conditions disorders digestion to some extent and leads to fermentation.

The germs of the acetic, lactic, butyric and cellulose fermentations are always present in the gastric contents, but the above named conditions for normal gastric digestion do not favor their rapid development, except the lactic, which develops normally during the first fifteen to thirty minutes of gastric digestion, and it is then arrested and kept with the other germs from increasing by the augmenting hydrochloric acidity of the gastric contents.

A deficiency of some of these is frequent, but produces no disease for a long time, for these functions are largely complementary and failure of one may for a long period be compensated by greater activity of another. Digestion of albuminoids in the stomach may be absent for months by total want of hydrochloric acid, without failure of nutrition. The acetic and butyric fermentations, which take place in the absence of hydrochloric acid, are prevented by a more active peristalsis, and quicker emptying of the stomach.

USE OF THE STOMACH TUBE IN DIAGNOSIS.

By means of the stomach tube we remove portions of stomach contents at any period of digestion, and determine the amounts of hydrochloric acid, peptones, starch, dextrin, pepsin, mucus and of abnormal products, by appropriate chemic tests.

By the stomach tube we alternately fill and empty the stomach with air, to determine dilations and displacements by percussion.

The introduction of the stomach tube is generally easy, but sometimes impossible from the production of a spasm of the glottis. I have had cases where the tube introduced with great ease, seemed to be in

the larynx, although no air came through it. I was only certain it was not, when I found the same spasm of the glottis and suffocation was caused by touching the back of the pharynx with my finger. The use of cocain locally, of ice, and chloral by the mouth will often not present the spasm. I find it a good test where use of the tube is indicated to touch the back of pharynx with the finger; if this can be borne without suffocative symptoms, the use of the tube is possible.

The too frequent use of the stomach tube often produces a sense of soreness lasting several hours. I find that its use every three or four days is sufficient in most cases where indicated. In the intervals of lavage, an antifermentative is useful, and for this purpose I prefer resorcin in 5 grain doses immediately after meals. It is a derivative of phenol, has a pleasant taste, is caustic in very strong solutions, is a local sedative and antiseptic. It is usually given in 5 grain doses but 30 grain doses are not dangerous. It does not interfere with the conversion of starch into sugar by the ptyalin of the saliva, or the digestion of coagulated albumen by the gastric juice. This I have found by its action in a mixture of saliva and boiled starch containing 1 part per 1000 of resorcin, and also in an artificial gastric juice containing the same proportion of resorcin acting on boiled egg; 1 part per 1000 is three times the strength which would exist in the stomach, taking 5 grain doses after meals.

In the diagnosis of ulcer and cancer of the stomach, the stomach tube has great value, but the conclusions are not positive. In simple ulcer the amount of hydrochloric acid is increased above the highest norm of .24 of 1 per cent. In cancer the hydrochloric is absent or below .14 of 1 per cent. the lowest norm.

The mere presence of a cancer in any part of the stomach does not stop the formation of hydrochloric; it is only when besides the cancer tumor there is an infiltration of the greater part of the stomach walls with cancer elements that atrophy of the secreting cells occurs.

The treatment, by the stomach tube, of emptying and washing out the stomach gives better and quick results than any other in the following diseases: Acute gastric catarrh; so-called bilious attacks; chronic gastric catarrh; cancer of the stomach; obstinate hiccough; vomiting persistent; the various fermentations in the stomach; dilatation of the stomach.

Attacks of acute gastric catarrh, which from one to four days, are shortened to a few hours by lavage of the stomach.

Chronic gastric catarrh yields the most brilliant results to lavage; it is almost incurable otherwise. Relief is immediate; cure usual in a few weeks.

Obstinate hiccough threatening death by exhaustion is cured immediately.

The various fermentations in the stomach causing severe headache, epigastric and intercostal pains, lumbago, ecthyma, are promptly relieved and usually soon cured with their consequences.

Dilatation not depending on pyloric structure is usually the result of fermentations; occasionally after a severe acute disease it may be a cause of fermentation. It is only curable by the use of the tube. In cancer, lavage two or three times weekly gives great relief.

DISEASES OF THE ALIMENTARY CANAL. TREATMENT.

INTERNAL AND EXTERNAL HYDROTHERAPY. MEDICATION.

Read before the St. Clair County, Ill., Medical Society, June 7, 1894.

BY JAMES OSBOURN DeCOURCY, M.A., M.D.

ST. LIBORY, ILL.

Cleanliness is said to be next to godliness—a very old adage which I have found to be no less true in the treatment of all diseases which have come under my observation. It is my custom to first make clean my patient, outside and inside so far as practicable, by the free use of pure water and good soap. I have never seen nor had a bad result from the use of these agents. I am of the opinion that in many cases all the medicine that is needed is the free judicious use of water, abstinence from food, plenty of pure air and sunshine.

These agents, together with a clear conception and observation of the laws of hygiene will figure very conspicuously in the future of medicine.

While I am a strong advocate of the free use of water in the practice of medicine, I also have confidence in the therapeutics of drugs, and as I believe, have seen many good results from the intelligent use of them.

In the treatment of disease there are three distinct steps. They are: 1, a correct diagnosis—ascertaining the cause; 2, absolute cleanliness by irrigation internally and the free use of water externally, and by the use of disinfecting agents; 3, repair the damage—heal the wound—restore nature—rather assist nature in her work of reconstruction. This should be done by the skilful use of the tools best adapted to the work to be done.

In treating disease of the alimentary canal generally, and in the three following cases which I report to you I have endeavored to follow the foregoing principles. My results have been all that could be desired. They have been both interesting and profitable to me, and I trust they may be of some interest to this Society:

Case 1.—Miss Mary, aged 29; American; farm type; medium size and rather stout; was taken at night with pain in lower bowels, followed by watery stools.

I was called in the early morning, March 15. Found her excited and suffering very much pain in the bowels; also complained of severe headache. Temperature was slightly elevated. Pulse regular, but rapid and weak. She gave history of having had several severe attacks of ulcerative colitis, during one of which she came very near to death's door.

There was some tenderness on palpation and percussion over the major part of the abdomen and the bowel was very active in evacuating itself. The stools were thin, and contained mucus with a little blood. When food was taken into the stomach, especially milk, it was usually ejected in curdy masses within a few minutes.

The usual agents were used to abate the pain, to check the vomiting; also to restore the bowel to its normal condition.

The pain was greatly reduced and the rebellious condition of the stomach almost entirely overcome; but the bowel persisted in its active work of draining the system. The stools became offensive, containing more blood and mucus.

A portion of the lining membrane of the intestine about eight inches in length was passed with the feces the fourth day. Having a four ounce bottle of Marchand's glycozone, I concluded to try it. Soother internal agents were discontinued, and 2 drachm doses of glycozone given every four hours in a wine glass of water. The bowel was washed out morning and evening with warm soap water, followed by an ounce of tepid water containing a half drachm of tr. opium.

At the end of the first day after beginning the last method

of treatment there were marked signs for the better; and the patient expressed herself as feeling less bad. The treatment was continued with constant improvement in the case until the glycozone was all taken, at which time the bowel and stomach were under good control. Pain was all gone; and after a few days of convalescence the patient made a perfect recovery without any further treatment.

Case 2.—Ely, aged 32, medium-size man, general health uniformly good; a blacksmith by trade. First saw the case with Dr. S. at 4 P.M., March 30.

On arrival at bedside of patient, found him in what seemed to be a semi-comatose state. The odor of whisky was very marked. Examination of the matter ejected showed it to contain blood and mucus.

A few drops of chloroform with cold water were given, and a cold pack placed over the epigastrium to check the vomiting. The following powders were given to quiet the stomach and to move the bowel:

R Calomel grs. viii.
Podophyllin " ii.
Subnitrate of bismuth " xii.
Bicarbonate of soda " iv.

M. Pulvis. No. 4. Sig. Dose, one powder every hour.

The father, mother and wife of the patient gave the following history:

"For the last five years the patient has been drinking whisky, and for the past two years, in particular, he has been drinking too much. Last October he had an attack somewhat like this, but recovered in about one week.

"His general health has always been good. He has been drinking too much every day for a week now—keeping his whisky in the shop. He was well this morning. Worked in the shop until noon. Ate a hearty dinner, but was taken sick soon after eating and in a short time began to vomit."

Called again at 5 P.M. Found him quiet, but suffering. Left some Dover's powders to be given during the night if necessary.

At 2 A.M. March 31, was called again. Found him excited and suffering very much. Quick pulse and slight elevation of temperature. Gave him hypodermatic injection:

R. Morph. sulph. gr. $\frac{1}{4}$.
Atropin " 1-150.
(Parke Davis.)

His wife gave history of his vomiting at irregular periods until 10 P.M., after which time nothing could pass either up or down. Impossible to swallow water. Upon careful inspection, the whole mucous membrane lining the mouth and throat as far as could be seen was in a state of hypertrophy. Indeed, it was simply cooked. (Pardon the use of the word, cooked; but it expresses the condition.) The stomach, also, was in a state of inflammation. What was to be done?

Internal medication and alimentation was out of the question. Recognizing the emergency of the case, I determined, if possible, to dissolve the mucus about the affected parts, and to attempt to reduce the edema of the membranes.

The nose and throat, therefore, were sprayed every twenty minutes for awhile with Marchand's peroxid of hydrogen, and a 40 per cent. solution of the same used as a gargle every hour, until he could swallow water, which required forty hours. An enema of warm soap-water was given, and repeated, which produced a soft stool; and he expressed himself as feeling better.

The spraying of nose and throat, together with the gargle, also the enema, were continued every day. The inability of the patient to swallow made alimentation by the stomach impossible, to say nothing of the inability of the stomach to perform the work of digestion. Boiled milk and warm soups were regularly given in small quantities by the rectum.

On the morning of April 7, the whole lining membrane of the esophagus was expelled in the attempt to vomit. The membrane was neither broken, nor perforated; but was turned inside out. I have preserved the specimen in an alcoholic solution; and take pleasure in presenting it herewith for your inspection and examination.

There was some fever most of the time. The temperature running up as high as 102. The pulse varied from normal to 90, and a few times went up to 100.

The general condition of the patient was fairly good—indeed, much better than could have been expected.

There was very little headache, but a lancinating pain in the left hypogastric region, was greatly accelerated by coughing, and there was more or less tendency to cough during the first week.

I might state here parenthetically, that, in my

judgment, the trouble in the side had no connection with the condition of the mouth, throat and stomach; but, on the contrary, was entirely and wholly independent of it.

The history given of the case showed the last named trouble to have been produced some five years ago by prolonged arduous labor in which the abdominal muscles were in a constant strain for hours. Since which time the trouble has returned at different periods; and almost invariably following protracted, or great straining of the muscles in that region. The treatment given was palliative.

The odor coming from the mouth of the patient was offensive from the first, and continued to grow more and more offensive until after the expulsion of the membrane.

The kidneys performed their work admirably well. The stools which followed the enemata of warm water were rather soft and of a greenish color.

There were no hallucinations, no delirium; and for the most part sleep was good.

To prevent septicemia, to assist nature in the work of reconstruction, as well as to counteract any miasmatic influence that might be present the following preparation was given:

R. Quinæ sulphatis. ʒii
Acidi sulphurici aconi. cc. v
Aquæ camphoræ
Aquæ distillatæ añ ʒii

M. Sig. dose, one dessertspoonful every two hours, being alternated by half drachm doses of peroxid of hydrogen 40 per cent. solution given in a third of a glass of water.

Gradually, but slowly, the condition of the patient grew better, with the exception of one day, at which time he had no peroxid of hydrogen. The other medicine "would not work without the gargle," as he expressed it; but worked well together."

Immediately after resuming the use of peroxid of hydrogen he began to feel better. Saw him April 9. Found him in good condition. Pulse and temperature normal. Expressed himself as feeling very well.

He had been sitting up most of the time for several days. I recommended that the treatment should be continued for some time.

A week later his wife called at my office stating that she thought he was doing very well. Since which time I have had no official report from the case.

My candid opinion is, that of all the agents used, the one to which he owes the preservation of his life during the first seven days of the attack is peroxid of hydrogen.

Case 3.—Bennie, little boy, aged 9 years, orphan, German, was brought to my office May 20. Had diarrhea which had become chronic. Also had intermittent fever—mild form. He was very much reduced in flesh and emaciated.

Various and numerous agents from the list of ordinary remedies were used during the four succeeding days; but the diarrhea was growing worse rather than better. The stools became very numerous, the actions amounting to ten or twelve at night with as many more during the day. The malarial fever received appropriate treatment and was readily subdued.

May 26 I planned a new treatment. The patient was thoroughly sponged from head to foot once a day with tepid alkaline water. The bowel was washed out *clean* morning and evening with soap-water, just warm enough to be comfortable to the patient. After the bowel was washed out, 2 ounces of starch water containing 10 drachms of glycozone was thrown into the rectum and left to be absorbed. The internal treatment consisted of a milk diet, fresh water to drink impregnated with hydrozone, and dessertspoonful doses of glycozone taken every two hours during the day in a wine glass full of fresh water.

Improvement began with this treatment. The skin and bowel were kept thoroughly cleansed every day as well as medicated, the bowel being irrigated twice each day. June 4, the child was reported well. His general health is rapidly improving.

Good or bad, this treatment is purely original with me.

What effected the cure? My answer is this:

1. Removing the cause. This was done by abstinence from all solid food. Aliment was restricted to

small quantities of pure fresh milk, beef, and chicken soups, given at regular periods.

2. By cleansing the affected parts, as before stated.

3. By healing the wound. This was done by the use of glycozone which I have found to be one of the most reliable and rapidly healing agents that I have yet used. The hydrozone was used as a disinfecting agent.

May we not reasonably expect that during the remainder of the present decade, and for all time to come, internal as well as external cleanliness shall be to suffering humanity a boon—an heavenly unction.

NEW AND IMPORTANT PHARMACEUTICAL PRODUCT.

THE GLYCERO-ACID PHOSPHATE—A BRAIN AND NERVE TISSUE CHEMICAL FOOD.

BY EDWARD C. MANN, M.D.

NEW YORK.

Member Medical Society of the County of New York; Member Brooklyn Pathological Society; Honorary Member Medical Section Imperial University of Kharkof, Russia; Medical Superintendent Sunnyside Private Hospital for Diseases of the Nervous System and Mind, Inebriety and the Opium Habit.

Preventive medicine or the prevention of disease is the highest art of the physician. The prevention of nervous and mental disease in the nineteenth century, which requires of professional and business men such an enormous expenditure of nervous force, is to be accomplished only by the most careful attention to the due nutrition, stimulation and repose of the brain. A study of the physiology of the nervous system teaches us that nervous force is generated in or by the vesicular neurine and that the tubular or fibrous neurine conducts it. The normal activity of the vesicular neurine of the brain is the occasion of all our mental capabilities and powers. The little cells in the cortex of the cerebrum and cerebellum are composed of lecithin, from the Greek word, *Lekithos*, a nitrogenous fatty substance to which the formula $C_{44}H_{90}NPO_8$ has been given. It is practically a phosphorized fat. There is a great deal of glycerin-phosphoric acid in its composition. Nervous and mental health depend upon the conditions of the exhaustion and reparation of the nerve substance of the brain being maintained in a healthy and regular state. Nervous prostration or neurasthenia and mental disease result from the interruption or disturbance of these conditions. If nerve waste exceeds nerve repair, nervous and mental disease result from the interruption or perversion of nerve function. The conditions of civilization in the nineteenth century are such that there is a brain stimulation so excessive as in many cases to hasten the progress of brain decay and waste beyond the powers of reparation. The fundamental truth of physiology is the activity of the cell, and this activity being accompanied by its decay and demanding its renovation. The chemico-physiologic points of importance in the relative position of the brain cell are: Its relation to the nerve fiber, from which it receives and to which it conveys impressions, the taking and giving of which are the main cause of its exhaustion; and 2, its relation to the blood capillary, which exudes a plasma in which the cell is bathed and renovated, and from which new cells are formed to replace those which are finally exhausted. The only force capable of explaining any of the phenomena of life

is the chemic one and this only in a state of constant activity and change. Disease consists in a perversion of the functions of the structures of the body and if we expect healthy nervous and mental function we must furnish the proper chemic nerve cell and nerve tissue food, and this is the true physiologic antagonist to nervous and mental disease. It is with this purpose that I present to the medical profession the new brain and nerve tissue chemic food which I term the glyceric-acid phosphates. Its formula is almost identical with that of the lecithin of the brain cell and nerve tissue. Its therapeutic use is indicated in health by brain workers and in the educational period of youth where, if we are not very careful, brain waste exceeds brain repair, as a preventive of nervous and mental disease. Its therapeutic use is indicated in disease, whenever the patient complains of being unable to do what he could either mentally or physically when in health; when there is mental depression, neuralgia, loss of energy, lassitude and insomnia and in all cases of neurasthenia. I consider this preparation the most important adjuvant I have at my command in my private hospital in the treatment of nervous and mental diseases, in the treatment of inebriety and in the treatment of the morphin habit. If we do not feed the nerves, if we do not cause the brain cell to be bathed in a healthy blood plasma containing the proper materials for nutrition, we shall not cure the patient. In all cases this chemic food will be found to act on the nutrition of the centric nervous system which it tends to preserve in its organic integrity by building up the exhausted nervous system and having a special stimulating power which is a permanent and not an evanescent one. Patients taking it improve in personal appearance and in weight, and the mental irritability of overworked business and professional men and of nervous hysterical women, decreases in intensity and finally disappears, and a permanent cure will be obtained, to the satisfaction of the physician and of the patient.

A sample for physicians use will be sent upon application to the author, at 801 Madison Ave., New York.

CONSTIPATION AND DEFECACTION.

BY JOHN ASHBURTON CUTTER, M.D.

NEW YORK.

As some members complain of being written at over their heads, perhaps a few practical points as to the above may not be out of order.

Constipation is largely due to lack of nerve force; this lack may be caused by many things and it is the physician's business to find out what the leaks in the patient's economy may be. One man eats impoverished food; another works too hard; another is always troubled by his affairs; another may have some chronic disease sapping his vitality; in women pelvic disease takes away nerve force and causes constipation; habits of life are also to be blamed if they cause constipation; nature's calls can not be neglected with impunity, for if so, nature soon forgets how to do her regular work; want of exercise causes constipation, yet those leading sedentary lives who pursue a healthy course of feeding are not constipated. Indeed in studying constipation one has to make a most thorough examination of his patient often, by physical exploration, the use of instruments

of precision like the microscope, and the use of chemistry in the study of fluids; find out what the trouble is in the body, remedy that and the constipation will cease in time.

One summer I had three cases of constipation; two were men suffering from neurasthenia characterized by protoplasmic colloid discharges in urine, one case appearing like a man in the third stage of consumption; he was also a large user of sulfonal; his course of treatment was over two years, but has been cured; the third case was a woman who had chronic rheumatism; these cases led me a merry dance because what would help one would not relieve another, and for that matter no medicine helped any of them long; the causes of defective secretion and lack of muscular power in intestines were due to lack of nerve force.

As to treatment; fruits, sweets, molasses and so forth apparently cure constipation and are largely used; their effects are produced by fermentation and nature's efforts to get rid of the ferments; this action is really a diarrhea; give such cases lean meat and they become temporarily constipated; but feed them lean meats, and wheat preparations made of the whole wheat thereby retaining the gluten and using with such a dietary but few other articles of food, (for these neurasthenic cases must not have their digestive systems overwhelmed with too many foods to digest); feed them thus simply, giving them California prunes without sugar and such medication as may be indicated and the constipation will be cured in time and the patients will do better on a lean meat diet with whole wheat preparations and few other foods than ever before, because the feeding of such produces more nerve force; I say nothing about any other disease present or methods of life which must be treated; what I wish to emphasize here is to so feed that there will be the minimum of expense of nerve force in digestion and maximum of nourishment.

I believe the inordinate use of fruits bad, because they tend to acid fermentations and have not the chemic elements in abundance to amply nourish the body.

Medicines as Adjuvants.—The standard pill of aloin, belladonna, nuxvomica and podophyllin is a good assistant; fluid extracts of boneset, dandelion and cascara sagrada are fine tonics for the bowels and stimulants of the secretions. Exsiccated or chemically pure sulphate of soda in water is the best form I know of to administer salts; this salt and in this form is a finely powdered, beautifully white substance that has very little of the disagreeable taste of the sulphate of magnesia; one case that I had to treat of fibrous structure of the sigmoid flexure of colon, to whom I was giving under the skin from 1 to 2 grains of morphin daily, would have a fine movement by the use of this form of the salt.

I have used this preparation in many other cases and patients always express satisfaction when it is exhibited as not being unpleasant.

Glycerin by the bowel, either free or by Parke, Davis & Co's suppositories is a good adjuvant; some cases need a thorough flushing of the colon by enemas; a gentleman in this city has made a small fortune by the sale of his pamphlet on this subject claiming that it should be used very often; it is said that the Egyptians followed the same practice and that there are carvings on their pyramids to show such practice. But constant flushing of the colon is

also a dangerous thing; the putting of two to four quarts of water into the colon will not only clean out the big bowel but it will syphon or suck out of the small bowel the nutritive forms of food that are about to be absorbed and greatly prostrate a patient; I have seen the same thing in consumption of the bowels; if the patient could hold his bowels closed for two days he would get along well, but large daily movements prostrated him.

Beef tea and beef extracts, if largely used, will produce painless movements of the bowels; there are some beef extracts that should never be given; I will not animadvert against any now, but say that the fluid Bovril, as imported by Bovril, Ld., and as yet little known to the American profession, should be thoroughly tested.

Many cases of constipation do not drink enough water, whether hot or cold; there is not enough fluid in the body for the normal secretions and eliminative fluids in such; this condition should be remedied.

The injection of oil into bowels to soften hard fecal masses is not a new idea but one that is used altogether too little; to have a patient suffer for hours after passing a hard fecal mass is useless; *painless defecation* should be obtained by this use of sweet oil; it sometimes will stay in the bowels over night, gradually softening the hardened fecal concretions; movements will come in the morning with or without further assistance from drugs or chemicals according to the case.

In closing; let the physician find out in cases of constipation the leaks of nerve force; stop those leaks; feed plainly; use drugs as indicated *and pro- cure painless defecation.*

Heartrest Sanatory, New York, June 26, 1894.

SOCIETY PROCEEDINGS.

German Chirurgical Society.

Twenty-third Congress, held in Berlin, April 18-21, 1894.

FIRST DAY—AFTERNOON SESSION.

The President v. ESMARCH, presiding.

HABS, of Magdeburg. On eighteen cases of exarticulation of knee joint with demonstration of persons operated. Ten years ago Volkmann had uttered some objections against the proceeding of Prof. Hagedorn, of Magdeburg, who in the exarticulation of knee joint formed a square cut forward of the joint, enclosing the patella. He showed that the objections of Volkmann had no cause. The stump answers all uses for cosmetic and functional purposes. It is round and large in its surface upon which the leg leans. The scar is removed backward into the hollow of the leg, to avoid its being rubbed by the prothesis. The patella has shifted upward on account of shrivelling of the quadriceps muscle. A girl operated upon in this manner, fourteen years ago, told that she was wont to dance with her stump, half-nights long, without omitting any hours. A man could bear bags of two hundred weight, using no more help but a stick to give direction in marching. As for breadth and length the femur has somewhat reluctantly grown, being shorter for two to four centimeters than the sound bone. The stump will only bear its burdens and remain unaltered provided the marrow of the bone is closed up by compact bone-tissue.

KUSTER, of Marburg. A case of rhinoplastic cut of the skin of the arm, with demonstration of the patient.

Patient, a girl, was suffering with lupus of the nose in its lower part. The tissue was cut out into the sound skin and a patch formed out of the skin of the left arm, which was placed upon the defect. The patch was not transported bleeding (after the manner of Grafe) but in the stage of granulation. To prevent its getting dry it was placed between two linen shreds with bor. vaselin upon them and not cut through earlier than six days. The septum and side parts of the nose (also nares) were attained by incisions afterward so that the cosmetic result is satisfying now and will remain so, return of lupus and shrivelling of the patch excepted. This proceeding is best, especially to form the point of the nose, when we are bound to save the skin of the face.

SCHMIDT, of Stettin, has operated in the same manner in a case of much larger lupus of the nose and arrived at a pretty good cosmetic result, the cure having taken eleven weeks. However, a little shrivelling is to be remarked already.

v. BARDELEBEN, of Berlin, is of opinion that in using this method shrinking of the transplanted skin is ever to be feared, even when the graft is doubled. For total rhinoplastic, König's method (with transplantation of skin from the forehead) is to be preferred, the skin of the arm being profitable only for partial rhinoplastic.

KRAUSE, of Altona, has made use of the Vagliacorro method in one case of lupus to save the skin of the face. Good results.

HEIDENHAIN, of Griefswald. On resection of foot with dorsal cut. (With demonstration.) In 1886 Bardenhuer published a method of resection of foot, forming a skin cover of the dorsum and going through all the layer of soft parts. In seventeen cases of his, the tendons were not sutured after operation, and yet function was good, and immobility of the toes satisfying. He has imitated this proceeding in eight cases with the same good results.

RYDYGIER, of Krakau, adds that this method originated from Küster some years ago; the incision across the joint he had placed formerly higher than lower. He has often made use of this proceeding with good results, not only in bad cases.

BRUNS, of Tübringer, has made this operation several times and nailed the calcaneus to the tibia. Which form of incision is adopted is no matter. If incisions are made the length of the joint as usual, a T-cut may be added, either in front or back of the primary cut.

v. FÖGE, of Manteuffel, prefers the incisions by the length, by which the joint becomes anatomically accessible without hurting arteries or tendons. If the joint is then luxated, perfect insight is possible.

BARDENHUER, of Köhn, has made the forward cross-cut very often and with good results, even in cases of wide-spread tuberculosis. The incision passes upward to the tibia, downward to the tarsus.

HEIDENHAIN said that in using Küster's incision, which was higher up, the tendons should be sutured afterward.

PETERSEN, of Kiel. On the treatment of Colles fracture. He recommends in the typical fracture of the radius, after reposition of the fragments to maintain the hand toward the ulna and in flexion to the palm. The bones grow thus together in an excellent position. The case presented was that of a physician of Kiel.

v. ESMARCH could support the remarks of Petersen in all respects. The method is used also by him.

v. BARDELEBEN said this was the twenty-first proceeding in Colles fracture, and he would use it no more than his twenty predecessors, when the patient was unintelligent, and when the broken bones were not in good position beforehand.

LAUENSTEIN, of Hamburg. Notes for the treatment of

inward rotation in cases of pes-equino-varus congenitus. He recommends a machine constructed by him, whose principle is that the foot with its long axis is fixed to a staff, and thereby leaning upon the back parts of this staff and by its own weight, together with that of the whole leg, is forced to an outward rotation. The machine is apt for those children who can not yet walk, or for the after treatment of somewhat older children. It can also be used for the slow correction of pathologic inward rotation of legs.

SECOND DAY—AFTERNOON SESSION.

KÜSTER, of Marburg. Introductory notes on early operation of osteomyelitis. By osteomyelitis we take a purulent and non-purulent inflammation of bone tissue, which concerns not only the marrow, (but in the beginning of the disease seldom otherwise but also the periosteum and cortical substance of the bones. Symptoms are therefore different, although Carl Müller, of Halle, has stated for all cases the staphylococcus pyogenus as causating bacterium, which Küster approves. Jordan found that the bacteria intruded to the system by the respiratory and digestive tract, as well as by open wounds, which was afterward granted by Garre and Schimmelbusch. However, the latter experimenters by rubbing the staphylococcus upon the skin could only generate furunculosis and in correspondence with this fact, in children furunculosis is very often the preceding symptom to osteomyelitis. Osteomyelitis may also be established by scratching, which is proved by the fact that it occurs oftener in the poorer classes where bathing is not so frequent. Prophylaxis could, therefore, do much in this direction. When osteomyelitis is present, the suppuration should be cut off by bloody intervention, to remove the necrotic bones. Küster restricts himself upon the first operation, and having performed an early operation in twenty-seven cases, comes to the result that we should make the operation as early as possible for preservation of life. It was equal to herniotomy and tracheotomy. As for diagnosis, when we look only on the osteomyelitis of long, marrowed bones, there scarcely is a combination or sequel of symptoms so typical. Characteristics of the disease are: Appearance in early age before the growth of bones has come to a closing; high temperatures; aching, following pressure in certain places, as in hollow of leg, etc. Of the twenty-seven cases, fourteen were operated upon during the first two weeks. No deaths. Of three operated on the third week, there were two deaths. In the fourth and fifth week, results are again more favorable.

The operation consists in an incision in cases of deeply situated abscesses, and eventually chiseling up of bones which can be made in an osteoplastic manner (Lücke), although necrosis must be expected in the latter case.

KAREWSKI, of Berlin. On abortive treatment of osteomyelitis by operation, in the ambulatory of the Jewish Hospital, as well as in his private *clintelè*, Karewski has a very ample material of osteomyelitis, among which, however, early cases are exceptions. Karewski has made early operation in fourteen cases; operated during the first ten days of the disease, and were without grave symptoms of generalized septic infection—which cuts short every hope of success and where the local symptoms showed either none or very insignificant suppuration. Only in such cases are we permitted to speak of early operation. Widespreading suppuration, necrosis, inward metastasis bring always danger to life and to the limb contracted. We should look in our therapeutics to discern acute osteomyelitis in its first beginning, when the first symptoms of inflammation present themselves. Fever, disturbance of function, swelling of the limb and aching bones. The diagnosis is not so very difficult, if we remember that in children other diseases with the same symptoms are very rare.

Of the fourteen cases, six were operated before any suppuration could be found. The periosteum showed hyperemia and an edematous complexion. On the bone there was here and there to be found a fistula, thin like a hair, with some drops of pus coming out; the marrow flowed forth from its channel when this was opened, showed a reddish-blue hyperemia and speckled with fine points of pus. In other cases an abscess under the periosteum had developed itself, and the alterations of the marrow were more distinct.

Of the first cases three were on their third to fourth day, as could be seen; three on the fourth to seventh day; the rest on the seventh to tenth day. Of the first cases none had other heads of suppuration; of the rest, six cases either co-existing with the first remarkably, or presenting itself later on. The reckoning was made by the day of a trauma which had gone before, or by the day when the first symp-

toms were noticed. Karewski has always chiseled up the bone its whole length and totally removed the diseased marrow. The operation is not dangerous and is borne well by the youngest children, provided it is made with care against profuse hemorrhage. These fourteen cases all recovered in about six months without necrosis or fistula remaining. No disturbance of growth or relapses. Some of the younger children died later by other diseases. There were presented a boy operated on eight years ago; a girl two years ago; a boy operated eight weeks ago, in health now for four weeks; a man 50 years of age, operated upon for influenza-osteomyelitis who afterward died of septicemia already developed. Karewski is of opinion that the early operation of osteomyelitis may duly be called an abortive treatment of this disease.

In the discussion of these papers, NOLL, of Hanau, protects his countryman against Küster's objection, that osteomyelitis is caused among them by uncleanness. During 1878-90 he has not observed a single case, although practicing in the same region with Küster. Since 1890 till now, six cases in undoubtedly clean families. In this period not only manufactories of soap have been established at Hanau, but also public baths and school bathing rooms have been opened.

SCHUCHARDT, of Stettin, has in all cases of osteomyelitis done no more than open abscesses, and as early and amply as possible. He has neither trephined or chiseled up the bones, and most of his cases, even multilocular ones, have recovered without necrosis and fistula coming on. The opening of the marrow-channel of bone is to be reserved only for the gravest cases.

V. BERGMANN asks somewhat ironically whether Mr. Schuchardt saw necrosis at all in his cases. He replied: "None in those early operated upon." Thereupon v. Bergmann: "I presume necrosis will not fail to show itself in Stettin."

KORTE saw twenty-two cases of osteomyelitis in his hospital during three and one-half years. They were all grave cases and operated immediately, *i. e.*, the bones were opened and the suppurating marrow removed. Two cases died before the operation and six after. The rest recovered readily without any suppuration. Fever remained very often for some days after the operation, but the bone aching ceased at once. Large necrosis was never observed. Korte thinks osteomyelitis a severe generalized disease, occupying the whole body. Nevertheless he recommends opening of the bone to facilitate drainage of pus.

SCHEDE, of Hamburg, would, after his more early observations, (forty cases) come near in his opinion to Küster's, but on account of his later experience approves Korte's idea, that our help avails nothing in grave cases of osteomyelitis. He has treated 153 cases in 11 years. The femur was engaged in forty-six; the tibia in fifty-four; the humerus in ten; the forearm in three; the pelvis in twelve; the lower mandible in eleven cases; the rest in the short bones. Two classes of the disease are to be distinguished: One always fatal with the symptoms of generalized septicemia; the other more local but with so turbulent signs that decision is at once set on the knife's point. Falling of temperature does not, however, follow an extensive trephining of bone. After a fever lasting for weeks and months, the patient may die of pyemia. Of his 155 cases, 33, *i. e.*, 20 per cent. have died.

The most unfavorable of all is the osteomyelitis of the lower mandibles, which often follows extraction of teeth; and osteomyelitis of the pelvis.

LINDNER, of Berlin, is also of the opinion that osteomyelitis is a part of a general infection with varying malignity in different countries, but mostly in the regions around the Baltic. He could never prevent necrosis by operation.

NASSE, of Berlin, gives the statistics of the last eleven years concerning osteomyelitis in the clinic of Prof. v. Bergmann. Those cases are omitted which recovered after simple incision, or where after trephining no significant signs of alteration in the marrow could be distinguished. For these cases were doubtful. Thirty-seven cases were operated upon during the first three weeks of the disease. Of these thirty had osteomyelitis of a *single* bone, of which eighteen were trephined at once; several recovered without necrosis. In four cases multiple osteomyelitis set in, which in all probability in two cases had made its entrance before the first operation. One of these four succumbed. In the remaining eight, necrosis offered itself, but the disease remained localized. There had been made an incision outside of the clinic in two cases; recovery in one of them without necrosis. Ten cases were treated only with incision

without instantaneous trephining; two deaths. The rest had necrosis which were in general larger than in those trephined. Results were much more unfavorable in those which were brought into the clinic with multiple heads already. Of seven of these, four died of pyemia or sepsis. Those operated upon in the first week showed less favorable results than those operated upon later on. He could not, however, judge therefore that early operation was at fault. It only showed that the gravest cases were brought to clinic early. Nasse then runs briefly over those cases recovered without necrosis. Part of them were benign and of a more subacute course, but it was striking that of multiple cases, immediate trephining of secondary heads very often had had a full success. In the multiple cases which had recovered, secondary heads in larger bones were observed seven times. No necrosis in four of them. These results advocate an early operation and we could thus prevent necrosis sometimes.

In many cases the spreading of the disease had been prevented after necrosis of the primarily diseased bone had been cut short. But where osteomyelitis was multiple from the beginning, it was clear that operation would come short of this effect. Nasse laid some stress upon the age of the patients. Of ten patients under 5 years of age there were five deaths; of twenty-seven over 5 years, there were only two deaths.

SONNENBURG, of Berlin, is of the same opinion, as for the general character of the disease, as Schede and Korte. In osteomyelitis the same bacilli are found as in sepsis, viz: *Staphylococcus pyogenus albus*, and *streptococcus*. He should decide separately for each case, whether operation should be done or not. In one case a simple incision will do; in another the most extensive measures will be bootless. The cases here demonstrated as cured by early operation are cases belonging to benign osteomyelitis.

(To be continued.)

Medical Society District of Columbia. Report on Typhoid Fever.

[Concluded from page 126.]

In Dantzic, with a wretched system of privies, there were 10 deaths to 10,000 inhabitants. The introduction of an abundant water supply in 1869 produced no effect on the death rate. The city was sewered in 1872. In the following twelve years the average mortality was 2.4 and in the last five years was only 1.5. In Breslau in 1866, without sewers, the mortality was 15.2; in 1876, with sewers, it dropped to 5.5 to 10,000 inhabitants. In the cities of England, before any extensive sewerage systems were introduced, from 1850 to 1871, the mortality was 9.0; from 1876 to 1884, it was 3.6, the change following upon a general introduction of sewer drainage.

Brooklyn and New York have the best sewerage systems in this country. New York has 300 miles of sewers, but Brooklyn is perhaps the best sewered large city. New York has a mortality of 3.0 and Brooklyn 1.5. The mortality of Brooklyn, our best sewered city, is lower than Munich, Berlin, Hamburg, London, Vienna, which are the best sewered cities of Europe. And when a city is said to be sewered this means that water closets are substituted for privies, and the soil is kept free from contamination.

To turn now to other cities in this country, Baltimore, as Osler in his excellent report says, "has practically only surface sewerage. . . . The excreta pass, for the most part, into privy pits, of which it has been estimated there are from 70,000 to 80,000, occupying one-twentieth of the entire surface of the city, exclusive of streets and parks." Leakage, he says, unquestionably occurs in a very large number, with saturation of the ground in the vicinity. Baltimore has a mortality of 4.8 more than three times that of Brooklyn.

Washington, whose sewerage system is very good in most respects, but with fatal defects which diminish its efficiency and with that equally great danger from soil pollution from its 9,000 privies, has an average annual mortality of 6.2 in the last thirteen years. This is four times the death rate of Brooklyn, twice that of New York and the same as that of Philadelphia.

The daily pollution of the soil by the fecal discharges of our patients suffering from typhoid fever, with the resulting contamination of well water, must be recognized as the chief source of the diffusion of the disease. It is a case of auto-infection. We are daily breeding the poison which poisons us, and the inevitable round from intestine to soil, from soil to well and from well back to intestine, goes on and on with

most tragic uniformity. We sustain all the conditions favorable to rapid and perfect propagation of the bacilli. Granches and Deschamps have experimentally shown that typhoid germs placed on the surface of frequently moistened ground will penetrate nearly two feet into the soil, and will there retain life for five and a half months. They multiply rapidly in illy drained soil, live for an indefinite time in privy vaults, and have a much longer existence in cisterns and wells than in running water.

In Washington we supply all these necessary conditions—leaking privies for the reception of excreta and their contained germs, a damp and illy drained soil for their reception and rapid growth, neighboring wells for the resulting—the inevitably resulting—contamination of drinking water consumed by a thirsty population. What more conveniences can we supply? What more successful means can we adopt to raise our mortality to a point higher than that of Brooklyn, New York, Baltimore and Boston? We are among the most successful cultivators of the deadly bacillary plant in this country.

RECOMMENDATIONS.

The committee would urge upon the Medical Society the importance of taking the initiative in the effort to control the spread of this destructive but preventable disease, by urging upon our municipal government and upon Congress the prompt adoption of measures to remove the causes to which this report has drawn attention.

The measures to be recommended are:

1. The immediate abandonment of all wells within the city limits, exception only to be made in case of the absence of the Potomac supply, and where the wells, after repeated chemic and bacteriologic examinations, have been found to be free from all possible sources of danger. But even these to be abandoned as rapidly as possible.

2. Purification of the sewerage system already existing, by replacing as rapidly as possible all damaged or defective drains.

3. The introduction of new sewers in advance of other improvements in parts of the city not now supplied with drainage, and the extension of the system as far outside of the city limits as the rapidly growing population demands, so as to prevent soil contamination.

4. The adoption of some system by which the lower sections of the city can be more completely drained, and the risks arising from the backing up of tide water and sewage prevented.

5. The final and safe disposal of the sewage.

6. The early completion of the plans recommended by Col. Elliott, in charge of the Washington aqueduct, and now in course of execution, which have in view the sedimentation of the Potomac water, and ultimately the completion of works for filtration, the only proper method of purification.

7. The suppression of all privies and the enforcing of the law to make sewer connections.

8. Careful inspection of all dairies in the District from which our milk supply is drawn, and the enactment of a law by which no milk shall be sold in the District without a permit from the health office. The inspection should cover an examination at the dairies of all possible sources of infection, including the water supply.

9. The urging upon the members of the profession of a careful collation of all facts bearing upon the mode of infection in each case, and the advantage of reporting such facts to the society, and the propagation of the doctrine that immediate disinfection of the stools is the first duty of the physician as guardian of the health of the community.

G. L. MAGRUDER,

W. W. JOHNSTON,

C. M. HAMMETT,

Committee.

TYPHOID STATISTICS.

The most striking chart exhibited in connection with the report was one which showed the number of deaths from typhoid fever to each 10,000 inhabitants in sewered and unsewered cities on an average during five years, 1880-1884. In cities with good sewers and general water supply the averages were as follows: Munich, 1.7; Dantzic, 1.5; Frankfurt, 1.4; Breslau, 3.3; Hamburg, 2.6; Berlin, 2.9; Brussels, 3.3; London, 2.3; twenty-eight English cities, 3.2; New York, 3; Brooklyn, 1.5; Vienna, 2.1; Washington, 4.6; Washington (1885-90), 6.7. In cities without sewers or very imperfectly sewered the yearly averages for each 10,000 residents were as follows: Paris, 9.9; Marseilles, 12.8; Turin, 9.5; Naples, (1881-84), 7.1; Palermo (1881-84), 13.1; Catania, 19;

281 cities in Italy (1881-82), 9.5; St. Petersburg (1883-84), 9.9; Riga (1881-82), 15.8; Buda-Pesth (1877-81), 9.2; twenty German cities (1878-82), 9.8; New Orleans (water supply from cisterns above ground), 2.7; Baltimore (abundant water supply), 4.8; Cincinnati, 7.3.

BOOK NOTICES.

Clinical Medicine: A Manual for the use of Students and Junior Practitioners. By JUDSON S. BURY, M.D., Lond., F.R.C.P. Illustrated. Large 8vo. Cl., pp. 468. London: Chas. Griffin & Co. Philadelphia: J. B. Lippincott Company. Chicago: A. C. McClurg & Co. Price \$6.50. 1894.

"The chief aim of this manual," says the author, "is to assist the student and junior practitioner in the examination of medical cases." The book is divided into twelve chapters, as follows: Chapter 1, Introduction; 2, Symptoms for the most part Subjective in Character; 3, Examination of the Surface of the Body; 4, Temperature; 5, Examination of the Skin and its Appendages; 6, Examination of the Respiratory System; 7, Examination of the Circulatory System; 8, The Blood; 9, Digestive System and Abdominal Organs; 10, Examination of the Urine; 11, Examination of Puncture Fluids; 12, Nervous System. There are numerous illustrations explanatory of the text. In Chapter 10 will be found a most interesting feature of the book. The various fluids are classified according to the official nomenclature as Exudations, Transudations and Cyst Contents. The Transudations are those formed without pre-existing inflammation, as a result of obstructed or altered circulation. The work is an excellent one.

Manhattan Eye and Ear Hospital Reports. No. 1. January, 1894.

The insignificant character of our hospital reports as a class, has long been a subject of lament among American physicians. A few of our hospitals have published reports of scientific value, such as the Boston City Hospital, the Johns Hopkins Hospital, the U. S. Marine Hospital Service, and the Pennsylvania Hospital, but the fact remains that as a class these reports have consisted of lists of officers, financial tables, lists of donations of miscellaneous articles from a cucumber to a knitted stocking.

These details belong rather to the quiet committee room than to the public, and however it may thrill the generous impulses of the good ladies on the committee to be told that Mrs. John Smith on such a day donated a cake, a watermelon, or a jar of pickles to the hospital larder, it is questionable whether the general public care much about it.

The report under consideration has a number of scientific papers of the highest interest and value. It is well edited and carefully printed.

Inebriety or Narcomania; Its Etiology, Pathology, Treatment and Jurisprudence. By NORMAN KERR, M.D., F.L.S. Third Edition. 8vo. Cl., pp. 780. Price \$2.15. London: H. K. Lewis. 1894.

The second edition of this well known work appeared in 1889, and in the interval between the appearance of these editions public opinion has come to concede the strength of the position assumed by the author in the first edition, "that inebriety is a disease, as curable as most other diseases, calling for medical, mental and moral treatment."

The present edition is larger and more complete than former editions and contains much added matter, a study of etheromania, and eighteen other new chapters. It concludes with a chapter, "Drunk or Dying," in which it is clearly set forth to be the duty of the police, in cases where a man is found dead drunk to take the victim to the hospital rather than the station house—a position frequently taken in this JOURNAL. (See an editorial, March 3, 1894.)

The author predicts that the "inebriety center" will yet be discovered. The work is one of great interest and should be possessed by all interested in the subject, as a standard treatise.

Human Physiology. By JOHN THORNTON, M.A., with two hundred and sixty-eight illustrations, some of which are colored. Pp. 436. Crown 8vo. New York: Longmans, Green & Co. 1894. Price \$1.50.

The biologic phase which medicine entered into some twenty years ago is now bearing fruit in the more exact knowledge of the operations of the body. Some of the older works on physiology read like romances and were embellished with many literary graces, but the modern physiologist has so many facts at his disposal all of which must be prosaically catalogued, that no space is left in his book for "fine writing."

The volume before us is very much condensed and the general topics of physiology brought fairly up to date. A little more elaboration might make the book more readable, but as it is the "essentials" are all duly mentioned. We commend the book.

The Graphic History of the Fair; containing a sketch of International Expositions, a Review of the Events leading to the Discovery of America and a History of the World's Columbian Exposition held in the city of Chicago, State of Illinois, May 1 to Oct. 31, 1893. With nearly one thousand illustrations. Imperial, 4vo. Cloth. Chicago: The Graphic Company. 1894.

This book is a pleasant reminder of the great World's Fair which closed all too soon for those who were frequent visitors. This marvelous creation of the brain and sinew of the world seemed to increase the fascination of the spectator at each successive visit, and the Graphic history with pen and pencil and photography, makes it possible to visit in spirit the great White City on the lake, now, alas! only a reminiscence. The doctor's table in his waiting room, could have few more attractive books upon it than the volume under consideration.

On Double Consciousness. By ALFRED BINET. Chicago: The Open Court Publishing Co. Paper, pp. 93. Price 15c. 1894.

This monograph consists of nine chapters: 1, Experimental Psychology in France; 2, Proof of Double Consciousness in Hysterical Individuals; 3, The Relations between the Two Consciousnesses of Hysterical Individuals; 4, The Hysterical Eye; 5, Mechanism or Subconsciousness; 6, The Graphic Method and Doubling of Consciousness; 7, The Intensity of Subconscious States; 8, The Role of Suggestion in Phenomena of Double Consciousness; 9, Double Consciousness in Health. These topics are treated with the judicial fairness, the deep knowledge and the skilled literary touch characteristic of Mr. Binet.

NECROLOGY.

BOLING A. POPE, A.M., M.D., a native of New Orleans, La., died at Dallas, Tex., July 3. Dr. Pope was a graduate of the University of Bonn in 1859; one of the leading oculists of the South, and formerly a professor in the College of Physicians and Surgeons, New York. He was 69 years of age.—Sol. Etten, M.D., Port Jervis, N. J., July 7, aged 65. He was surgeon of the 124th N.J. Regiment during the war.—D. B. Woods, M.D., of Warren, Ohio, July 8.—George Warne, M.D., of Independence, Iowa, July 5. He was a member of the Iowa State Board of Health.—O.W. Berdan, M.D., of Cheboygan, Mich., July 8, aged 41.—C. A. Hentz, M.D., of Quincy, Fla.—Chas. Pemberton, M.D., of Asbury Park, N. J., July 13.

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SATURDAY, JULY 28, 1894.

INFANT FEEDING IN HOT WEATHER.

The first thing to be secured, in feeding a baby during hot weather, is to keep the little animal comfortably cool, in order to aid the processes of oxidation that are retarded by excessive heat. But there is the difficulty. In the spacious mansions of the rich, much comfort can be secured by opening the house at an early hour of the morning, and then closing it up for the day, imprisoning the cool night air for daily consumption. The introduction of the electric fan is a blessed boon to invalids and sick babies, quite equalling the punkahs with which oriental magnates render tolerable the air of their houses. But in the narrow quarters of the poor, such luxuries are out of the question. The baby must be either stripped entirely naked, or be clothed in a thin gauze or woolen stuff, and laid upon a rug in the largest and coolest apartment or corner of the tenement, and the mother or nurse must be instructed to give sponge baths often enough to render the child comfortable. If the lake-side or the sea-shore be accessible, great efforts should be made to secure a daily promenade by the water. Where ferry boats and excursion steamers exist, they may be utilized for the benefit of the broiling infants. If these advantages can not be secured, the little sufferer may be taught to swing in a hammock, and thus a little comfort may be obtained.

Having thus aided the child to procure fresh pure air with which to feed its red corpuscles, we must seek for a supply of pure water with which to replenish the fluids of the body. A discourse on filters and boilers for the purification of the family water supply is usually received with silent contempt, because such appliances are not within the reach of the poor. But with a little tact it is often possible to win the confidence of the mother so far as to inspire faith in the virtues of cold tea, or some other weak and harm-

less infusion that is made with boiling water, and drank after it has been cooled. In this way the tissues of the body may be irrigated with sterilized water without anybody but the doctor being wiser for the fact.

Now for the principal difficulty. Have we a healthy mother nursing her infant of less than a year—all goes well. But even in such case the doctor must see that the child is steadily gaining in weight. If during hot weather the nursling ceases to grow there must be at once a general investigation of the nursery. If the mother be hopelessly incriminated, a wet-nurse must be summoned to the rescue. But, if this be impossible we must set up a sterilizing battery, and prepare the best sterilized cow's milk that can be furnished. If, however, the health of the mother be found satisfactory, it will often suffice to add something to the diet of the baby. Every infant over six months of age, should be taught to drink milk from a cup; and as it approaches the end of the year, to eat crackers soaked in beef-tea, and delicate broths containing barley or rice. Malted milk, condensed milk, and various artificial foods are sometimes useful as the child advances in age and approaches the period of weaning. At this time an egg, or the white of an egg may be usefully given every day, either beaten up with milk, or served in clear broth. The child may be allowed to suck beefsteak, and to gnaw on chicken bones. Only by degrees should it be permitted to advance to a diet of vegetables and fruits, for every infant is at birth a carnivorous animal, and only after the lapse of many months do its digestive organs become adapted to the disposal of vegetable food. It is for this reason that so many infants of tender age succumb when compelled to take an artificial food that would be admirably nutritious at a later date.

The dietetic changes that are necessary in the treatment of disease are not to be considered in this connection. They must be studied together with the particular diseases that render them necessary.

ACROMEGALY.

It is a curious, though when we come to consider it, not a remarkable fact that almost every new disorder, as it is described from time to time, is all at once found to be rather frequent than otherwise. Attention once called to any special syndrome, and every one begins to recognize what had been overlooked or the importance of which had been underestimated before.

When in 1886, P. MARIE described the collection of symptoms that have come to be known as MARIE'S disease or acromegaly, it was thought to be a rare affection, but within six or seven years the number of reported cases is nearly or quite a hundred, and their number has been constantly increasing. We

meet readily recognizable cases on the streets in our large cities, and the prevalence and features of the condition have come to be discussed by the laity and have formed a theme for sensational articles in the daily press.

It is not to be understood that the disorder itself is actually a new one because its recognition has become more general. It may be becoming more frequent, like some other diseases, such as parietic dementia, for example; but it more probably is, like ectopic pregnancy, myxœdema, etc., only more watched for and recognized than was formerly the case.

In spite of the great number of observations up to the present, it can hardly be said that the true pathology of the disorder is any better known than when attention was first called to it, and it was connected with alterations of the hypophysis. In the comparatively small number of autopsies that have been reported, alterations of the pituitary body have apparently been recognized in the majority, but the exceptions are too numerous to prove the rule. Alterations of the thyroid are also very general, and these can be detected during life. On the other hand we have exceptional cases, like those of VIRCHOW and SARBO, where no change was detected in either the pituitary body or the thyroid, so a recognizable abnormality of neither one of these, either by itself or in combination with that of the other, can be positively claimed as an essential feature of the disease. Moreover, the effects of isolated lesions of the thyroid body and of the pituitary body, as experimentally investigated by VASSALI and SACCHI, and clinically observed and reported by BOYCE and BEADLES and others, do not correspond with the prominent symptoms of this disorder.

Notwithstanding the above facts, the very general implication of the thyroid and the hypophysis in this disorder is exceedingly significant as to its pathology. The relations of these two glandular bodies to each other and to the nervous system, especially the sympathetic system, have been shown by HOFMEISTER, ROGOWITSCH and STIEDA, and the importance of the pituitary gland in the nutrition of the body has been confirmed by the recent experiments of VASSALI and SACCHI, and the biologic deductions of LLOYD ANDRIEZEN. When, therefore, we find these important organs, one or both, so generally associated with this disorder, the deduction is a natural and a valid one that their lesions have a part in its mechanism. The exceptional facts of cases where both were apparently intact only indicate that we are not yet at the bottom facts of these special cases nor of the general pathology of the disease. There are functional diseases of other organs without visible lesions, and the possibility of such in these cases must not be altogether ignored. That disease of these organs does not always produce the symptoms

of acromegaly is not positive proof of anything, certainly not of their having nothing to do with it.

If we examine the various theories as to the pathology of this disorder we find them mainly unsatisfactory. That of KLEBS, that it is due to persistent thymus seems to have very little basis, and the same is true of that of VIRCHOW that it is a later degenerative phase of former (hereditary?) disease. To call it a neuratrophic disorder, as is done by some others, is doing little more than give a new name expressing our ignorance. It is superlatively a trophic disorder, involving as it does nearly every tissue in the body, and the suggestion of the influence of the nervous system is everywhere prominent. Its dependence on changes in peripheral vasomotor or sensory nerves, as held by certain authorities, is clearly as yet undemonstrated, nor is there anything more than a strong suspicion of any special part played by the sympathetic system in its production. It is worth remarking, considering the tendencies of modern pathologic ideas, how little has been said of a possible infectious origin, which is at least suggested by some of the symptoms observed in certain cases of acromegaly.

The most, perhaps, that we can say at the present time, is that acromegaly is a nutritional disorder or a combination of symptoms that is, in a majority of cases, associated with lesions (both hypertrophic and destructive) of the thyroid and pituitary bodies, two organs that seem to have a positive though not yet clearly defined influence upon systemic nutrition.

"RULES AND REGULATIONS" UPHELD.

Another illustration of the bias of courts in favor of legislation founded upon the police power of the community, to protect the public health by regulating medical education and medical practice, is furnished in the decision recently given by JUDGE WINDES of the Cook County Circuit Court in the case of *The People, ex rel. McCandless, vs. the Illinois State Board of Health*. The suit was referred to in the JOURNAL¹ during its trial, as the occasion for comment upon some defects in the practical execution of such legislation; and the points were then made that members of the faculties of medical colleges which confer degrees and issue diplomas should be debarred from membership on examining and licensing bodies, and that such bodies should ignore schools of practice by confining examinations to the fundamental branches common to all schools.

The case was a petition for a mandamus to compel the State Board of Health to issue to the petitioner a license to practice upon the diploma of a certain institution, and which license the Board had refused on the ground that the institution was not in good

¹ Schools of Practice. JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, June 30, 1894.

standing as a medical college, and its diplomas were, therefore, not recognized by the Board as the basis for license. The petitioner set forth that the refusal of recognition was arbitrary, prejudiced and unjust, inasmuch as the President and other members of the Board which determined the standing of the institution were members of the faculties of rival medical colleges, and had, therefore, a personal bias; had made no study of the tenets of the school of practice to which the institution belongs and, consequently, were not competent to judge of and pronounce upon its "standing;" and that the Board had refused to give the faculty of the institution a timely, full and impartial hearing. Other pleas—against the constitutionality of the medical-practice act, against the exercise of judicial functions by the Board in pronouncing upon the "standing" of a medical college, and against the right of the Board to establish and enforce rules and regulations for the conduct of medical schools—were also set up; but these the Court swept aside as matters already adjudicated and subject to further review only by the Supreme Court, to which it was assumed the case would be carried in any event.

The Court seems to have had greater difficulty with the methods of the investigation upon the results of which the Board refused to recognize the institution as "in good standing."

"There is much evidence on this point, pro and con; but it is clearly established from the evidence that the principal part of the investigation was delegated by the Board to a committee of three, only two of whom took part in the investigation, though the third member of the committee signed the report which was made to a full meeting of the Board. This report it seems was mainly the basis of the action of the Board, and was concurred in by the whole Board, which, at the time of the adoption of the report, refused to hear the President of the college with respect to the standing of the college. It fails to appear from the evidence that the college, or the relator, at any time ever had a hearing before the full Board, or ever had any notice to appear before a meeting of the Board for the purpose of a hearing.

"Whether this college was in good standing was a question of fact which it was the duty of the Board to investigate, and the Court says this upon the basis that the Act which I have read is not in contravention of the Constitution. I say it was the duty of the Board to investigate, not by a formal trial, if you please, but on notice to the parties in interest, and before the whole Board. It could not be delegated to a committee."

Then, after further dealing with the constitutionality of that section of the statute which empowers the Board to determine for itself the "good standing" of a legally chartered medical institution, the decision proceeds:

"It therefore seems to the Court that this act does not violate the Constitution in the respect claimed by counsel, but that the Board has gone beyond its power in depriving the relator of a certificate to practice medicine, and in holding that the college is not in good standing, because the Board has proceeded without proper notice to the relator and the col-

lege, and made its decision without that full and fair hearing which justice and right, as well as the law, seem to require."

Nevertheless, the Court—obviously reluctant to break the chain of precedents in favor of the legislative control of medical education and practice—refuses to grant the writ of mandamus on the ground that the Board has the right to prescribe and enforce rules and regulations for the conduct of medical colleges; that in the exercise of this right it has prescribed a certain degree of preliminary education before entrance upon the study of medicine; and that, failing to furnish evidence of such preliminary education, the "relator has not shown a compliance with the rules of the Board, and has not, therefore, established a clear and undoubted right to the writ of mandamus, irrespective of the question as to the good standing of the college. The writ will, therefore, be denied."

Licensing and examining bodies intrusted with these important judicial functions can not be too punctilious in their observance of the forms and procedures of other judicial bodies; and especially is this binding upon boards whose membership embraces those against whom colorable charges of prejudice or self-interest may lie. But it is gratifying to be able to record the discretion with which a learned jurist, while reprobating laches in this regard, preserves intact the spirit and intent of the law and vitalizes its letter by such a decision as that under consideration.

CORRESPONDENCE.

The Status of an Eclectic.

To the Editor:—In a recent number of the *JOURNAL* (July 14, 1894), a gentleman from Texas asks if a graduate from an eclectic college may be properly elected to membership in a local society affiliated with the *AMERICAN MEDICAL ASSOCIATION*.

There is nothing either in the Code or the Constitution and By-laws that prohibits such membership. In some, at least, of the subordinate societies, graduates from eclectic schools have been received. Indeed, men who have not received a medical diploma have been honored with offices in local medical societies in affiliation with the *AMERICAN MEDICAL ASSOCIATION*. It is undoubtedly true that some of these non-graduates, and many of those who have graduated from homeopathic and eclectic institutions, are more worthy of fellowship and membership in medical societies than some graduates of our best schools.

In Art. IV., Sec. 1, of the Code, we read: . . . "No intelligent regular practitioner, who has a license to practice from some medical board of known and acknowledged respectability, recognized by this *ASSOCIATION*, and who is in good moral and professional standing in the place in which he resides, should be fastidiously excluded from fellowship," etc. In the next sentence we have a definition by exclusion of the meaning of the word, "regular."

A common sense interpretation of this section and of other portions of the Code, would indicate that ours, being a *liberal* profession, should deal with such subjects in the

broadest possible manner. He who sanctimoniously draws his cloak around himself as he meets a conscientious and respectable practitioner who did not chance to graduate from the University of Pennsylvania, is certainly no honor to our guild.

It has been my pleasure to be personally acquainted with several good physicians who graduated, by accident, from homeopathic schools. Their practice is not based upon an exclusive dogma. They do make use of the facts even of bacteriology so far as known to them. I should consider myself less honorable should I refuse such men fellowship because in their ignorance they went to a sectarian school.

As I wrote in my article on homeopathy (JOURNAL AMERICAN MEDICAL ASSOCIATION, March 17, 1894): "The obliteration of the homeopathic sect is not secured by ignoring its members. . . . If homeopathy is a delusion, rational medicine will lose nothing by association with homeopaths, while the latter class may thereby be better able to see the truth as it is."

In practice there is nothing to separate the majority of homeopaths from regular physicians. So far as I can find there is absolutely nothing to distinguish the modern eclectic. When cant is thrown aside there is little left for "schools" of medicine to thrive upon.

The exact qualifications for membership are by the law of the Association left largely to the local societies. These regulations vary greatly, and I regret to say they do sometimes exclude all as unworthy, who have not been "baptized" in a particular manner.

On the other hand, he who advertises himself as a sectarian thereby shuts himself out from recognition by a liberal profession. He who decrys the profession and extols his own practice to the exclusion of the information to be received from the science of medicine, is not to be encouraged.

HENRY BIXBY HEMENWAY, M.D.

Value of a Lost Eye.

KNOB VIEW, CRAWFORD CO., MO., July, 1894.

To the Editor:—Would you give me your opinion on the following questions:

1. Is ophthalmia ever the result or effect of malarial exposure, poison, fevers and the like? Does loss of vision sometimes or often result from this cause—especially among soldiers?

2. What is the relative *earning* value of an eye, as compared with a leg or an arm? Would loss of eye equal or approximate loss of arm at elbow or leg at knee?

This information is asked for in the nature of a charity—to assist an old blind soldier to get what clearly appears to be his due.

Respectfully,

CLARK W. HARRINGTON, P.M.

Ophthalmia being only another term for conjunctivitis, we should know what kind of conjunctival inflammation the questioner refers to, in order to give a definite answer. In a general way we may say a simple conjunctivitis is often found in fevers (especially measles and scarlet fever), but it does not impair the vision; granular conjunctivitis, which often affects the sight more or less, is not caused by such diseases as referred to in the above question.

The earning value of an eye depends on various conditions; it is evidently greater if the remaining eye has poor sight than if the remaining eye has good sight; for in the first case its loss would practically be equal to the loss of both eyes. Prof. Zehander has furnished us with a formula by which the earning capacity of the remaining eye (and consequently the earning value of the lost eye) can be appraised for the manifold conditions of sight. The normal sight of an eye being valued at 100, the earning capacity of the remaining eye is $2 \pm 1 \frac{0}{3} \pm 0 = 66\frac{2}{3}$ per cent., hence the loss of one eye amounts to $33\frac{1}{3}$ per cent. of the former earning capacity, provided both eyes had full vision. But suppose the vision

of the remaining eye is only four-fifths, its earning capacity would be $2 \pm \frac{8}{5} \pm 0 = 53\frac{1}{5}$; hence the lost eye would have an earning value of $46\frac{2}{5}$ per cent., and thus the loss in earning capacity can be estimated under all conditions if in the above formula the degree of vision of the remaining eye is substituted for 100.

SOCIETY NEWS.

The Nicollet County (Minn.) Medical Society held a meeting July 14.

The Central Texas Medical Association held its semi-annual meeting at Waco, Tex., July 10.

The Orleans County (N. Y.) Medical Association at its recent session voted that its members charge clergymen and their families the same for medical services as other persons. A different rule has prevailed.

The Chautauqua Medical Society held its annual meeting July 10 and elected officers for the ensuing year: President, N. G. Richmond; Vice-President, Morris N. Bemus; Secretary and Treasurer, C. A. Ellis.

The Stephenson County (Ill.) Society of Physicians and Surgeons held a meeting July 17 and elected officers for the ensuing year: President, Dr. Buckley; Vice-President, Dr. Thompson; Secretary, Dr. Stoskopf.

The Wayne County (Ind.) Medical Society held its annual meeting at Richmond July 11, and elected officers for the ensuing year: President, J. R. Weish; Vice-President, Dr. Howe; Secretary, G. H. Grant; Treasurer, J. F. Hibberd.

Wyoming County (N. Y.) Medical Society.—The quarterly meeting of the Wyoming County, N. Y., Medical Association was held in Warsaw, July 11. The following officers were elected: President, Dr. M. J. Wilson; Vice-President, Dr. John C. Fisher; Secretary and Treasurer, Dr. A. B. Straight.

Iowa and Central Illinois District Medical Association.—The Iowa and Central Illinois District Medical Association held its regular annual meeting July 19, at Davenport, Iowa. The meeting opened at or about noon, and was attended by a large proportion of the medical men and women of Davenport, and a number of those living and practicing on the Illinois side of the river, with a few visitors from other cities. After the banquet the following program was given:

Address of the President—Dr. G. C. Craig, Rock Island.
Catarrhal Inflammation of the Middle Ear—Dr. C. M. Robertson, Davenport.

Fracture of the Skull with Brain Lesions—Dr. J. R. Hollowbush, Rock Island.

Officers were elected for the ensuing year as follows:

President—Dr. J. P. Crawford.

Vice-President—Dr. C. C. Carter, Rock Island.

Treasurer—Dr. A. W. Cantwell.

Secretary—Dr. G. L. Eyster, Rock Island.

Program Committee—Drs. Allen, of Davenport; Hollowbush, of Rock Island, and Myers, of Moline.

Drs. R. A. Nash, of Tipton and Charles Hunter, of Hampton, Ill., were elected to membership.

PUBLIC HEALTH.

The Memphis Board of Health has sent a communication to the Tennessee State Board of Health, calling for such action as will lead to legislation prohibiting infant and child life insurance within the State, on the ground that the practice leads to criminal negligence of the proper care of children, and is to that extent prejudicial to public health.

Cholera.—Notwithstanding some increase of Asiatic cholera in Europe, which was to be expected as the season advanced, there is nothing in the situation to occa

sion serious alarm and the outbreaks, except in Russia, seem to be kept well in hand. The occurrence of fresh cases or the appearance of the disease in new localities is the signal for renewed sanitary effort and increased precautions—as in Turkey, where the Imperial Government has again established quarantine restrictions on all European arrivals because of fresh cases at Adrianople on the 23d. Previous reports of the prevalence of the disease in Canton and elsewhere in China are now officially denied.

Vaccination in the Courts.—The Supreme Court of Pennsylvania has confirmed the decree of a lower court to the effect that school boards have the right to exclude from the public schools children who have not been vaccinated. In a similar case, pending before the Supreme Court of New York, the attorney for the Anti-Compulsory Vaccination League said that he had "reached the conclusion that vaccination is the most dreadful thing that has ever blackened medical theories." He had consulted many authorities and claimed that the *Encyclopedia Britannica* (!) sustained his argument. He urged that the Court had a right to review the question whether vaccination was "healthy" or not; but, upon the corporation counsel requesting time to prepare a scientific argument upon the subject, the Court (Mr. Justice Bartlett) replied that it was not necessary. "The vast preponderance of medical opinion throughout the civilized world is in favor of vaccination."

Rapid Vaccination.—Dr. George F. Cott, one of the District Physicians of Buffalo, was delegated to vaccinate the children in eight of the public schools of that city during the recent smallpox "scare." He has furnished the results of his experience to one of the local papers—not alone his experience in vaccinating, but of the methods of teaching and the hygienic conditions, etc., of the schools. Concerning vaccination he says:

"It has been contended that it is impossible to vaccinate 100 in an hour. I have vaccinated 150 in thirty-five minutes with the help of an assistant. I have operated on sixty in twenty minutes without assistance. It will be found by dipping the ivory points into water that the virus is dissolved and easily removed by a little friction, and that, all other arrangements being perfect, three children per minute can thus be easily treated."

This, too, when, as he takes occasion to state:

"The instrument for scarifying is thoroughly sterilized after each operation and fresh ivory points are used, thus making the inoculation of disease from one child to another absolutely impossible."

"Won Wek."—Canton letters to Chinamen in the United States report that the plague—"won wek"—is subsiding; that the mortality has been frightful; that neither in Canton nor Hong Kong were there "ye youen" or hospitals enough to contain one-tenth of the cases; and that rigid "ging" or quarantine has been maintained. Well-informed Chinese who have seen previous epidemics of "won wek" do not think the disease will reach this country whether precautions are taken with ships' cargoes or not. *Per contra*, Dr. Stuart Eldridge, Health Officer of Yokohama and member of the Imperial Board of Health of Tokio, advises that "the most stringent measures may need to be taken to protect the United States, particularly as regards certain classes of goods from China likely to convey infection—rags, old cotton, etc., and also such manufactured articles as are made in the native workshops, with perhaps a case of plague dying in the same room; such things as straw matting, embroideries, and every sort of textile fabric." Dr. Eldridge adds that so long as the disease is kept out of Japan, so long will that country be the best bulwark for the United States against the importation of the disease. A letter from a young Englishwoman in the British government hospital at Hong Kong to friends in Harrogate, Tenn., gives a graphic pic-

ture of her experience as a nurse on the smallpox ship which had been turned into a temporary plague hospital. She says: "My first night on the smallpox ship was a ghastly one indeed. I had thirteen deaths in the twelve hours that I was on duty, and most of the other patients were delirious. That was my worst experience. Since then about eight or ten deaths in twelve hours has been the average." Reports of the extension of the plague into Russia are not confirmed.

An Anti-Vaccinist Testifies.—One of the "big guns," from the use of whose ammunition the anti-vaccinists have hitherto derived much satisfaction—in the matter of noise, if not of execution—is Prof. Crookshank of King's College and Hospital, London, Eng., in which institution he has the chair of Comparative Pathology and Bacteriology. He has been quoted in season and out of season by the "antis," who "Kick against the Inseartion into the Pure Blood and Vile flow of our Inosent offspring of that Diseas of the animals cowpox," and his acknowledged reputation as a bacteriologist is cited as proof that what he says must be so. But, like other heavy artillery, the Professor's recoil is sometimes more dangerous to the friends in the rear than is his shot to the enemy in front. In his recent evidence before the English Vaccination Commission he testified that, in his judgment, nurses in smallpox hospitals escape the disease not because they are vaccinated but because of improved hospital conditions and cited the analogy of typhus fever in support of his position. He wholly ignored the undisputed fact that it is only the revaccinated nurse who is absolutely secure, while the unvaccinated or the only once vaccinated contract the disease in greater proportion than those of like classes not living under the "improved hospital conditions." But the Professor's scattering at the breech was most disastrous when asked how he would protect the nurses if he himself were in charge of a smallpox hospital. Pressed for a reply he said he should "inoculate them with variola itself;" and, to a similarly direct question whether he believed that vaccination as generally practiced does protect many persons, he finally answered "Yes; for a time." If the "antis" can get any comfort out of further citation of Prof. Crookshank they should be welcome to it.

Restriction and Prevention of Rheumatism.—At the July meeting of the Michigan State Board of Health, the President, Mr. Frank Wells, of Lansing, said that he had long noticed that the weekly health bulletins published by the Board show that of the twenty-eight diseases reported upon by the regular observers around the State, rheumatism is usually at the head of the list as causing the most sickness in Michigan. Mr. Wells raised the question whether there was anything that the Board could do in the way of publication of information which might tend to lessen the amount of sickness from this disease. Dr. Vaughan said he knew of nothing tangible yet relating to the restriction and prevention of rheumatism, which could be imparted to non-professional people. He thought no work should be undertaken now which will interfere with the effort being put forth by the Board for the restriction and prevention of tuberculosis—the most important of all diseases. Dr. Baker said that the Board has already done much for the diffusion of knowledge respecting the causation of rheumatism, which knowledge is essential to proper action for its prevention. "But we must wait for an advance in two lines of investigation not much entered upon by this Board—that of bacteriology and that of physiologic chemistry. Several times in the past it has seemed that facts were about to crystallize into a tangible theory; but just as appearances were most favorable, ideas of medical investigators regarding the causation of rheumatism have changed. Much has been learned from the sickness statistics collected and published

by the Board. Curves have been made showing that rheumatism has a direct relation to meteorologic conditions. The facts in the Secretary's office show that tonsillitis follows the cold atmosphere and that rheumatism follows tonsillitis. It is quite probable that if rheumatism is a germ disease, tonsillitis prepares a soil favorable to the reproduction of the germ and a way for its entrance into the body. We are waiting for the bacteriologists to find the specific organism. So far as I know only the pus-forming germs have been found in connection with rheumatism, and it is quite possible that they are the cause of the disease; if so, its increase, following the sore throats caused by raw cold weather, is explained by the facts on record in the State Board of Health office. Diagrams exhibiting the rise and fall of rheumatism by seasons of the year prove that its course is similar to that of smallpox, consumption and other diseases known to be caused by germs, and known to enter the body by way of the air passages." Secretary Baker suggested that a committee might be appointed to investigate the subject and report to the Board at some subsequent meeting. Dr. Vaughan said that at present, all is speculation as to the causation of rheumatism, but he thought it quite probable that Dr. Baker's idea of the causation of rheumatism may be nearly the proper explanation. He would, however, explain rheumatism as being the result of an over-exertion or unusual destruction of the cells of the body in trying to protect the body from an attack of a germ disease; in other words, it is an over-drugging-on the part of nature in order to throw off an attack of some germ disease. The uric acid, which is not excreted rapidly enough and which accumulates in the body and causes the rheumatic pains, is formed by the action and destruction of cells. On motion of Prof. Fall it was voted that Dr. Baker prepare and read at a future sanitary convention a preliminary paper on the causation, restriction and prevention of rheumatism.

MISCELLANY.

The Two Dromios.—A monthly medical journal published in Pittsburg, and a weekly medical journal published by a book publishing house in Philadelphia, lash themselves into a high temperature over the report of the Trustees of the AMERICAN MEDICAL ASSOCIATION made at the last annual meeting. It is to be presumed that with the growth of the country and general increase in the volume of business, that the two Dromios will eventually have to devote more time to the conduct of their own publications. The proof reader of the Pittsburg sheet has apparently been on a vacation for some weeks.

The Columbus Medical Journal.—The *Columbus Medical Journal* is now a bi-weekly instead of a monthly, and Dr. R. Harvey Reed is the editor-in-chief. That he will make the publication a power in the Buckeye State, every one who knows Dr. Reed will admit.

The Regular Semi-Annual Meeting of the Washington State Board of Medical Examiners was held at Spokane, Wash., July 2-5. There were seven applicants before the Board for license to practice within the State and but four were successful. The Board decided to continue the high percentage of requirements adopted at the previous meeting.

Delegates Abroad.—Drs. Theo. B. Schneideman, Philadelphia; Giles C. Savage, Nashville, Tenn; Julian J. Chisolm, Baltimore, Md; S. D. Risley, and G. E. de Schweinitz, Philadelphia, have received credentials as foreign delegates from the Permanent Secretary. These gentlemen go abroad particularly to attend the Ophthalmological Congress.

Octogenarian Ovariectomy.—J. Paul Bush, Surgeon to the British (Eng.) Royal Infirmary, is thus far entitled to claim the oldest ovariectomy patient. She was a widow, aged 84; operated on Sept. 12, 1893, and a large thin-walled multilocular ovarian cyst removed; sent home October 16, and reported "alive and well and able to get about some months after." Her exact age was carefully inquired into at the time of admission and was confirmed by papers and documents.

A Medico-Historic Exhibition.—At the "Naturforscher" to be held at Vienna next September there will be an exhibition of articles illustrating the historical development of medicine. It will embrace diagnostic, therapeutic, surgical and obstetrical instruments and appliances of former ages; plans and pictures of hospitals; portraits of former physicians and surgeons; medals struck as memorials of plagues, and other objects useful as historical illustrations of past stages of the healing art.

Pasteurized Milk.—Pediatric authorities advise that all milk fed to children should be Pasteurized in warm weather—that is raised to a temperature of 168 degrees F., to destroy ferments and prevent souring. This temperature kills tubercle bacilli, typhoid and other germs that may be present in the fluid. It is true that it also renders the casein of the milk less easily digestible, destroys milk-sugar, and causes proteid matter to adhere to fat globules, thus retarding their digestion; but these results are of little importance clinically, except in the care of weak children, while the benefits are many and obvious.

They Don't Go.—Steerage passage to Europe may now be had for \$8.00 and thousand of aliens, disgusted with Coxeyism, Debsism, Federal bayonets and other exanthemata of the body politic and social, are taking advantage of the cheap rates to return to their native lands. One scans in vain, however, the returning passenger lists for the names of the hordes of "feldschers," barber-surgeons, valets and others with purchased medical qualifications who have flocked hither in recent years to help make up the aggregate of over 118,000 persons who are getting some kind of a living out of the practice of medicine among 65,000,000 of the healthiest people under the sun. There is a ripe harvest here for the steamship agent in this superfluous factor of the medical profession.

New Drugs and Names.—The *Medical Record* thinks that our English brethren must be especially keen on new drugs, and in particular on new names of a proprietary character. The following list of "new drugs" is taken from a single issue of the *London Lancet*: "Nepenthe, malakine, virol, pepsalia, pumiline, cactina, celerina, antinervine, cerebrine, papain, anestile, opiatine, lintus tussi, kreochyle, vaporesoline, chiralta liq., cocoatina, izal, bynol, bovril, liquor sedans." These are not all, but they are sufficient to show the pharmacist's fancy, and the appreciation of it by the British mind. To the student, and even the recent graduate of medicine, all these things must appear quite unintelligible, and he must feel that having learned the materia medica of his text-books, he must begin again and learn that of the manufacturer.

A New Parasite in America.—The announcement of the discovery in this country of the *Distoma Ringeri*, by Prof. Ward, of the University of Nebraska, is attracting more attention abroad than at home. This fluke has hitherto been found only in the far East—China, Japan, Corea and Formosa—where it infests the lungs of man, giving rise to periodical hemoptysis (Foster's Med. Diet.) and chronic cough with rusty mucoid expectoration. Already we are told that if this parasite "is now endemic in America we may expect to hear more about it soon, not only as a parasite of the lower animals but as a cause of endemic hemoptysis in man." Here is a brilliant opportunity for the men who are "in love with a microscope" and prone to "flirt with pathologic specimens." Endemic hemoptysis may soon become as fashionable as appendicitis.

Aerial Diffusion of Smallpox.—In a recent London report appears a contribution to the controversy upon the aerial convection of smallpox, in which it is asserted that "the

diffusion of smallpox through the air does not extend to a distance of 1,000 feet." *Public Health*, in commenting upon this assertion, points out that the patients who had been exposed to the influence of a smallpox hospital about 1,000 feet away, were only those "who showed evidence of previous vaccination," and their failure to contract the disease from such exposure should be attributed to this vaccinal protection rather than to distance. It also appears that the "smallpox hospital" in question was so in name only, since it was used solely "for the reception of convalescent smallpox and fever patients." One of the conclusions arrived at in 1882 was that the diffusion of smallpox had not shown itself "while the use of the hospital has been for convalescents only," and the absence of danger in the accumulation of convalescent persons was then noted. There are, in fact, many proofs in support of the contention that smallpox is contagious only in the acute stage of the disease and the positive evidence of Dr. Priestley, cited in the *JOURNAL* editorial, "Hospital Spread of Smallpox,"¹ far outweighs this negative testimony.

Health and Morals of Congress.—Section 40 of the Revised Statutes of the United States directs that the Sergeant-at-arms of the House of Representatives shall deduct the proper amounts from the salaries of members who are absent for other causes than sickness of themselves or members of their families. After remaining for years a dead letter it was revived this session as a means of securing a quorum, but its enforcement proved so farcical that Representative Powers, of Vermont, has introduced a bill for its repeal. In support of his bill Judge Powers urges that "it is apparent that the excuse of sickness is one easily made, and it is suspected that it is sometimes assigned as a reason for absence without any diagnosis of ailment by medical experts. In other words, the enforcement of this section practically makes every member a pathologist on the subject of disease, which is not a qualification for Congress mentioned in the Constitution, and so for this reason the law is plainly unconstitutional. It is believed that each House of Congress can, by an appropriate rule, better enforce the attendance of members than by a statute operative as a penal statute and evaded by every subterfuge. Obviously the manly way to get rid of objectionable legislation is to repeal it, and in this case such repeal will manifestly improve both the health and morals of the House."

Representative Powers is the wise and witty Judge who, as the readers of the *JOURNAL* may recall, in refusing a writ of mandamus against the Vermont State Board of Medical Censors to compel it to recognize the Vermont Medical College—a "diploma mill," organized under a general incorporation act—said that: "To suppose that the Legislature meant by this act that any three persons could organize a college and confer medical degrees would be to make the title M.D. of as little account as Richelieu threatened to make a dukedom in France. He would create so many dukes that, while it would be no disgrace not to be a duke, it would certainly be no honor to be a duke."

If He Should Undertake a Cyclopaedia!—A "catechism" is popularly understood to mean a compendium or summary of rudiments or principles, concisely stated in the form of questions and answers; Webster defines it as: "An elementary book containing a summary of principles in any science or art," etc. Patrick Hehir, M.D., F.R.S.E., F.R.C.S.E., D.P.H. (Camb.), is the author of "A Catechism of Hygiene and Sanitary Science," the first volume of which has just been issued in Calcutta. This volume deals with the subject of water exclusively, and consists of 610 octavo pages of print smaller than that in which this item is set. There

will be fifteen such volumes in this "Catechism!" Among the *facetiae* of the bookmen there is the story of an author—Smalgruenius according to some, Thomas Aquinas according to others—who wrote a work, *De Omnibus Rebus*, followed by another entitled *De Quibusdam Aliis*. More recently and better authenticated is that of the German philologist who at the end of a long life spent in the study of one solitary Greek root, died lamenting that he had not had time to exhaust its derivatives. To these must now be added this gentleman of the epicene cognomen who undertakes to write a "catechism" of over nine thousand octavo pages. Let us pray the gods that our latest dictionary with its 300,000 words be kept from him until he is through.

"Faith Cure."—The current number of *The Arena* contains an article by Dr. James R. Cocke on the so-called "faith cure," mind cure or mental therapeutics. The writer concludes that it is of value: "1, as a curative agent in cases of functional neurosis; 2, in correcting vicious habits formed by the mind of the individual; 3, in removing some of the acute symptoms of organic disease; 4, I consider that its greatest value is in the department of preventive medicine. I believe that more diseases could be prevented by studying the minds and souls of youth and by correcting abnormal tendencies in them than can be cured in later life by any amount of treatment, no matter of what kind." If this be true then "faith cure" has a wide field open to it, since, according to the *Spectator*: "The rapid increase of suicide must be due not merely to the dwindling religious faith of the day, but to that horror of trouble and grief which indicates a dwindling power of endurance and an almost extinct sense of hope. No doubt this dwindling power of endurance, this extinguishing of hope, undermines also the sources of faith. Faith without hope is hardly possible, and fortitude without hope is still less conceivable. We have little doubt there are a much larger number of persons who are born into the world without any elasticity of nerve nowadays than there were in less exciting times." In the judgment of the *JOURNAL* the trouble with this class of persons is that they failed to select their ancestors properly. If "faith cure" will correct the defects of heredity by all means apply it, for "faith without works is dead."

Woman in Medicine.—A French compiler, M. Marcel Baudouin, furnishes a *résumé* of the légal status of women in the medical profession in various countries, in which, singularly enough, he omits all but the merest mention of the gentler sex in France. According to M. Baudouin women are rigidly excluded from the advantages of a university education in Germany, and consequently may not become candidates in any medical examination; "it naturally follows that no medical woman can be the possessor of a certificate carrying with it the slightest value in Germany," since a state license upon examination is necessary to practice in that country. In Austro-Hungary the situation is even worse; there the admission of women to higher grade instruction is formally forbidden by law. Spain is quite as bad; in fact the difficulties are said to be even greater in the Iberian peninsula than in Germany and Austria. In England, Ireland and Scotland the universities—through which lies the registration necessary to the right to practice—are now all thrown open to women, Scotland having been the last to yield to the new order of ideas; in Ireland, however, while a woman is afforded every facility for obtaining a medical qualification she may not fill any public office under the State. Similarly in Sweden, Norway and Denmark, the medical career is open to all without distinction of sex—save in the matter of State appointments. In Belgium, Holland and Roumania the broadest views prevail

¹ *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*, June 16, 1894.

regarding the medical rights of women; they may do and be, as physicians, all that men can and are, *cæteris paribus*—which they are not. The right of women to practice is fully recognized in Italy, and a woman occupies the Chair of Histology in the Medical Faculty of Bologna.

In 1893 there were 308 women attending medical lectures in Zurich, Geneva, Berne, Basle and Lausanne, but there are only ten women practicing in Switzerland; after graduating the students return to their own countries to practice, principally to Russia. In this latter country, Russia, there were 546 women practitioners in 1893, and women are there allowed by law to become assistant surgeons in all railway administrations; in 1890 a special medical school for women, after the American model, was established in Moscow. Universities in many of the English colonies have been open to women since 1875, and in France woman first obtained foothold in a university in 1863, but five years later there were only four female students in l'Ecole de Medecine of Paris; the more beautiful women of a most beautiful country do not seem to take kindly to the practice of physic, notwithstanding the illustrious examples of Mesdames La Chappelle, Bourgeois and Boivin, concerning whom it has been said that "if their mantle could be made to fall on the shoulders of their sisters of the present generation female delicacy would be saved many a rude shock and the cause of science would in no sense suffer."—(Leishman, *System of Midwifery*.) M. Baudouin concludes with the following tribute to this country:

"Only a moment's consideration of the following statistics is necessary to convince an inquirer that he must proceed to the United States of North America if he wants to study effectually the question of medical women. According to a statistical report drawn up by M. Louis Frank, of Brussels, there were in 1893 on the other side of the Atlantic fully two thousand women practicing medicine in one or other of its forms and inclusive of 130 'homeopaths.' The majority were general practitioners, but there were also 70 hospital physicians or surgeons; 95 professors in the schools; 610 specialists for the diseases of women; 70 alienists; 65 orthopedists; 40 oculists and aurists, and, finally, 30 electrotherapeutists. In Canada there is but one medical school exclusively for women, but in 1893 there were ten such in the United States. It must not be forgotten also that all medical schools in America are freely open to women, and that mention of this is by no means omitted from their published announcements."

This latter statement is not entirely accurate, since many schools refer women applicants to their special colleges, preferring to avoid a certain embarrassment that sometimes arises in medical co-education. M. Baudouin might have also included mention of the fact that medical women in the United States are eligible to governmental appointment, and at least one woman, Dr. Sarah Hackett Stevenson, is a member of a State Board of Health which examines and licenses applicants for the right to practice.

Hospital Notes.

BURBANK HOSPITAL.—The new Burbank Hospital of Worcester, Mass., was opened July 16.

THE TESTAMENT of Mary McMullen, who died recently at St. Agnes' Hospital, Philadelphia, gives property to that institution valued at about \$65,000.

A HEBREW HOSPITAL AT PITTSBURG.—A fund of \$20,000 is held in trust by the Hebrew Benevolent Association of Pittsburg for the building of a hospital.

THE HERMAN HOSPITAL of Elgin, Ill., was tendered a benefit under the auspices of the St. Mary's and St. Joseph's Catholic churches July 13. The concert was successful, and a handsome sum was presented to the hospital.

ELECTION of Miss Hopkins.—The Board of Directors of the Western State Hospital July 18 elected Miss Charley Hopkins, of the Warm Springs, an assistant physician at that institution. Miss Hopkins takes the place lately made vacant by the resignation of Miss Haines.

THE BOARD of DIRECTORS of the Grace Hospital at Detroit, Mich., held a meeting July 13 and elected officers for the

ensuing year. The report showed that the receipts for the first six months of this year were greater than those for the corresponding time last year. The charity wards have held their maximum capacity during the entire year.

BELLEVUE HOSPITAL.—Plans are being made for the reconstruction of certain portions of Bellevue Hospital, New York, that part which is used as reception office, examination and admission rooms, besides store room of the hospital. The accommodations have been inadequate and reconstruction will be of great benefit to those interested.

ROCHESTER (N. Y.) HOSPITAL.—The board of managers of the Rochester State Hospital held its quarterly meeting July 17, at which meeting the plans and specifications for a new building and repairs made necessary by the recent fire were forwarded to Albany for approval. The appropriation for the new building is \$65,000.

A PROTESTANT HOSPITAL.—Articles have been filed for the establishment of a new hospital in the city of Seattle, Wash. The objects are to found and maintain a hospital under the management of Protestants, for the medical and surgical treatment of sick and infirm persons, with the object of furnishing such treatment, as far as possible, gratuitously to the poor.

Medical College Notes.

A NEW medical college has been organized in Kansas City under the name of the College of Physicians and Surgeons of Kansas City, Kan. The capital stock will be \$10,000. The directors are Drs. J. W. May, S. I. Harrison, R. Roberts, J. C. Martin, W. C. Boteler, W. F. Wilkins, E. J. Dennis, A. L. Michaels and E. M. Heatherington.

THE PUBLIC SERVICE.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from July 14, 1894, to July 20, 1894.

Capt. RICHARD W. JOHNSON, Asst. Surgeon U. S. A., is granted leave of absence for two months.

First Lieut. FRANK T. MERIWETHER, Asst. Surgeon, leave of absence granted on surgeon's certificate of disability, is extended two months on surgeon's certificate of disability.

LETTERS RECEIVED.

(A) Atkinson, W. B., Philadelphia, Pa.; 2; Arsdale, W. J., Pittsburg Pa.; Allenmer, C. L., Beaver Meadow, Pa.; Ayers, D., Syracuse, N. Y.

(B) Blittinger, Wm., Grady, Ark.; Briggs, Wallace A., Sacramento, Cal.; Bates & Morae Adv. Agency, New York City; Butler, John T., Williamsport, Pa.; Branch, B. L., Rossville, Tenn.; Baum, F., Kansas City, Kan.

(C) Christian, E. A., Pontiac, Mich.; Curtin, W. A., Syracuse, N. Y.; Cleaves, M. A., New York City; Chesman, Nelson & Co., St. Louis, Mo.; Crapford, C. H., Albany, N. Y.

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ADDRESS.

CHAIRMAN'S ADDRESS.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY JOSEPH EASTMAN, M.D., LL.D.

FORMERLY PROFESSOR OF ANATOMY, AND PROFESSOR OF GYNECOLOGY AND ABDOMINAL SURGERY, CENTRAL COLLEGE OF PHYSICIANS AND SURGEONS, INDIANAPOLIS, IND.

It seems best on this occasion to turn aside from the usual custom of reporting progress in the Department of Obstetrics and Gynecology, a subject which has been so often and ably presented and discussed by my predecessors, and call your attention to the present status of suprapubic hysterectomy as viewed from the standpoint of personal observation and clinical research, with the hope that I may contribute in some small measure to the profitable discussion which I am quite sure will follow the reading of the valuable papers on your program.

It is not my intention to report a series of operations made for the removal of symmetrically formed pear-shaped tumors, with well-defined broad ligaments, with uterine arteries easily accessible and seen pulsating in their anxiety to be ligated; tumor, ligaments and arteries dealt with by some definite method; each operation made in exactly so many minutes; and all the patients making uneventful recoveries. The literature of the subject is already cursed with such productions. Therefore, I would rather suggest such means and methods as experience has taught me will furnish the best possible results in dealing with tumors by no means symmetrically formed; with broad ligaments displaced and disorganized by nodular masses interfering with the ligation of arteries and the easy formation of pedicles.

Despite the efforts of some to name a distinct method of operating because a flap is made here, or a ligature placed there, the problems of suprapubic hysterectomy are rapidly nearing their solution. Those engaged in the work are divided into two classes: Those who have been and are yet satisfied with forming a pedicle and fixing the same in the abdominal wound; and those who were not satisfied that this method was the best that could be devised, and have been earnestly endeavoring to reach some method which shall disregard the morphology of tumor, of broad ligaments, and the location of uterine arteries.

On Feb. 3, 1887, knowing full well that abdominal fixation of the pedicle in suprapubic hysterectomy had at that time given the lowest rate of mortality, I decided *not* to operate in that way, but planned and executed an operation which in every essential feature was an extirpation of almost the entire cervix. A large cautery passed three times down through the cervix in reality destroyed a large portion of what little cervix I had left. A rubber drainage tube was inserted for vaginal drainage.

In a recent discussion in the *New York Journal of Obstetrics and Gynecology* they speak of the operations by Stimson, Krug, Baer and myself as if they were all operations of total ablation of the uterus. If these operations are to be considered, then the operation of Stimson in November, 1888, was antedated by my determination to secure something better than the abdominal fixation of the pedicle, on Feb. 3, 1887.

It is not my purpose to occupy time in discussing questions of priority in making an operation, although the operation, including the use of my hysterectomy staff, as I demonstrated it at the International Medical Congress in Berlin, has since been made many times by Krobak, of Vienna, and numerous American operators with great satisfaction, and while I have received many congratulatory letters from distinguished operators on account of the rapidity and definiteness of the operation made possible by the use of the staff, I have been working to still further simplify and perfect the operation.

I concede the fact that where a given fibroid tumor has no nodular masses in the region where we would form a pedicle, or imbedded in the broad ligaments, and where the abdomen is not exceedingly fat, that abdominal fixation has given results in the hands of expert operators in a very high degree satisfactory. So far as I have been enabled to read the writings of its warmest advocates, none of them have mentioned the very strongest point in its favor, namely, that in this method we have practically *one wound*, whereas in the total or partial extirpation method we have two wounds; the one in the abdomen, the other in the pelvis, the latter extending through connective tissue, rich in lymphatics, down to the vagina,—(an incubator for many varieties of bacteria,) which can not always be sterilized and maintained aseptic during an operation. Notwithstanding the strong points in favor of abdominal fixation of a pedicle, which I have mentioned, it has been the subject near my heart for nearly eight years to study out the anatomy and its displacements by pathologic neoplasms, and perfect a method as speedy of execution, followed by as successful results, as any or all other methods,—a method applicable not only to tumors where a pedicle for abdominal fixation could be formed, but also to those cases where *nodular masses* have completely *disorganized the cervix*, and *intra-ligamentous masses* are found in the *broad ligaments* of one or both sides.

I became well convinced a number of years ago that the use of the clamp of Keith or the serre-nœud of Koeberle for controlling hemorrhage from the neck of the uterus, was based upon the idea that the spiral or curling branches given off from the uterine arteries really penetrated the tissues of the uterus including its cervix. Some seven text-books on anatomy which I have examined state that these branches penetrate the uterus. I have a number of times, with fingers on the broad ligaments and their contained

vessels, cut directly through, seizing the spurting vessel and securing it later. Many times a single uterine artery has been ligated in many places in its zigzag course, the operator thinking he secured a distinct vessel each time. I have also peeled off the uterine arteries from the sides of the uterus and then cut off the cervix with little or no hemorrhage. This was for the purpose of reducing the number of ligatures,¹ long or short, to become incapsulated or slough off through the vagina, and also to economize the time required for their thorough application.

Here is a nodular mass fed and nourished by a capsule, a capsule containing the venous and arterial capillaries. It is well known to every gynecic surgeon that these nodules can be peeled out of the capsule without ligating a single artery. What I have stated regarding the nourishment of this nodule by its network of capillaries and *not* by the penetration of arteries (for surgical purposes), holds true with reference to a uterus disorganized by a fibroid tumor or tumors, no matter how large or how small; not only the fibroid uterus, but the normal uterus as well; not only the uterus but its entire cervix down to the external os.



I here present a specimen (a photograph of which you may see in the *American Journal of Obstetrics and Diseases of Women* for the past month), and to my mind it marks a new era in the removal of fibroid tumors by hysterectomy for the reason that the uterine arteries were not ligated at all. I went down between the uterine arteries and the uterus. The uterine arteries were absolutely left in the pelvis of the woman, not a single ligature being used except those which tied off the ovarian arteries and a small portion of the upper border of the broad ligaments.²

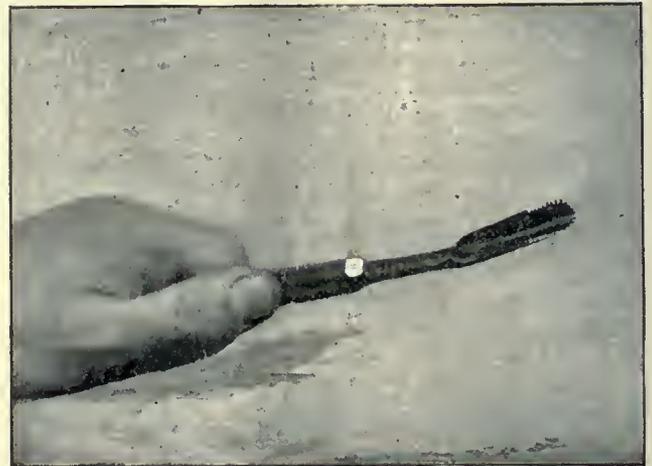
Then in addition to solving the problem as to what to do with the pedicle, by deciding not to have any, we now solve the problem as to what to do with the broad ligaments and especially their contained uterine arteries by simply leaving them in the pelvis of the patient.

In this case I simply controlled the circulation in the ovarian artery by ligating the upper portion of the broad ligaments with a strong ligature, then cut-

¹ A ligature to secure the uterine arteries will often secure a certain amount of muscular and connective tissue and is one of the possible sources of infection of the wound, hence the importance of having as few ligatures as possible.

² Sauter, three-quarters of a century ago, removed the uterus per vagina, without clamp or ligature. (See article by Dr. Guido Bell, *Indiana Medical Journal*, February, 1894.) Further, the enucleation of the cervix per vagina was made by Langbeck in 1813, by Recamier in 1829, and by Malgaigne at a later date. (See article by Dr. Robert Reyburn.)

ting the broad ligaments above the ligature; began with the serrated gouge to peel down the broad ligaments, keeping the gouge close to the tumor, being especially careful in the interspaces between the nodules not to puncture or tear the uterine artery or any of its branches. From time to time nicking the edges of the peritoneum with these button pointed scissors, with the serrated cutting edge I pushed it forward under the peritoneum anteriorly and posteriorly so as to make anterior and posterior flaps. Then pushing with the serrated gouge I carefully worked around the tumor until I had reached the uterine cervix, and then proceeded with still greater caution not to cut the cervix nor its capsule, but to push it down as I now slip my cuff towards my elbow with the fingers of my right hand. The enucleation of the lower portion of the uterus including its cervix, reminds me of Prof. Sayer's admonition when removing the head of the femur for hip joint disease. He says: "I take this oyster knife and work my way past the trochanters, major and minor, then make sure to get beneath the periosteum close to the bone." Then, he used to say: "D—n the anatomy; stick



close to the bone," and proceeded in peeling off the periosteum until he had the entire head of the femur out of the acetabulum.

As I reached the lower portion of the cervix my hysterectomy staff was passed up the vagina by my son, Dr. Thomas B. Eastman. I then removed the entire cervix, cutting a little opening on to the staff, slipping a strip of gauze in the fenestra of the staff. When the staff was withdrawn this was brought down in the vagina, the upper portion of the gauze being packed into the pocket from which the cervix had been enucleated. The flaps which I had dissected off from the tumor and cervix were brought together by buried suture over the ligatures which had included the ovarian arteries so that their raw ends also came into the wound. Several rows of buried suture were used so that all raw edges made by peeling out the cervix were deeply buried and prevented leaking into the peritoneal cavity, the gauze being dragged down into the vagina a little each day, facilitating perfect drainage in that direction. This operation is the realization of the ideal. Heretofore all of us had simply been idealizing the real. In my lecture delivered to the Post-Graduate School of Chicago in July, 1893, I closed with a series of conclusions. From them I quote the third, to-wit: "Where the

neck of the uterus remains small, abdomen not too fat, after the ovaries and tubes have been tied off, the pedicle may be fastened in the lower angle of the wound and give satisfactory results." To this conclusion stated at that time I have this to add: Where such anatomic conditions exist, enucleation of the cervix can be done in less time than the manufacturing of the pedicle, the adjustment of the serre-nœud or elastic ligature. Furthermore, abdominal fixation of the pedicle can not be accomplished in all cases.

In conversation with several distinguished abdominal surgeons, including Dr. Bantock, of London, I find that these gentlemen meet with cases where no pedicle can be formed to fix in the abdominal wound. It is to this class of cases I would invite the best directed efforts on the part of those who have a heartfelt interest in this class of suffering women.

One's per cent. of recoveries would undoubtedly be much better if after making a careful examination which discloses a tumor deeply imbedded in the pelvis, we would discourage operative procedure; but in my first 100 hysterectomies I found a number of cases were gangrenous tumors and tumors containing gangrenous nodules, causing slow death in some cases and rapid death in others from septicemia. Within the last six months I have operated on seven women who had either gangrenous fibroid tumors or tumors with gangrenous nodules. In five of the cases the nodular masses were deeply imbedded in the pelvis, and two of the cases were operated on within one week. In each case a nodule as large as a cocoa-nut was completely imbedded in the broad ligaments, having been developed from low down on the side of the uterus, and in both cases the nodular masses were in a state of gangrene, they having caused temperature ranging from 100 to 103. In two other cases the subserous tumors had become gangrenous from small twisted pedicles. In each case rapid and well pronounced septicemia threatened the life of the patient. Surely the technique of suprapubic hysterectomy is not complete until guided by sound surgical principles. We have *methods and means suitable for such emergencies*. In this class of cases I have been pleased with the rapidity with which we can ligate the upper portion of the broad ligaments, cut the same loose from the tumor, peeling the peritoneal covering off from the tissue leaving a little subserous tissue beneath it; enucleating nodular masses, and directly find ourselves down close to the external os with only an occasional bleeding from some enlarged arterial twig.

The most serious question in my mind in these cases is how to properly drain the cavities from which these nodular masses have been enucleated. In a recent case I packed the cavity in the broad ligament from which I had enucleated a gangrenous mass as large as a cocoa-nut, with iodoform gauze, bringing the same out at the side of the pedicle which I had fixed in the abdominal wound. In addition to the gauze I placed a metallic drainage tube well down into the pocket. I wished to be absolutely certain that this cavity was thoroughly drained, believing that in other cases where I had trusted to gauze alone for drainage that it was not satisfactory. In the first forty-eight hours we pumped out of this drainage tube fully a pint of black blood, which coming from the cavity occupied by this gangrenous nodule gave a considerable odor, notwithstanding the thorough washing of the cavity through the

drainage tube. I believe it would be better in such cases to secure the most thorough vaginal drainage—not only through the opening made by the enucleation of the uterine cervix, the same being packed with gauze surrounding the drainage tube, but by making a free and direct opening from the bottom of the cavity in the broad ligaments into the vagina. It has been taught that the dangers of removing cysts or fibroids from the broad ligaments lies in the disturbance of important plexuses of the nerves. My observation leads me to believe that the shock is not materially great in such enucleation, and that the bad results following such operations are due to the use of drainage which does not properly drain. But while I secured the most perfect drainage in the case referred to by bringing the drainage tube up to the side of the pedicle, I would not advise abdominal fixation of a pedicle in cases where nodular masses are enucleated from the broad ligaments and even imbedded in the region of the cervix where we would form a pedicle, believing that these cases can be more successfully treated by removal of the entire cervix with free vaginal drainage.

As I suggested at the beginning of this paper, one of the great objections to total extirpation of the cervix and vaginal drainage is that we make an additional wound and have a possibility of vaginal infection.

I concede further that it is not always possible to render the vagina surgically aseptic. I have had a number of cases where I used the most thorough antiseptic douches, and then sought to wash out the cavity of the uterus for the purpose of packing the same with iodoform gauze and also to close the external os by firm suture, and found the cervix and external os so retracted into one of the cul-de-sacs or behind the pubes, that it was impossible to reach it with any form of speculum in such a manner as to enable me to pack the cervical cavity or stitch the same so but that during our handling of the tumor we found a large quantity of bloody purulent discharge in the vagina which had escaped from the external os. In a large per cent. of cases a thorough washing of the uterine cavity, packing the same with iodoform gauze and then stitching the external os will prevent this purulent fluid from escaping into the vagina during our handling of the tumor. Then thoroughly washing and even scrubbing the vagina with a brush and packing the same, including all its cul-de-sacs, with iodoform gauze, will give us a reasonable assurance that this tube has been made aseptic and reduces the dangers of infecting the peritoneal cavity to the minimum.

In a conversation with Dr. Bantock, of London, I expressed the hope that in the near future we would be able to remove fibroid tumors with the same low rate of mortality which follows our work in removing ovarian cysts. The good Doctor replied: "This can never be done for the reason that the anatomic conditions are essentially different." Carefully reflecting over this statement I have become thoroughly convinced that a more thorough study of the essential anatomic conditions which exist in an abdomen containing a fibroid tumor, as compared with one containing an ovarian cyst, would enable us to bring the mortality of the two operations to something approximating equality.

I have a number of times left the greater portion of the uterine arteries to remain in the pelvis of

the patient, but from the results I had, I was thinking that the possibility of infection through the rich chain of lymphatics at the side of the uterus was greater in such cases than where broad ligaments were thoroughly constricted by ligature all the way down to the opening in the vagina. This led me to express, in the Chicago lecture heretofore referred to, my preference for cutting around the cervix rather than enucleating it. But carefully reflecting over the statement of Dr. Bantock that the anatomic conditions were essentially different in fibroid tumors from what they are in ovarian cysts, I became convinced that we often blame the technique which we have used in treating the pedicle when the cause of death ought to be explained in some other way. For example, when the parietes of the abdomen are rendered thin by the pressure of an ovarian cyst, the blood supply is reduced so that all the intra-abdominal viscera are more or less anemic. This condition is in marked contrast with the hyper-nutrition often present in and about the pelvis which contains a fibroid tumor. I am quite sure that deaths occur in consequence of our almost losing our heads in the determination to make the pedicle and all pertaining thereunto as perfect as possible and neglecting perfect approximation of the abdominal incision, always as large as the tumor, including its peritoneum. I have many times cut through two inches of fat to reach a fibroid tumor, and unless such a wound be thoroughly closed by three rows of sutures, the internal one being of fine or cyron tendon, with stitches not more than one-fourth of an inch apart, and then making absolute sero-serous approximation, there is danger of infecting the peritoneal cavity by the wound leaking into the abdomen. Too often we take extreme precautions to nicely adjust the outer integument, when it would be better if any leakage from the wound is to occur that it shall pour outward and not inward. Again, the more vascular condition of the peritoneal cavity and its contained viscera in cases of fibroid tumors, as compared with ovarian cysts, warn us of the greater intolerance of rough manipulations, making it necessary to protect intestines and viscera as much as possible during operation by hot sterilized towels and sponges, by temporarily bringing the wound together over the intestines with a temporary stitch or volsella, and *above all, and over all, by the most thorough irrigation* of the peritoneal cavity with water at a temperature of not less than 110, not only after the work has been completed, but at intervals during the work, so as to undo the harm we do to the vasomotor nerves distributed to the pelvic and abdominal viscera. Half a dozen pitchers full of water are none too many and if we have produced material shock as evidenced by the pulse, a few pitchers of water poured through the drainage tube and allowed to pour out again has at times, as I believe (permit me to say I absolutely know), saved lives that otherwise would have been lost. The operator of to-day who seeks to do away with the "wash out" and the drainage tube on all occasions on theoretical grounds, is rolling the wheels of progress backward. The skilful management of a patient during shock is of very great importance indeed. The use of opium to put the disturbed tissues at rest has the genuine ring of surgical wisdom. The use of strychnia to keep up the tone of the nerves distributed to the intestinal tract and thereby counteract the tendency to gaseous distension of the

bowels, is one of the precious comforts to the anxious abdominal surgeon when his patient is low in shock.

When Ephraim McDowell made his first ovariectomy, the citizens surrounded his house threatening his life because he was about to "butcher a woman." The sheriff of the county interfered. At first they refused to listen to his pleadings for the Doctor's life. Finally he struck a compromise, the mob agreeing to let him alone if the woman recovered, the sheriff agreeing not to interfere if the woman died. This was a crucial test of the Doctor's heroism. Other heroic surgeons did not hesitate to remove ovarian cysts, but allowed women to pass on to their graves if the diagnosis convinced them that it was a fibroid tumor. Still later, surgeons removed fibroid tumors if they were pear-shaped and a pedicle could easily be formed, allowing women to pass to their graves if the examination showed the tumor to be deeply imbedded in the pelvis by nodular masses. Even the great and noble Dr. Thomas Keith, after battling with fibroid tumors with as good a per cent. of recoveries as any one at that date, finally abandoned fibromectomy, resorting to the use of electricity and only wished he had back from their graves the patients who had died from his operations for fibroids. Thank God there were others to take up the work when he became discouraged.

The old adage that the qualifications of a surgeon were "the head of an Apollo, the eye of an eagle, the heart of a lion and the hand of a woman," is eminently true, especially as regards him who would seek to be successful in removing fibroid tumors. The head to plan and to meet the surprises which spring on us during such work; an eye to see quickly the exact constriction of every ligature and adjustment of every suture; the lion heart to forge forward in this aggressive work when our per cent. of recoveries might be better if we would let fibroid tumors alone, especially bad ones; the nimble wit in the ends of the fingers, backed by an indomitable will to skilfully and speedily perfect the adjustment of the last suture with the same precision as the first, make a combination of qualifications suggesting that the surgical type of a man is not to be found thirteen times in a dozen.

No operation so thoroughly demands that the trinity of surgery be carried out—thorough preparation of the patient, thorough operation and skilful after treatment.

As American surgeons we have a right to be proud that no other nation leads us in the originality of methods or successful results in removing fibroid tumors. Almost every State of our Union has operators who would venture to give a woman with a fibroid tumor the chances of life which surgery offers.

With a more thorough and perfect understanding of the essential anatomic conditions which make an abdomen containing a fibroid tumor different from one containing an ovarian cyst, with the realization of the ideal method applicable alike to all fibroid tumors regardless of their morphology—a method as successful in the hands of the many as the few skilled operators, may we not hope to say with all sincerity that fibroid tumors can be removed with the same low rate of mortality which has placed ovariectomy among the brilliant triumphs of the century. Then shall the torch lighted by McDowell in the midnight darkness shine forth with resplendent

glory in this brilliant noonday of abdominal surgery. The century which in a few years will have rolled on to the eternal past, has placed in the magnificent temple of medicine many pillars of surpassing beauty and grandeur, while its surgical columns have risen high toward Heaven where as gilded towers, they fain would vie with the God-given sunshine in dispelling the chill and gloom of human agony.

Chirurgia's tower, thy lights resplendent blaze
Dries woman's tears, and lengthens out her days;
McDowell and Sims of our Columbia's clime
Began the work moved onward high sublime.
To women, then, these blessings shall be given—
Queen of the home and home the type of Heaven.

Abdominal surgery is *proud* of her past because it is prophetic of her *future*. Even now in the vital present it shall stand forth unchallenged as the crowning glory of all science and of all art.

SECTION ON OBSTETRICS AND DISEASES OF WOMEN.

TUESDAY AFTERNOON—JUNE 5.

This department of the AMERICAN MEDICAL ASSOCIATION met in Covenant Hall, Odd Fellows Building, San Francisco, on Tuesday at 2 P.M. June 5, 1894. DR. JOSEPH EASTMAN, of Indianapolis, presided, and delivered the opening address and read a paper on "Removal of Fibroid Tumors."

It was moved and seconded that the paper read by Dr. Eastman be received for publication. Carried.

The regular Secretary being absent, DR. EASTMAN appointed DR. H. P. NEWMAN, of Chicago, to fill the position during this Convention.

DR. F. H. MARTIN, of Chicago, then read a paper on the "Treatment of Fibroid Tumors of the Uterus," followed by DR. E. E. MONTGOMERY, of Philadelphia, with a paper on "Removal of Fibroid Tumors through the Abdomen."

A discussion of the three papers was then taken up. A motion was made, seconded, and carried, that DR. R. E. HORTON, formerly a surgeon of Indianapolis, should open the discussion.

DISCUSSION.

DR. HORTON—This is unexpected that I should be called upon in this way to discuss this question, and I may be excused, probably, if I only make a few remarks on the occasion.

I have in my past life pursued this line of thought and practice. I have operated a number of times on this class of trouble. While it is true that we have three methods presented to us for the purpose of dealing with fibrous tumors, it is also true that medical men are not yet agreed as to the methods which shall be selected. I am one of those who do not believe that we can bring this question of operative method to a single method alone.

I have had a little remarkable experience on some lines. I have one case in my mind which would be difficult for these gentlemen to decide on any one of the three lines suggested here to-day. I recognize the fact that this question is a difficult one, but it has been opened up very much by our methods in ovarian procedure, by the removal of ovarian tumors, etc.

I occasionally came across this class of trouble, of fibrous tumors, and I found difficulties, as they have already related—difficulties in my own mind as to the proper course to be pursued. As the chairman has remarked, a man needs a clear thought and a steady hand, and a determination to win on the side of the patient, or else he certainly would not succeed with the class of tumors we are considering. The method of enucleation is one of those customs which is open to discussion. The abdominal method is one which has been pursued both for tumors that were not fibroid and ovarian as well.

Now the question comes back to us, What method shall we pursue, the abdominal or the vaginal? It can only be determined, as I apprehend, by the relative conditions of the case after having made a clear and careful examination. I have found it so in my own experience at any rate. I have had to decide these cases for myself when there was nobody to help. In these last few years I have been out on the western plains of Texas seeking health, and still continuing my work, and I have found it necessary to decide these questions entirely by myself, as I had nobody to go to and no one to call to my aid. These questions have come before me as they are presented here to-day.

I want to say in reference to ligation of these vessels, it is a question that years ago I determined in my own mind would be a successful method of controlling hemorrhages, not only in matters connected with tumors, but in other matters of hemorrhage. I am satisfied that we have come close to the time, if not already presented to us, when uterine hemorrhage can be controlled by ligating these vessels. You have all heard in a paper that has been read that the broad ligaments may be tied in such a way that it adds but little to the danger of the patient in hand. That is an effect which I have worked for in my own experience. I will very briefly allude to a case in which I think these gentlemen would neither enucleate or ligate the vessel. They would be forced, as I believe, to resort to the abdominal method in preference to any other method in the removal of the tumor.

I was called to a case of fibroid tumor where there was a mass of forty-five pounds in weight to be removed. It was growing out around the neck of the uterus. It was a question whether to remove it, as the patient had already been reduced to an extreme degree, or to let her die by letting it remain. I decided to operate upon it. She was advised as to the possibility of her death even upon the operating table, and also that she might recover. An abdominal operation was performed. The uterus was entirely imbedded in this mass of fibrous tumor. It had grown out from the base of the uterus and around its neck in such a way that the pelvis and the abdomen was entirely filled up with this growth. I decided that it could not be removed by an incision of the vagina and that the only method was the abdominal method, also that this was the only possible chance for the patient. I decided that we would have to ligate these vessels, as has been suggested here—ligate in such a way as to avoid the possibility of hemorrhage in the abdominal cavity. That operation was successfully made—successful so far as the operation was concerned, but not saving the patient's life. I am not ashamed to say that I made a failure.

ORIGINAL ARTICLES.

REMOVAL OF UTERINE TUMORS THROUGH THE ABDOMEN.

Read in the Section on Obstetrics and Diseases of Women at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY E. E. MONTGOMERY, M.D.

PROFESSOR CLINICAL GYNECOLOGY JEFFERSON MEDICAL COLLEGE;
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SURGEON TO LYING-IN CHARITY HOSPITAL,
PHILADELPHIA, PA.

The earliest abdominal operations for uterine growths were undoubtedly not deliberately premeditated but were errors in diagnosis. The abdomen had been opened for removal of an ovarian tumor. Between 1825 and 1851 fourteen such operations were reported, of which five had a fatal termination. Some surgeons then became bolder and ventured to extirpate subserous pediculated tumors. Granville had an unsuccessful, and Atlee and Lee successful cases.

Burnham in 1853 was the first American surgeon to undertake a partial extirpation of the uterus, while Kimball first practiced hysterectomy for an interstitial fibroma the cause of violent hemorrhages, and his patient recovered.

Partial extirpation of the uterus, in which the cervix uteri was used as a pedicle, early developed two methods of treating the stump,—the intra- and the extra-peritoneal.

The ligation and return of the stump to the abdominal cavity would seem the natural and more desirable procedure, but the elastic character of cervical tissue would permit the stump to shrivel so that its vessels were no longer compressed, and violent often fatal hemorrhage would follow the closure of the abdomen. The stump could not be secured *en masse* with sufficient firmness to insure against its occurrence. Koeberle made a great advance over ligation *en masse* when he suggested the metallic loop. Péan in 1870 reported a successful case and later published a work in which he presented such precise rules for the various details of the operation as to permanently associate his name with the extraperitoneal treatment of the stump. The operation consists in making an incision sufficiently large to permit the mass to be raised up and brought out. Where the cervix is long and readily affords a pedicle, fixation pins may be introduced beneath which the wire of the serre-nœud is applied. If the pedicle is short it will be necessary first, to ligate and cut through the broad ligaments. The pedicle is placed in the lower arch of the wound and its peritoneal covering which has been stripped back stitched fast to the parietal peritoneum,—unless the two surfaces can be held in apposition by the serre-nœud. The wound is closed and the stump so treated as to produce desiccation and separation of the strangulated portion without suppuration. The rubber ligature may be substituted for the metallic wire.

The great advantage of the extraperitoneal method is that the stump is under observation and the occurrence of hemorrhage immediately recognized and readily arrested. It has a number of disadvantages.

1. The tumor may have so distended and involved the cervix as to render the establishment of a pedicle sufficiently long to be treated externally very difficult, and the resulting traction may be so great as to cause severe pain and extensive ulceration from the pressure of the pins.

2. It is difficult to keep the external devitalized portion of the stump aseptic and prevent suppuration.

3. With separation of the external portion there is retraction of the stump leaving an excavation to fill up by granulation, thus prolonging convalescence.

4. With a large stump and its subsequent retraction there must necessarily result a weakened ventrum, greatly increasing the danger of subsequent hernia.

Kleeberg, of Odessa, in 1876 suggested the use of the elastic ligature to control hemorrhage and favor the intra-abdominal treatment of the stump. It is certainly efficient in the first object but the strangulated stump does not always obtain sufficient nourishment to prevent it sloughing, and thus become a source of danger from infection. A similar danger occasionally attends the formation of flaps which are subsequently sutured with deep buried and superficial catgut sutures as suggested by Martin.

In one case the writer had the entire surface of the stump slough. Fortunately he had used gauze drainage which afforded an escape for the mass and thus saved the life of the patient.

The greater familiarity of detail secured through frequent operations, and the desire to avoid the disadvantages of the extraperitoneal method, have led to a marked revision of the former methods of operating, in which the entire uterus is removed, or only a small portion of the cervix is retained. As a preliminary to the operation the vagina should be thoroughly cleansed by scrubbing with a 2 per cent. solution of creolin which contains tr. sapon. virides 3i to the pint. The solution should be removed by washing with sterilized water. The mucus should be curetted from the cervix and the canal be packed with gauze. The vagina should be tightly packed with gauze for the double purpose of raising the uterus and rendering plain when the vagina is reached. This procedure enables the operator to more readily secure the uterine arteries and displaces the ureters from the field of operation.

When the tumor is small it is better to place the patient in the Trendelenburg posture, as the deeper pelvis can thus be better inspected. After raising the tumor upon the abdomen, the peritoneum should be incised and pushed down, forming anterior and posterior flaps, the uterine arteries ligated and finally the ovarian. The broad ligaments cut and the posterior wall of the vagina opened. The removal of the tumor including the entire uterus is now easy. The tissues are cut with scissors hugging closely the cervix. The pelvis should be carefully sponged, any bleeding vaginal vessels secured and the peritoneal flaps united with fine silk or animal continuous suture. The closure of the peritoneal wound excludes from the abdominal cavity all the ligatures. The gauze should now be withdrawn from the vagina and a gauze drain be loosely placed between the raw surfaces to insure drainage.

The alternate operation to this, denominated the Eastman, Goffe or Baer operation consists in securing in a similar manner the ovarian and uterine arteries and cutting through the cervix, leaving that portion which is inclosed by the upper part of the vagina.

The cervical canal may be sterilized by cauterizing it with the thermo-cautery by carbolic acid, or it may be left alone. Some stretch the canal and pass through it a piece of gauze which serves to drain the cavity beneath the peritoneum; while others avoid any drain. The peritoneal flaps may be apposed by continuous suture or be held in apposition by one or two central sutures. Either of these operations indicate a marked advance in peritoneal surgery, as they afford an escape from the disadvantages of the extraperitoneal treatment of the stump.

Of the two procedures, the entire removal of the uterus seems, to the writer, the preferable procedure. The retention of the stump does not afford any especial facility in the operation, it is of no especial subsequent advantage to the patient and when large, through the decreased nutrition after ligation of the uterine arteries, it may be a source of sepsis.

ENUCLEATION.

All the methods for the removal of fibroids we have thus far discussed involve the sacrifice of the uterus. In subperitoneal pedunculated growths where the uterus was otherwise free, the sacrifice of

the organ would certainly be unjustifiable and myomectomy would be the proper procedure. There are growths, however, which involve the wall of the uterus, in which the tumor may be enucleated and the genital functions remain undisturbed. The operation consists in opening the capsule of the tumor and displacing the growth from its bed, then after trimming away shreds and drying cavity, introduce sutures so as to completely close the cavity. The peritoneum should be closed over the deeper sutures.

DISCUSSION.

DR. LAPHORN SMITH, MONTREAL—I have nothing to say but words of highest praise for the excellent papers we have listened to with so much appreciation. I think Dr. Montgomery has presented very fairly the present ideas he holds with regard to the treatment of fibroid tumors by the various methods which are now in use. But I think we may say a few words more about a few points which have not been touched upon. I think that I express the feelings of nearly every practitioner who has to deal with these cases, that were it not for the inevitable death rate, we would all be in favor of the total extirpation of the uterus. But that terrible point of death rate is the one shadow that is overhanging us all the time, and the only thing that is following me all the time when I am deciding how to treat a woman who puts her case in my hands, suffering from a fibroid tumor. That is why I risk being called slow sometimes—when I treat that woman with electricity for two or three months before I decide to have an operation. But I am glad to say, and it is my duty to say it here, that I have a great many women, perhaps thirty or forty, who have within a few months or half a year been restored and are enjoying good health, are free from pain and hemorrhage, and were treated only by galvanism and general constitutional remedies. But, unfortunately, electricity does not cure all cases. Now and then a case we treat for two or three months with electricity is not cured. Then we must do something more. In deciding what to do next I think I must still keep that death rate in view, and if I can cure the hemorrhage by an operation which has no death rate, or almost no death rate, that is the one I would give her the choice of next. It is for that reason I admire so much the operation of Dr. Martin, of Chicago, and why I think his paper has been so valuable to all of us. That is an operation, it seems to me, almost free from danger, and one we should be in favor of before we resort to one, which in the very best of hands has a death rate of 5 per cent. We can not expect that many can attain the splendid results which Dr. Eastman has. It is only after a long time and with unusual experience and unusual ability that a man can remove large tumors by this method with so small a death rate. In a few years, perhaps, when the operation has been so perfected that many more of us can hope to attain his results, we may say that is the operation to choose next. I wish to be understood, however, that I have nothing but words of admiration for the operation that Dr. Eastman performs. I am speaking for the majority of practitioners, even for the majority of specialists, and I say we should give the women the benefit of Dr. Martin's operation before we subject them to an operation which, in the best of hands, will give a death rate of 5 per cent., and in the hands of those less skilled a death rate as high as 10 or 15 per cent.

I wish to answer the question as to whether I punctured the tumor when using electricity. I wish to say distinctly that I do not, for the reason that I believe it would introduce an element of danger.

I also wish to answer another question that has been asked, and which is a question of great interest: Does electricity ever cause degeneration of a tumor which had not

been degenerated before? At one time I thought it did so, but on studying two or three cases subsequently I found the fault was not in electricity, but in the one who diagnosed the cases. A patient was sent to me whom five experienced physicians decided had a fibroid tumor. I applied electricity for six weeks, and finding the patient no better I advised an operation, and found, not a fibroid of the uterus but a great big sarcoma of the ovary. The fault was not with electricity, but with the diagnosis.

I have also had two cases of sarcoma occurring in the uterus which I believed was fibroid. So it looks as if the fault is more in diagnosing than the application of electricity.

DR. F. H. MARTIN—I have been very much pleased with the reception given to my part in the meeting this afternoon. I wish to eradicate one idea that may have been left on the minds of a few who are not acquainted with me, and that is in regard to this so-called conservative operation that I have brought forward. I think the key-note was struck by Dr. Laphorn Smith when he stated that we should not be afraid of conservatism. If you have all got the idea that I never did any work except to play with electricity, or do some little minor operation in the cervix, you are very much mistaken. My operation is not one that applies to all cases, and I want it distinctly understood that I do as much abdominal surgery in Chicago as any one, and it is not a conservative operation that I have developed and adopted because my courage is not great enough to do abdominal surgery. This operation was developed for the purpose of avoiding the necessity of submitting a patient to that inevitable death rate of 5 per cent. I have been unable to get below that, and I know of very few that have. I believe that I have been able to get as low as any one. This hysterectomy is a thing that brings gray hairs to the abdominal surgeon. From the time we operate on these cases until they are "out of the woods," as we say, they are a constant worry to every abdominal surgeon.

I do not want you to think for a moment from the remarks that I have made that I would adopt this operation for every case of fibroid tumor—that I would do hysterectomy in every case where I could not do this operation. I want you to bear in mind that in the great Gynecologist Convention held in Washington in 1876 that I was one of the chief contributors and that I then reported a great many cases that I had operated on at that time. I have had the pleasure of being called an electric crank with my friend Dr. Laphorn Smith, and others. I do not want you to forget that I believe in the use of electricity. The day before I left Chicago I operated upon a case sent to me by a physician. I did the operation, but I believe if I had the time to do over again and had a little more time I should have used hysterectomy. I ligated the broad ligaments, and fortunately succeeded in ligating enough to include not only the uterine artery, but I think, all the branches.

I wish to add my testimony in regard to the effects of electricity in these fibroid tumors. I have never known malignant trouble to follow its use; and I have never known malignant degeneration to follow this process I have described to-day. Although it is only two years old, I can speak from a good deal of experience on that point. I have had malignant cases, so-called, referred to me, and one case in particular was referred to me by one of the best diagnosticians in this country as having a tumor as malignant as sarcoma. He said: "If you can cure the hemorrhage by electricity I believe you can cure the case." I treated the case, and succeeded in checking the hemorrhage and reducing the tumor, and as he expressed it, cured the patient. I said: "Doctor, you made a mistake in your diagnosis." He said: "I don't believe it."

Now in the discussion of hysterectomy there has been one method that has been somewhat slighted; I don't believe in slighting any one, and especially if that one happens to be from Chicago. In my article I stated that in the operation of abdominal hysterectomy, if I could take my choice it would be this way: Payne last, Byford first, and Eastman next. The reason I prefer Byford is because we leave that key to the arch that has been spoken of in the vault of the vagina and cervix. The operation is performed down through that point exactly as Baer's operation is performed; the broad ligatures are ligated, and the tumor is cut off above the cervix; the cervix is cored and sewed up, the perineum is sewed over that, and then a small opening is made anterior to the cervix in the vault of the vagina, and the cervix is introverted into the vagina. If we have not succeeded in tying the uterine artery thoroughly, as we sometimes fail to do, you have the hemorrhage where it can be controlled. This makes, to my mind, an ideal method; your stump is outside and at the same time you have all the spring and give; there is no pressure on the bladder, no drawing of the abdominal wall; there is no absolute fixation, and you have preserved the key of the arch.

I will now take up the point made by Dr. MacMonegle as to the advisability of allowing a woman to become pregnant following an operation, as to the advisability of ligating so much of these tumors, and as to whether degeneration would not occur—that is, so much of the nutriment would be shut off that gangrene will occur.

In the first case I operated on I ligated one side, and after ligating thoroughly I noticed that the cervix changed color and the woman was flowing badly at the time. The hemorrhage ceased and I started in to ligate the opposite side and did a very poor job—that is, I was really afraid to ligate the opposite side of that broad ligament for fear I would get gangrene. That case is not one of my star cases. It has not done as well as I would have liked, although the woman is very much improved in health. I believe I made a mistake in not ligating thoroughly. We must remember this: We wish to cut off the enormous blood supply and starve the tumor; we must understand that the tumor in order to have growth must of necessity draw upon the blood supply. After I had ligated the broad ligaments enough to include both ovarian arteries, while I cut off two-thirds of the blood to the tumor, there was probably more blood going to that tumor than would go to a normal uterus. And for that reason I believe we can safely cut off three arteries—two on one side, and one on the opposite—and there will be blood enough to supply a normal pregnancy. I am sure that in a very few years I will be able to settle that point definitely. I believe that two or three of these cases I have operated upon for genuine fibroid will be put into a condition so that pregnancy will occur.

Now in regard to the preparation of the patient: It is impossible to make the vagina clean without cleaning out the uterus. The first thing is to bring it down, dilate it and thoroughly clean it. I would not have an aseptic stump in the operation. I would pack it with gauze and allow it to remain long enough so that my side incision healed before the gauze was removed. I have had, as you noticed, suppuration in one case. An abdominal wound, even where everything is favorable, occasionally suppurates—at least in my experience.

I wish to thank the Association for their kind attention. (A motion was made by Dr. F. H. Martin that the Chairman close the discussion, which motion was seconded and carried.)

DR. EASTMAN—Patients and tumors talk more eloquently than doctors. Some of you will remember that the main argument which I advanced in connection with the method which I have just described, was a method applicable to all

cases, regardless of the form of tumor. I am well convinced that Dr. Martin's method is a very good one. I, at his suggestion, used it in one case. But if a man is going to be an abdominal surgeon he must have a good deal to do with the women, and if he does not please the women he will soon have no business. The women in whom I have removed the ovaries and allowed the tumor to remain, and the women in whom I ligated the uterine arteries, the tumor still remaining, are very unhappy; they are following me by faith and not by sight. They may obtain sight later on, but thus far they say: "I wish that tumor was gone; it haunts me the last thing when I go to sleep and the first thing when I wake up in the morning."

But I can conceive of cases where the operation is advisable and, as I say, I used it in one case. I think the woman following me by faith a little further, can see I did a wise thing in not removing the tumor. But it is necessary for us to seek the truth and to get at the actual facts in the advocacy of any particular method. As my friend suggested, set out the peculiarities of a given case and apply our remedy.

Now I wish to ask Dr. Martin how he could tell the gangrenous mass existed in the tumor. I have dealt with some five or six cases this year where I had gangrenous nodular masses in the tumor. If I had ligated the arteries in those cases I surely would only have contributed to the death of the patient. The operation of ligature is applicable in some cases. But I would like to ask any one how it is we are going to determine in any given case that the tumor is gangrenous or not. This "grip" that has been going around has seemed to spend its force in the point of least resistance, in the tumor, and gangrene has been the result in a number of cases.

I will call your attention to this tumor before us. Right here is the cervical canal. Now I want to ask the gentlemen who fix the pedicle in the abdominal wound what they would do in this case. Electricity will not do, ligating will not do, for here is a gangrenous mass. Dr. Baer can not tie the uterine arteries, as he suggests, because here is a mass absolutely filling up both sides of the uterus. How are we going to get at the uterine arteries?

It is especially to this sort of case that I have directed my attention—and which is the subject of my paper—and I ligate the artery at this point here (showing), and I see no necessity for ligating the same artery again. As has been proven in the specimens here, we can peel back and go between the arteries of the uterus and enucleate the mass.

I had another case where I thought of ligating the arteries as suggested by Dr. Martin, but the tumor was imbedded in the pelvis to such an extent that it was very difficult to reach them; the pelvic roof was drawn up, and I could not reach them in that case. Those are simple cases where it is not available. So that all methods are not applicable. If there is any method available in all cases it is the one I have been describing. The point I make is, that where there is a good cervix, where it is not disorganized, that this can be enucleated in less time than you can adjust the ligatures and perform the other operations. This enucleation method will bear you out when the other methods are absolutely ruled out and can not be considered in that class of tumors.

It was suggested by some gentleman in the discussion that a little piece of gauze be put through the cervix for drainage. I most emphatically protest against this. If there is a drainage down into the vagina it must be thorough, so there can be a thorough washing out. If you are going to drain into the vagina, cut wide enough so you can pack in plenty of gauze. I prefer a rubber drainage tube. A drainage which is not perfect is absolute worthless and decidedly dangerous.

I want to be fair with the advocates of all these methods. It has been said: "Why fix the pedicle in the abdominal wound?" As I said in my paper, you have practically but one wound, whereas in all these other methods of total extirpation you have two wounds.

I have not, for reasons, referred to any gentleman across the water so far as dealing with fibrous tumors are concerned; we need go no further than Boston, for we are as advanced in methods and have as much success as in any part of the world.

It seems to me that nothing could make me happier than such perfection of methods (I put that in the plural) as will make the mortality so low that women will not dread the operation, and that we can point them to patients here and there who have been entirely relieved of fibroid tumors. This century of surgical triumph will surely accomplish all this. We are in the right line in discussing all these methods, weighing every method for what it is worth. There are those who are dying little by little; they are living in death; they are dying in life. They have repeatedly said to me that their life was not worth living, and they would be willing to be launched into eternity from the operating table rather than to feel that tumor there.

I refer in my paper to some seven cases in as many months where the patients were dying of tumors which were gangrenous. One lady came from Chicago with a fibroid tumor which she had carried for fifteen years. It seemed as if the patient was dying from internal hemorrhage. She was brought to me on a stretcher. I opened the abdomen and found several quarts of bloody serum. I succeeded in removing it. That case is a warning to all women who have fibroid tumors.

So I most emphatically say the statement that there is such a heavy mortality following hysterectomy must be put beside the statement that fibroid tumors are dangerous, and we can never know when they are harmless; when dangerous I think the fibroid tumor had better come out, and if there are nodular masses low down, take it out by the roots.

A CASE OF GANGRENOUS NECROSIS OF THE MAMMARY GLAND.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY J. SCHNECK, M.D.

MT. CARMEL, ILL.

On Dec. 3, 1891, I visited Mrs. C., who lives three miles in the country. She is a large, healthy woman with a good family history as to health, morals and cleanliness; has always lived on a farm. The house in which she lives is a large, new frame building, situated in a healthy location. She was then, at the age of 39 years, nursing her second child, which was healthy and in its seventeenth month. The mammae were of medium size, and had never given her any trouble previous to this attack. The family had not been using rye bread or buckwheat cakes.

I found a deep gangrenous ulcer on the left breast, extending from near the nipple toward the median line; irregular in outline and about three inches in diameter. The margin of the ulcer was a black color, the bottom being covered by the characteristic ashy-gray coat. The healthy skin along the margin of the ulcer was overhanging the undermining soft parts. The whole gland was swollen, imparting a soft, baggy sensation to the touch. The border of the ulcer was a deep red color which gradually faded off into the natural tint. The odor was very offensive and was that which is characteristic of dead tissue. She stated that about ten days previous to my visit she first felt a hard, tender lump at this point in the breast, and feared it would prove to be a small abscess, although the skin was not red over the hard part. She could not remember a time when the gland had been injured or bruised. As the hard nodule developed, the skin immediately over it changed to a black color, the discoloration gradually spreading from its center.

She had poulticed the breast for several days before I saw it. I ordered that the child be weaned; removed all the dead tissue I could with forceps and scissors; gave full doses of muriated tincture of iron and quinin, and directed her to have concentrated animal diet. The breast was to be washed clean with bichlorid of mercury solution every two hours, then to be covered with a charcoal and flaxseed meal poultice. At the end of forty-eight hours the progress of the disease had not been checked by this treatment, the gangrenous surface was larger than the palm of a hand. I now made daily applications of nitric acid, diluted one-half with water, to the margin and under the overhanging skin. Otherwise continued the former treatment. This checked the progress of the disease in three days; but it was necessary to apply the nitric acid to a few small points where the disease would begin to spread, for several days more. In due time the diseased surface became covered with healthy granulations and in six weeks was entirely covered with skin. Eighteen months later I attended her in her third accouchement. The breast was then smaller than natural and deformed by a large scar. Milk was secreted freely by this gland after the confinement. The child nursed from both glands for about twenty months and was then weaned.

I have searched quite extensively in medical literature but have been unable to find a parallel case. I find reports of cases in which the extremities, lungs and pleura, tongue, pancreas, penis, vulva and mouth were involved by idiopathic gangrene; and other instances where it has involved wounds and other injuries, but have found no instance in which a healthy mammary gland was involved.

The mammary glands are so well supplied with comparatively large blood vessels, derived from different parts of the arterial system, that it is surprising to find destructive processes taking place in their tissues without a special cause. They are supplied with blood: 1, by branches of the internal mammary artery direct; 2, by the long thoracic artery direct, and by anastomosis with the internal mammary; 3, by anastomosis of the superior thoracic with the internal mammary artery.

The blood is collected at the base of the nipple in the *circulus veinosis*, and thence conveyed to the axillary and internal mammary veins.

The causes of gangrene usually given are more or less vague, especially when the exact process by which the resulting death is produced is asked for. The causes assigned are: 1, arrest or interference with the nutrition of the part; 2, atheromatous condition of blood vessels; 3, obstruction in capillaries; 4, obstruction in arteries; 5, obstruction in veins; 6, diminution of cardiac power; 7, diminution of vasomotor energy; 8, old age; 9, severe bruises; 10, intense inflammation; 11, debility from disease, as cholera, typhus, typhoid, measles, diphtheria, erysipelas, scarlatina, exophthalmic goitre, dysentery, anemia, diabetes and cerebro-spinal fever, all of which are reported to have been connected as causes of gangrene; 12, in hospital gangrene, some specific infection is supposed to exist. None of these causes appear to be applicable to the case just reported.

I find that authors give various shades of meaning to the words, mortification, gangrene, necrosis and sphacelus.

"When a soft part is dying, it is said to be in a state of gangrene; and when dead, in that of sphacelus."—Bryant, "Practice of Surgery."

"Gangrene is the arrest of the function of organic life in a circumscribed portion of the soft parts of the body, leading to complete death of the same."—W. MacCormac, "Quain's Dictionary of Medicine."

"Gangrene is death of a part of the body from the gradual or sudden arrest of its nutrition. It is usu-

ally applied to the process of mortification in the soft structures. The analogous condition of bone is called *necrosis*. Animal tissues have two modes of dying—the one is *molecular*, or death by granular metamorphosis, in which no trace of the anatomic or histologic properties of the tissues remain; the other is death in *bulk*, in which, although the tissues deprived of life undergo rapid decomposition and ultimate disintegration, they retain for a time something of their original form. It is to denote this last variety of tissue death that the term, gangrene, is employed.”—Wyeth, “Text-book on Surgery.”

“The death of any part of the body is called necrosis. Necrosis of external parts of the body, attended by shrinkage and mummification of the tissues, is called dry gangrene. Necrosis accompanied by putrefaction of the dead tissues is called moist gangrene.”—Flint, “Practice of Medicine.”

“By the term, mortification, is meant the death of any portion of a living body. Gangrene may be said to imply a spreading destructive process, attended by progressive loss of vitality in the living tissues, of which sloughing phagedena, or hospital gangrene, affords a good example. When soft parts are dead, they are said to be in a state of sphacelus. A more limited dead portion of the body is a ‘slough.’ Death of bone is termed necrosis; a dead piece a sequestrum; the process by which a dead bone is separated from the living is called exfoliation. Some authors apply the term ‘necrosis’ to death of any tissue; others extend it from bone to death of cartilage only.”—Holmes Coote, “Holmes’ System of Surgery.”

“Mortification may be defined as the death of a part, the rest of the organism retaining its vitality. The word, as usually employed in this and other countries, is synonymous with gangrene, so much in vogue among French writers. Formerly the term gangrene was used to denote that state of a part which immediately precedes its dissolution, while sphacelus was employed to signify the complete extinction of life, without any possibility of recovery. In speaking of the death of a bone, necrosis is the expression generally used. It would save much trouble, and prevent confusion, if all these terms, excepting the first, were abolished.”—Gross, “System of Surgery.”

“Necrosis, gangrene, mortification and sphacelus are terms used synonymously to indicate the death of a part. English and American writers have usually restricted the meaning of the word, necrosis, to death of bone, while the remaining terms were used to express the same condition affecting the soft tissues. Recently a sharp distinction has been made between necrosis and gangrene from an etiologic standpoint, according to which necrosis is said to have taken place when the circulation and nutritive changes in a part have completely ceased, to be followed by gangrene as soon as saprophytic bacteria invade it and give rise to putrefaction.”—Senn, “Principles of Surgery.”

Much of this confusion might be avoided if all would bear in mind the meaning of the words in their original languages.

Sphacelus is derived from a Greek word which means “I slay.” Necrosis is derived from another Greek word which is translated, “I kill or make dead.” Mortification is formed of two Latin words and means in the original, “I become dead.” So that the three words are practically synonymous in their meaning and should be applied to a part that

is dead, or in process of being destroyed, without reference to the nature of the tissue involved.

Gangrene is derived from the Greek language, and means “to gnaw” or “to eat,” hence is applicable to rodent or phagedenic ulceration, which also results in destruction and death of the tissue involved. Clinically it can not be applied distinctively from the other three terms. I have used the word, gangrene, in its adjective form in the above title, for the reason that death of the tissues occurred by phagedenic processes.

THE PATHOLOGY OF TETANY.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY JOHN T. CARPENTER, A.M., M.D.

POTTSVILLE, PA.

1. By way of introduction, a brief sketch of the literature and history of tetany may not be inappropriate, since very few observations have been published or papers written in this country upon the disease in question.

The recognition of tetany (though Steinheim is credited by Stewart, of Montreal, as the first to give a true clinical description of tetany in 1830) dates from the memoirs of Dance, published in 1831 in the *Archives Générales de Médecine*, and entitled, “Observations on a Form of Intermittent Tetanus.” The attention of the French physicians of this period having been directed to the new malady, various papers and memoirs were contributed by them from 1832 to 1855, elucidating its characteristic symptoms and conditions so thoroughly that it may be fairly conceded that to their labors is due all our present knowledge of this disorder. Several names were proposed to be given to this neurosis, some of them expressing the special pathologic view taken by the author, *e.g.*, rheumatic contraction occurring in nurses (Trousseau); intermittent tetanus (Dance); idiopathic muscular spasms (Delpech). Of other titles, conveying no necessary theory, that which has finally prevailed is “tetany,” proposed by Dr. Lucien Corvisant in 1852. To this designation there can be no valid objection, and it happily calls attention to a marked feature in the symptomatology, *viz*: That there is, by reason of extension of the muscular contractions to the muscles of the jaws, a superficial resemblance to idiopathic tetanus.

Among other nations than, the French the more recent contributions have been made by Buzzard, Gowers, and Horsley, of England; Berger, Erb, Eichhorst, Meinert, Mueller and others of Germany; Hun, J. Lewis Smith, Lyman, Carpenter, and Stewart of America.

Under the light thrown upon the course of tetany, its conditions, and its characteristics, by the various writings referred to, it has become well recognized as a neurosis, and been given a definite place among the nervous diseases.

2. Definition. Tetany is perhaps best defined as a nervous disorder, evidenced by tonic spasms of an intermittent character, which may involve any or all the groups of voluntary muscles from the extremities to the muscles of the jaws, and which may be reproduced at will, during a period of intermission, by compression of the nerve trunks or great vessels which supply the muscles which have been involved in the spasm.

3. Pathology. It will be noticed that this descriptive definition does not go beneath the surface. It does not attempt to deal with the underlying pathology of this disorder, which up to this time has not been definitely settled. Two reasons may be adduced for this pathologic ignorance, first: That in the few instances "where a histologic examination of the nervous structures has been obtained after death, no lesion to account for the symptoms present during life could be discovered."—(Stewart, *Trans. of Assoc. of American Physicians*, Vol. iv, 1889). Indeed, according to Lyman, the "later observers, particularly Berger, in the "German Encyclopedia of Medical Sciences," and Eichhorst, take the ground pretty strongly that there is no definite lesion connected with the disease." In other words, no information can be looked for from lesions found post-mortem, to instruct us in the pathology of tetany. It will be, later on in this paper, possible to give sufficient reasons why such a state of things might be expected to exist.

The second cause of pathologic uncertainty in the study of tetany lies in the various forms under which it has been observed to appear, and in the various conditions and circumstances which attend its approach and development. Four forms of tetany may be safely stated to be established by competent observations: 1, rheumatic or epidemic tetany—acute, usually not lasting over two or three weeks, rarely fatal; 2, a more chronic form, due either to chronic diarrhea, prolonged lactation, or other debilitating influences. Recovery is usual; 3, tetany occurring in the course of dilatation of the stomach—very often fatal; 4, surgical tetany, following the removal of the thyroid glands. This is frequently fatal.

But besides its different forms, tetany is attended and preceded by many and various phenomena which may well perplex attempts to reduce them to conformity to any common law. If diarrhea has been a common antecedent, cases are on record where constipation was the observed condition. Women in the puerperium and during lactation have been largely contributive to the lists of tetany—but so have children and men. Typhoid fever and phthisis have furnished a number of cases. So has exudative disease of the pharynx. What of surgical tetany, or of dilatation of the stomach as a cause? Can we make any generalization among all these varying conditions? Can any fundamental peculiarity be made to appear common to all these morbid states? This very difficult problem has seemed to me only solvable on the hypothesis of septic infection, and upon that hypothesis to be satisfactorily explained. Every antecedent disease that has been observed connected with tetany may be proved capable of inducing septic infection; or in other words:

Tetany, as a general rule, follows upon such diseased conditions of the system as are observed to produce morbid discharges from mucous surfaces, whose absorption is known to cause symptoms in remote parts of the body, due to the circulation of septic poison.

I will venture to speak more in detail of the antecedent diseases or morbid conditions most frequently connected with tetany. And first may be mentioned the puerperium or post-partum state. Trousseau speaks of it in connection with tetany, as an intermediate condition between health and disease. But it is more. It is very frequently a state of disease, due to septic inflammation of the generative tract.

Modern obstetric physicians know that sepsis (mild or severe) is usual at this period. To it they justly attribute the so-called "milk fever," the puerperal inflammations, and many other of the diseases of puerperal women. If, then, a septic condition may and often does exist, sufficient to produce these diseases in the post-puerperal woman, it is not difficult to see that it will also account satisfactorily for the causation of tetany. This explanation will include necessarily the cases of tetany among wet-nurses in lying-in hospitals, where it was so frequently observed that one of the names bestowed upon the disorder was "rheumatic contractions occurring among nurses."

Next to the post-puerperal state may be mentioned diarrhea—and especially when chronic. It is almost unnecessary to more than advert to the conditions of putrefactive and septic intestinal catarrh as competent to produce systemic infection by absorption, and, consequently, any of the so-called septicemic results. Under my own observation, in the war of the Rebellion such results were very frequent, and septic poisoning from chronic diarrhea was fully recognized by all army surgeons of experience. Certainly, then, tetany may well have occurred after chronic diarrhea if it be a result of sepsis. Bearing immediately upon this point, I may note that Trousseau records "many cases in individuals who had suffered from cholera," and that some instances which were observed after the septic diarrhea of typhoid fever have been recorded by Demarquey and Delpech.

Tetany has been noted where the precedent condition was that of chronic constipation. Such a case has been recently been published by Dr. J. Lewis Smith (*Med. News* Aug. 31, 1889). But we all know that in many instances constipation is attended by a catarrhal inflammation of some part of the intestinal mucous membrane, or even by putrefactive changes in the food, resulting in the production of poisonous alkaloids, which by absorption result in serious septic infection.

Certain cases of phthisis have been observed to precede the development of tetany. There is no difficulty here in the proposition that a sepsis which is competent to produce hectic fever is equally effective in causing conditions favorable to the development of the disorder which we are now considering.

In the recorded cases preceded by dilatation of the stomach, the putrefactive change in the gastric contents, the ptomaines generated and absorbed continuously for a long period of time, sufficiently explain the sepsis and the tetany as well.

To sum up, I will say that so far as my study of this subject has gone:

In all cases of recorded observations of morbid processes antecedent to tetany a probable sepsis may be inferred, and no other cause common to them has so far been discovered. It is therefore logically necessary to assign the causation of tetany to this fundamental peculiarity, as the antecedent factor, and to consider tetany not as an independent disease, but as a disorder consequent on some one of those diseases which generate septic poison.

5. I will adduce a few cases to illustrate the connection of septicemia with tetany:

Case 1.—Cecil D., age 13 months, was seen by me Sept. 29, 1883, for an apparently poisoned wound near the hip joint. An area of inflammation over a hardened base was found, apparently extending outward from a central puncture.

Pain and fever were noted. In a few days a small abscess was opened, and thin sero-pus escaped. Under antiseptic measures this healed readily enough, but nervous irritation persisted in spite of sedative treatment. Soon a tonic spasm affected the eyeballs, fixing them and directing them to the right. The left arm and hand were contracted typically, the flexed thumb and fingers inclosing it being fixed in the position of the so-called accoucheur's hand. No ordinary convulsions occurred, nor was there loss of consciousness. Some relief was obtained by the use of chloral. Later in the day, however, the eyes were again contracted by toxic spasm but were drawn in the opposite direction, to the left instead of the right, and now the right arm became involved. Some difficulty in administering remedies made me discover that the jaws could not well be opened. On the third day the condition of affairs was much worse. There was alternation of tonic spasm first upon the right side and then upon the left side of the body, in a curious manner, with completely locked jaws. I relaxed the contraction by chloroform inhalation sufficiently to allow the introduction of wedges of soft wood between the jaws; and to my great surprise the entire spasm relaxed. The pressure of these contracted muscles upon the wood seemed to exhaust their contractility. The eyes became straightened, and all muscles relaxed. Relief was, however, only temporary. The spasms returned. No treatment availed to stay the progress of the disease, and death ensued in about a week from exhaustion.

In this case the whole train of symptoms must be traced to the abscess. The child was previously in perfect health, and its surroundings unexceptionable. No local results were left. The abscess healed, but septic material had been absorbed, and tetany followed. There is absolutely no other explanation of the case possible.

Case 2.—Sophie S., aged 11 months, was seen Sept. 29, 1880, and underwent an attack of scarlatina. Septic poisoning was incurred from foul secretions in the throat. Purulent effusion into the right shoulder joint followed. I opened the joint freely, and evacuated a quantity of sero-pus. Under antiseptic management the wound healed kindly, and the joint was restored to usefulness, but nervous symptoms persisted. Restlessness, twitchings, and finally laryngeal spasm ensued. A fit of crying would bring on a paroxysm of "crowing croup" and fits of crying were not infrequent. The muscular contractions of tetany were then observed, and at first were mistaken for ordinary convulsions, but as the spasms were tonic and not clonic spasms it is very evident that their true significance was only recognized at a late date. The child eventually recovered, but for several years afterwards was liable to attacks of tetany (which I then recognized) from very slight causes, such as taking cold, or during attacks of ordinary diarrhea from subsequent teething.

Any comment upon this case which would ignore the principal part taken by the blood poisoning in the production of the tetany would be entirely illogical and unsatisfactory. If this case teaches anything, it is that tetany was here a nervous disorder consequent on previous disease, and that the sepsis, which caused purulent effusion into the shoulder joint produced also the tetany.

Case 3.—A little girl, 21 months old; recorded by Trouseau. Symptoms observed were edema of the feet and limbs, with the contractions of tetany very well marked. The child was of weak constitution, and was suffering from membranous, ulcerative stomatitis. The exudations which were of a grayish-white color extended over the tongue.

In this description we recognize a condition of vitiated and septic secretions, in which every opportunity exists for absorption into the blood of the material of the poison which I have assumed to be the efficient cause of tetany.

With these cases I will close the direct argument, and pass to other indirect and corroborative reasons why septic infection may produce tetany.

5. For, in a general way, it may be shown that many other nervous affections do directly follow

sepsis, whence it is an easy deduction that tetany is not unlikely to be in the same category.

The following case, in which laryngismus stridulus occurred after a surgical procedure, which unfortunately ended in septic absorption, will be to the point:

Case 4.—E. A. C., aged about 6 months, was operated on for a very extensive erectile tumor of the scalp which was rapidly increasing. Hemorrhage being feared, ligation was done under chloroform. The strangulation was not perfectly accomplished, owing to the size of the tumor, and death of the parts proceeded slowly. Erysipelas was observed in the scalp about the ligatures, and the tumor was immediately removed by the knife, and wound dressed antiseptically. Infection, however, had already taken place. The left shoulder joint became widened, the superficial veins enlarged, and fluctuation was evident in the synovial sac.

I opened the joint, washed out its contents, and treated the wound antiseptically. A perfect cure resulted, with restored motion of the joint. But nervous disorder was left. Restlessness was extreme, and the child became the subject of severe laryngismus stridulus, which came on after the least distress or fright, or even after a crying spell. This, although, alleviated by every device and every attention possible, remained through life, the little sufferer dying eventually of malignant diphtheria.

The remarkable resemblance between this case and Case 2 will be noticed. Sepsis after scarlatina, and after a surgical operation, equally, produced purulent effusion into the shoulder joint. The final result of septic absorption was expended on the nervous system—in one instance tetany, in the other laryngismus stridulus resulted.

Case 5.—Leonard F., aged 28 years, sustained a fracture of the clavicle. From neglect and mismanagement secondary abscesses occurred under the axilla. I was called to see him for a violent attack of chorea, which set in after the evacuation of the pus from the axillary region. This chorea was attended with disturbance of the higher nerve centers, as shown by attacks of irrepressible rage, delusions, and other symptoms of acute mania. Entire recovery in about seven months took place.

I need not cite any other illustrations of the fact that serious nervous disorders may occasionally follow sepsis. It is sufficient for my purpose to direct attention to these ordinary medical facts, and show from analogy that it lends great weight to my theory of the pathology of tetany.

Why remote effects of septic absorption are expended on the nervous system is not very hard to understand. In the first place such a condition of blood poisoning produces a profound anemia. This was evident to army surgeons in cases of chronic diarrhea. It is equally observable in the septicemia of puerperal women. The absorption of ptomaines from the stomach and the intestinal canal equally impoverish the blood, and produce the anemia which is the proximate cause of nervous irritation. And, as pertinently remarked by Dr. Jacobi, anemia, particularly in infants and children, in whom the irritability is very great and the inhibitory centers very insufficiently developed, often predisposes to convulsions. To this I will add, and to other nervous disorders, including tetany.

Another observation which ought to be made here is as to the influence of habit in keeping up for a longer or shorter period the attacks of tetany. Given the septic absorption, and the consequent anemia, after nervous disorder (tetany for instance) has been induced, a condition of unstable equilibrium is set up in the nerve centers under which very slight influences will reproduce from habit, if from nothing else, the nervous symptoms which were at first inaugurated by septic absorption.

6. It may have occurred to many of us, since the investigation of tetany has been attempted, how rare a disorder it is. Forty or fifty years ago it challenged attention by its frequent occurrence in epidemics, among wet nurses in hospitals and others. Twenty years ago it was not commonly met with. Now, few of us can testify to having treated a case. What is there in the management of post-*puerperal* women which has hindered the development of tetany as a sequel? What is there in the diarrheas of the present day to produce a like immunity? Is it not because we recognize *puerperal* and intestinal sepsis, and make antiseptic medication our principal treatment, using douches of hydrargyric bichlorid for the *puerperium*, and so modifying by resorcin, sulphocarbolate of zinc, creosote, or other antiseptics the intestinal secretions that a septic poisoning from diarrhea is now an exceptional result?

And so with all other diseases; so thoroughly have antiseptic measures been employed in treatment that septic poisoning promises to become almost a memory of the past. With the extinction of septicemia will come virtually the disappearance of septic disorders and sequelæ, and among them of tetany itself. Just as the *puerperal* inflammations have become less and less frequent under the rise and perfecting of antiseptic midwifery, so with tetany. It is even now a record mostly of past days in medicine.

And this to my mind is the most convincing proof of the pathologic considerations which I have had the honor to lay before you.

AUTO-INFECTION IN DISEASES OF THE NERVOUS SYSTEM AND SUGGESTIONS AS TO ITS TREATMENT.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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The present is preëminently the time of the study of the etiology of disease, just as the past has been characterized by an almost exhaustive study of anatomy, physiology and pathology. In this connection the subject of infection has been the most profitable, as it has been the most interesting of all investigations; most interesting because little by little it has brought to light the knowledge of microorganisms that produce diseases, the causation of which was hitherto inexplicable; profitable because it has and will result in the discovery of the conditions that arrest their development and the agents that will neutralize their toxic influence.

Infection from without we may safely say produces the various forms of meningitis, including cerebro-spinal meningitis, tetanus, hydrophobia, acute poliomyelitis, acute ascending paralysis, the *puerperal* and syphilitic diseases of the nervous system.

The infections which arise from within are also important etiologic factors in developing diseases of the nervous system. The principal source of this auto-infection is the gastro-intestinal tract. The microorganisms there developed may produce simple indispositions or the graver conditions of delirium, coma, eclampsia, excessive elevation of temperature, acholia, cardiac failure and paralysis of the medulla

oblongata. They bring about these results in several different ways. They may act mechanically by obstructing blood vessels of the lungs, kidneys and brain; they may develop anatomic lesions in epithelial cells, in muscular fibers and other elements, thereby producing edema, hemorrhage, suppuration and gangrene. They doubtless consume for their own nutrition that which is necessary for the nutrition of the individual, and they do produce toxins. We have long been familiar with the toxic agents produced by fermentation in the laboratory, such as carbonic acid, marsh gas, hydrogen, ammonia and such complex alkaloids as indol-phenal and skatol, and as toxic agents may be produced in the laboratory of the chemist, so may they be in the laboratory of this great tract.

The reality of this intestinal auto-intoxication can be shown by demonstrating the toxins in feces and in the urine which owe their presence therein to putrid fermentation in the intestines, and diminish *pari passu*, with diminution of the intestinal fermentation, and by the prompt appearance of grave symptoms when the progress of the fecal material is arrested; as, for example, in strangulated hernia.

These toxins are formed at all times in the ordinary gastro-intestinal tract, and the individual is saved from intoxication, first by the liver that stands as a watchful sentinel, shutting out or destroying the poisons carried to it by the portal circulation from the digestive tract, and made by the rapid elimination in a state of health of the toxic products by the intestines, the lungs, the skin and the kidneys. The toxic products of these several emunctories have all been carefully studied, especially those of the urine, notably by Prof. Bouchard, of Paris.¹

The relation of this subject to the psychoses is most important. The subject was discussed at the Fourth Congress of Mental Medicine, held at Rochelle in August, 1893.

Drs. Regis and Chevalier-Lavaure, referees, stated² that they had been working on the line of autogenous poisons and had made many chemical and clinical researches to elucidate the relations of auto-intoxications to mental diseases. The toxicity of the urine was found diminished in maniacal states and augmented in melancholia. The urine of maniacal patients when injected into animals produces excitation and convulsions; that of melancholic patients, restlessness, dejection and stupor.

The mental disorders that arise during the course of the infectious diseases are clearly recognized as the result of pathogenic organisms, with the clinical observation that in the febrile stage the psychosis is usually an acute delirium resembling alcoholic; in the post-febrile stage, it is usually of an asthenic character, a state of mental cloudiness and confusion. The visceral psychoses are also in great measure the consequence of auto-intoxication, and they present as their clinical aspects if the intoxication is acute, delirium; if the intoxication is slow, a state resembling melancholia or more rarely paralytic dementia. Not only are we to recognize many of these mental diseases as auto-infections, but also such diseases as epilepsy, megrim, chorea and neurasthenia, and probably others of the nervous system.

We find in these cases a coated tongue, a foul breath, a gastric and intestinal indigestion, flatulency,

¹ Lectures on Auto-Intoxication in Disease.

² Bost. Med. Surg. Journal. Sept. 14 1893.

palpitation, irregularity of heart's action, a peculiar complexion, constipation, and occasionally diarrhea, all evidence of a condition of perverted function in the gastro-intestinal tract that will develop microorganisms and toxins.

The indications for treatment are to prevent the development of the toxic products and to promote as rapidly as possible their elimination. To meet the first indication a carefully regulated diet is of paramount importance, and this must be selected with reference to the capacity of the patient. Milk and its preparations are the ideal diet, because under proper direction they introduce into the body the least amount of toxins or microorganisms, and leave the minimum amount of waste material; but we must bear in mind that this diet contains a considerable excess of fats and a deficiency of carbohydrates, and therefore will not properly nourish all persons. I know no more difficult and important question in these cases of auto-infection than the selection of a diet that will furnish nutrient material in abundance, with the minimum amount of intestinal and gastric fermentation. Each case must be carefully studied by itself, and the diet adjusted to the individual peculiarities. The patient should be weighed frequently to determine the precise condition of general nutrition.

To further promote the first indication, a judicious course of gastro-intestinal antiseptics must be maintained. The use of lavage and enteroclysis are valuable aids that are almost always required, and sterilized water is amply sufficient to produce all the results possible. The condition of gastric digestion should be carefully determined by analysis. If the amount of hydrochloric acid is deficient, antiseptics can be promoted by a combination of hydrochloric acid, with bitter tonics and aromatics such as the tinctura gentianæ comp. and tinctura cardamoni comp. If there is hyperchlorhydria then alkalies are indicated, and I frequently prescribe with benefit equal parts of salicylate of bismuth, magnesia and the bicarbonate of soda. Charcoal powder and oil of cloves are also useful agents in correcting gastric fermentation.

We need to-day a reliable gastro-intestinal antiseptic. Intestinal antiseptics is difficult to produce. A careful study and experience with many of the drugs recommended for the purpose have resulted in the almost exclusive use of benzo-naphthol, salophen, papaine (carica) and oleum carophylli. These must be given in full doses frequently repeated and can often be combined together with advantage.

The second indication that is, the elimination of the toxic products, is to be accomplished: 1, by judicious purgation, calomel and the salines being especially valuable; 2, by promoting renal elimination and for this purpose again calomel stands at the head of the list; 3, by increasing the activity of the skin, as by baths and massage; 4, by increasing respiratory activity, as by judicious chest gymnastics and the inhalation of oxygen. The use of static electricity by insulation and by the static induced current will materially aid in this work of elimination.

The treatment of the various diseases of the nervous system that result from auto-infection not only require the indication above mentioned to be fulfilled, but the damage done by toxins and microorganisms must be treated, and each individual case will require special treatment.

MORPHINISM IN MEDICAL MEN.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY J. B. MATTISON, M.D.

MEDICAL DIRECTOR BROOKLYN HOME FOR HABITUÉS.

It is a fact—striking though sad—that more cases of morphinism are met with among medical men than in all other professions combined. It is too true that a very large proportion of cases in general are found in our own fraternity.

In a paper, "Opium Addiction among Medical Men," presented in the *Medical Record*, eleven years ago—June 9, 1883, reference was made to the dismissal within a week of a half dozen doctors recovered from this disease, and attention called to the surprising frequency with which it occurs in this particular class. Another decade of professional work exclusively given to the betterment of such patients has brought no decrease in this number; indeed the reverse has quite steadily obtained, so that in a paper, "The Ethics of Opium Habitués," *Medical and Surgical Reporter*, Sept. 8, 1888, in a résumé of 300 cases, we noted 118 doctors, and of 125 most recently under my care, 62 were medical men; and the latest reference to my record shows a still larger proportion, being more than 70 per cent.

Again and again I have been asked with surprise, "Why do doctors so often fall victims to morphia, when they, more than all others, should know the risk attending its use?" Various factors make up the answer to this query. Insurance statistics prove that medical men attain a shorter average lease of life than those of other professions, and the causes that tend to this lessened longevity play a part in the rise of morphinism. It is also true that the wear and tear of their calling provoke a large share of painful non-fatal disorders. Neuralgia, in one or other of its protean forms—especially migraine—which leads the list in the genesis of this toxic neurosis, occurs among physicians with a frequency that may well excite surprise. Add to this the anxious hours, the weary days and wakeful nights which the experience of every busy doctor so often involves, and which, though acting indirectly, still swell the sum of causative conditions in this chronic toxemia, and little wonder that we have a soil specially rich for a sorrowful harvest if, unhappily, the seed be sown.

It has been asserted that medical men become morphinists through their calling involving frequent handling of morphia, but that statement in my opinion is not true. Erlensmyer shares in this disbelief. Druggists, whose vocation largely exposes them to the same risk—more so in the city than the doctor—do not often become morphinists.

A cause peculiar to the medical man, in some cases is that careless curiosity which prompts him—generally a junior—to note the effect of morphia upon himself and in so doing incur the risk of addiction. Obersteiner refers to such cases. A young physician asserted that while on hospital duty a patient was dismissed who had suffered from carcinoma of the stomach and been treated with morphia injections. Next day he returned, begging for more as otherwise he must die. This was in 1869, when chronic morphinism and its results were less known than now. As the doctor was inclined to think the patient was romancing, he tried the experiment upon himself to ascertain the effect, became a morphinist and never

recovered. Another case was that of a young physician who, being assistant in a physiological laboratory, thought himself an interesting subject for experiment. More than one doctor whose disease had a like origin has been under my care.

Another cause obtains with physicians to the same extent as in non-medical men, that is the all-too-frequent use of morphia which the modern practice of medicine involves. Of this there is no question. Indeed, it holds more largely with the doctor than with the layman, for the former fully aware of the opiate's power to ease pain, pressed by his duties to get relief with the least possible output of time, and declining to make himself an example of the precepts tendered his patient, as to the value of patience under suffering, that will permit the using of non-opiate remedies, or, if the morphia be demanded, which, at least, will secure its giving at infrequent intervals, or alternating with other anodynes, and so lessen the risk of addiction—lacks a certain inhibitory, so to speak, protection which serves as a shield to the non-professional patient.

Still another genetic factor and in my opinion the one which outranks all others relative to the frequency of this disease in medical men, is their ignorance or unbelief as to the subtle, seductive, snareful power of morphia. It is to me quite beyond belief that any doctor *fully* realizing how swiftly and how surely the trebly pernicious power of this drug takes one captive will deliberately give himself up to a servitude galling alike to body and mind, and which in most cases ends only with life. Such a suicidal course is opposed to reason, to common sense and to fact.

In expressing this disbelief you will quite likely infer my skepticism as to the common opinion regarding the ethical status of our *confrères* whose ill-starred fortune has brought them such wretched result. I have long held, and still hold, with steadily growing belief based on nearly twenty-five years study of this disease, and an acquaintance intimate more or less with the history of many hundred cases, that medical men do not become morphinists from an innate propensity to evil, from a merely vicious desire to indulge in the pleasures of the poppy—pleasures which, be it never forgotten, soon and surely give place to its pains—but rather that they are impelled thereto by force of physical conditions that, with the largely prevailing failure to realize the risk incident to incautious morphia using are practically beyond control. This phase of the subject need not detain us for it has been noted with detail in two papers, "The Ethics of Opium Habitues," *Brooklyn Medical Journal*, August, 1888, and *Medical and Surgical Reporter*, September, 1888.

In reviewing the various causes of morphinism in medical men, the most hopeful feature is the fact that they are largely preventable. In this lies the strongest incentive to presenting this paper, the largest promise that it may do good.

Regarding the cause first cited—the wear and tear of an over-active professional life—we must be specially sanguine who would expect to improve conditions along this line to an extent likely to largely lessen such untoward result; though it can not be denied that the cares of a medical calling are less exacting than a decade or two ago, and so figure less as a genetic factor in this disease; yet I am bound to confess the outlook much more encouraging should

careful and concerted effort be made to make less active the other causes to which we have referred.

Regarding the misdirected zeal of the hapless seeker after self-evidence of the effects of morphia we can only again warn him—and earnestly—that the experiment is fraught with danger, and the rash act may prove his ruin, for the spark thus applied may set aflame that which will only be extinguished with life. He is a fool who does it; and the truly wise man will curb his spirit of inquisitive research along this line, if only on the score of personal well-being; besides no such self-sacrifice is called for, inasmuch as the peculiar effects of morphia, both as to blessing and bane, are now quite patent to all.

No one who has given the subject special thought will be likely to question an assertion that the use of morphin in the medical practice of to-day is in excess of what an actual need demands. And in direct proportion, more or less, to this excess stands the increase of morphinism. As a factor, applying to cases in general, it outranks all others though as regards medical men it holds in my opinion second place. Custom and convenience share in its causation. Custom, because experience has brought a belief in the anodyne-soporific power of morphia, which while well founded, has not been attended by an equally well-grounded belief in its possible power for ill. Convenience, because its promptly pronounced effect favors it as first choice when speedy relief is desired, and especially where as too often happens with the younger men in the profession, the wish to score such a brilliant result as may prove a stepping stone to rapid professional advancement outweighs a due regard for untoward remote effect, from which appreciation a frequent giving of morphia or any opiate should never, it is well to say, be exempt. This is a truism the force of which should never be forgotten.

Leading all others as a genetic factor in morphinism in medical men, is their failure to realize the insidious power of morphia to speedily get a grip, disturbing and destructive alike to functional well-being of brain and brawn, and in almost every instance, one too great to be broken by any self-effort they can command. At this writing I am consulted by a young physician whose case emphasizes this point. Sixteen months ago death left him wifeless and childless. In a specially unhappy moment of his grief he took a dose of morphia. It acted kindly, brought transient relief from his mental pain. A week went by before the second dose was taken and then—the old story: Quite mistaken as to the poppy power and his own strength to resist—again and again till his capture was quite complete. Commenting on his case he assured me he knew the risk attending morphia taking, and never should have incurred it had he fully realized how direful the result of that risk to him would be.

It is quite beyond credence that a doctor gifted with sound sense would wittingly put his neck in such a noose. Granting this, the only reason for taking such a perilous hazard is as before asserted, an inadequate appreciation of the morphia's power to enthrall.

Touching this point, enlarged experience confirms an assertion made ten years ago, that "the subtly ensnaring power of morphia is simply incredible to one who has not had personal observation or experience." One of the finest specimens of physical man-

hood we ever knew, a physician who survived the horrors of Salisbury prison when the death rate averaged 80 per cent., fell a victim after only one month's hypodermic using. Since then, case after case has been under my care in which the initial stage was still shorter. The most notable was an athlete of superb physique, who withstood the rigor of an Arctic winter as surgeon to a polar expedition, and then went down before a three weeks' daily quarter grain dose of morphia to ease the pain of an injured ankle!

So much for the genesis of this disorder. What the remedy? It is easy to moralize on the weak will—as many, mistakenly, are wont to put it—of our hapless brother living under this blight, but talk about "weak will" as a reason why strong men succumb to morphia—and I make bold to say that the man does not live who, under certain conditions can bear up against it—is twaddle. Far better is it to face the fact that morphiism finds most often its favorite victims in the noblest profession known, and then recognizing the causes that make this fact, bestir ourselves to such precept and practice as will tend to remove this blot on the scutcheon.

Can this be done? Very largely, yes. In this hopeful belief lies the one redeeming feature of the prevalence of this toxic neurosis in our own guild. Morphiism is on the wane in my opinion and I am optimistic enough to think the day not distant when it will be largely a thing of the past. But to reach this happy result it becomes the bounden duty of every physician to inculcate by teaching and by example the paramount importance of the causes we have cited that tend to the rise of this disease.

Two points call for special comment. These are the over use of morphia and the under thought of its danger. Regarding the latter, let me warn with all the weight I can command, every doctor who may be dallying with this drug or who may think its self-taking called for—and this warning holds with special force if the subdermic method be practiced—let me warn him that he is inviting disaster by jeopardizing interests vital to his well being, and let me urge him to pause and to ponder well whether, despite this warning, he dare take such risk. Let him not be blinded by an under estimate of the poppy's power to ensnare. Let him not be deluded by an over-confidence in his own strength to resist; for along this line history has repeated itself with sorrowful frequency, and—as my experience will well attest—on these two treacherous rocks hundreds of promising lives have gone awreck.

I have no wish to pose as an alarmist, but I tell you, gentlemen, that many a doctor who gives himself a daily hypodermic dose of morphia for a fortnight will come perilously close to the danger line—beyond which bondage begins.

Let him not chance it; rather let him, if the opiate demand be imperative, consign its giving to other hands; let it be by mouth; and oftener, let it be codeine which as an anodyne and sporic, has not yet had the measure of merit it deserves, and which, as tending to tolerance, is vastly less riskful than morphia. In a paper before the AMERICAN MEDICAL ASSOCIATION two years ago, "The Prevention of Morphiism," (reprint at command, and by the reading of which I would have every one of you the gainer) attention was called to the value of codeine. Enlarged experience has confirmed the opinion then expressed,

and while I am glad to note the demand for it is steadily increasing, I earnestly urge its still larger use as one of the most promising factors to favor a decline of the morphia disease.

Regarding the over use of morphia, never was there so little excuse for it as now, for never were the means at command to ease pain and bring sleep equal to those of to-day. Modern medicine is richly equipped in this regard, and if these resources be fully availed of, it will go far in a decrease of this ill.

As tending to this, teachers in medical schools should realize that they have opportunity to wield great influence for good and by word and deed they should improve it. To do so would strike right at the root of this evil, for I truly think the junior members of the profession are the greatest sinners in this regard; and if by timely counsel from their preceptors and college instructors the thousands who year after year begin a medical career can be brought to believe the danger incident to an incautious or needless giving of morphia, and then shape their practice in keeping with that belief, the good work will be largely done.

Slowly yet surely the therapeutic trend is in this direction. More and more the older medical men, impelled by larger wisdom or an experience often unhappy, are quitting the syringe; more and more rarely are they using morphia. The influence of this example must make itself felt on the younger men, and when to this is added the teaching we have commended the dawn of a better day will not be distant. May that good time coming soon come.

INFLUENCE OF ATMOSPHERIC PRESSURE ON THE PREVALENCE OF PNEUMONIA.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held in San Francisco, June 5-8, 1894.

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More than ever, physicians try to discover the cause of disease. Great discoveries have been made and for a number of diseases certain bacilli have been found to be the specific agents. More than ten years ago it was believed that such a bacillus had been discovered as the direct cause of pneumonia, and many consider pneumonia to-day an infective disease caused by a diplococcus. Still it is a relatively rare occurrence that this bacillus pneumoniae is found in pneumonia, and the riddle of the nature of this disease is by no means solved.

If I am ready now to bring indirect proofs of the nature of pneumonia before you, without referring to bacillar origin, I am induced to do so from the extraordinary exactness of such proofs. We understand that under the heading of pneumonia a number of different forms of this disease are included and we have reason to believe that a small percentage of it is certainly caused by a bacillus. Such may be the case in epidemics in prisons, etc. In this paper I refer to the two most common forms; fibrinous pneumonia and broncho-pneumonia. We know that these two forms appear in certain years on certain parts of our globe in epidemics, and that the greatest epidemics are probably isochronous with epidemics of influenza, other acute diseases of the respiratory organs and a great mortality from phthisis. We

know that they affect principally children under 5 years of age and adults above 50 years, and we know that the epidemics occur almost invariably in our winter or spring season in the northern hemisphere.

The continents of our globe suffer from epidemics often in the same year, and often in the same month, and furthermore different parts of the continents show a greater prevalence of the disease than others. Parts of the southern hemisphere have epidemics at the time of their winter and spring. Edward F. Wells, in his "Study of Pneumonic Fever," published in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*, describes the territory suffering mostly from pneumonia as follows: "Beginning at the poles, its frequency increases in a gradual manner until the maximum is attained at a certain latitude in either temperate zone, and from these points it diminishes as we approach the equator." This description furnishes at the same time a concise statement of the extent of high atmospheric pressure on our globe, and when we follow Wells and Hirsch¹ in their enumeration of the different countries, as subject to epidemics of pneumonia, and the seasons or months in which such epidemics have prevailed in such countries, we get an almost accurate description of the areas of high pressure, as distributed over the globe, and of the season when they prevail. Both hemispheres have a belt surrounding the globe and marked by about 15 to 30 degrees latitude, where the mean pressure exceeds 762 millimeters, thirty inches. North and south of this belt the mean pressure is again diminished. Centers of highest and lowest pressure which are constant in one season of the year, as in winter for instance, have almost the reverse character during the opposite season, with a more or less gradual turn from one to the other—at least above the continents. In January as the representative of winter time, we find the area of highest pressure on our globe, in Siberia or East Asia. This area has its extension north and south over the greatest part of Asia, but spreads principally in a westerly direction into Europe which is almost entirely under a pressure of 752 millimeters (thirty inches). Areas of a somewhat higher pressure exist at that time in northern Italy, Switzerland and the southeast of France, in the center of Spain and of Sweden and Norway. All of the United States and most of British North America, Mexico and Central America have high pressure in winter time. On the southern hemisphere only part of Chile and Peru, the south end of Africa and a small part of southern Australia come under the influence of high pressure during our winter. The oceans have certain constant areas of high pressure during the entire year. All the above named parts of our continents with few exceptions have low pressure in the opposite season of the year. It could naturally be inferred that if an increase of air pressure would affect human health, that such disturbance would be experienced at that season and in those parts of our globe, principally and first, when and where centers of high pressure appear. At the time of low pressure such effects would be least noticeable or wanting.

I shall not speak of what we know about the effect of high pressure on animal life. We know very little about it but we do know that the decrease of pressure, as experienced in higher altitudes, is easily borne to a certain degree. It is also known that great oscil-

lations of pressure during a short period, are probably not detrimental to our health. Certainly the effect of excessively high pressure, continued for a great many days or weeks, has not been studied. The parallelism of the extent of high pressure and the prevalence of pneumonia at certain seasons invites us to examine more closely into their relationship—although strange to say, the fact of this parallelism has not been noted by any author. Wells and Hirsch and every other writer on the subject discards air pressure as a causative factor. The reason is that whenever an attempt has been made hitherto to follow up air pressure in its relation to pneumonia the mean pressure, daily or monthly, or the mean maximum or mean minimum pressures have been consulted. But if we wish to detect immediate effect of an extreme pressure, high or low, we can not judge from the mean figures. For the same reason mean figures of temperature would be deceptive. If a cold spell comes over the country as California or Florida, for instance, it may happen that the extreme minimum temperature of one or more degrees below zero is encountered in a locality otherwise exempt from such freezing temperature. This event happening perhaps once in ten years for a few days or one day in one month, may suffice to kill certain vegetation. The mean minimum temperature of such a month may not at all indicate the extreme of temperature which had such an effect. In a similar manner, atmospheric pressure, when augmented in certain years to a great extreme and if such extreme pressure continues for a period of days or weeks, may affect animal life, where the figure of the mean maximum pressure does not differ from that of other years which had no such deleterious effects. The extremes of atmospheric pressure as they come to us in daily life have never to my knowledge been scrutinized as to their relation to diseases to which animal life is prone. On Chart 1 are found the extremes of pressure as observed in every month of ten years or more, in different cities of Europe and America.

The figures of these extremes are all corrected for temperature (reduced to 0 Celsius) and for instrumental error. These lines show a certain periodicity in every one of the many years given, in having a lowest extreme of high pressure always in one of the summer or more rarely fall months, and in having the highest extreme always in one of the winter or more rarely one of the spring months. In some years more than one month will show such highest or lowest extremes.

Speaking only of the extremes of high pressure, the year 1882 has the highest extreme during January in Paris, London, Berlin and St. Petersburg, and in February in San Francisco. In 1883 the highest extreme is found in February in Paris, London, St. Petersburg, New York, San Francisco and New Orleans and in March in Berlin. In 1884 it is again in January in every one of the cities with the exception of St. Petersburg. In 1885 the first three have it in December, the other four in January. In 1886 five of the seven cities have the highest pressure in February and November. In 1887 six of these cities have it in February and only one, San Francisco, in January. In 1888 every one has it in January. In 1889 every city has it in December. It is the month in which grip first appeared. In 1890 every city shows high extremes in a number of months. In 1891 it is principally November and December which show the

¹ Hirsch Handbuch der Historisch—Geographischen Pathologie, 1886.

high extremes. In 1892 it is February, March and April that show the highest figures. The same regularity is found when we compare the different cities in the different years in regard to the month or months in which the lowest figure of extreme high pressure is noticed.

Sometimes this month will be early in the year as in 1884, sometimes in July as in 1887 and 1888, sometimes in August and September and rarely in October, but in most years different cities have the lowest high pressure during the same month. Still it is not unusual that the high pressure will remain low for two, three or four months. London and St. Petersburg being rather out of the centers of high pressure exhibit the greatest irregularities. San Francisco and New Orleans, remaining also in summer somewhat under the influence of high pressure, show the greatest regularity and the smallest amplitude. The extremes of low pressure are highest in summer time or at the beginning of fall, and lowest generally at that part of the cold season which has the highest figure of high pressure. Generally the extreme of low rises in one month and descends in the following, showing an almost continuous zigzag line. I add that in some years the extremes of low pressure have the same *minima minorum* in different cities during the same month. In short, we may say that *periods of excessively high pressure appear in certain years in different cities of the northern hemisphere in the same month and that this month is generally a different one in the different years.* The same regularity we notice for the time of low pressure at the opposite season of the year. On Charts 2, 3, 4 and 5 we find again the figures of extreme pressures, and besides, the figures of mortality from phthisis, pneumonia and bronchitis for Berlin, Munich, New York, Cincinnati and San Francisco.

During the twenty-two fiscal years (June 1 to June 1) for which I present these figures for San Francisco, the mortality from pneumonia and consumption was highest first in the year 1889-'90 when influenza first appeared, and then in the winter of 1891 to 1892. In none of the twenty-two years had there been such a continuous rise of pressure, covering a period of eight months from June to March, as in the year the grip appeared, although the difference of the highest and lowest "high" amounted only to 9.39 millimeters (.37 of an inch). This difference amounted to 12.70 millimeters (.50 of an inch) in the winter of 1891-'92 and was reached in four months from August to December. The highest rise happened in December, and the highest figure of pressure of the twenty-two years reached. This was accompanied by the heaviest mortality from pneumonia in the twenty-two years, in San Francisco.

A similar rise occurred in 1887 to 1888, from August to January. The high rise in January at that time also being followed by a very high mortality from pneumonia.

During the twenty-two years, the extreme of high pressure was lowest five times in September, seven times in August, four times in July, once in June, four times in two of the above months during the same year. The month during which the mortality from diseases of the respiratory organs was lowest was in nine of the nineteen years, for which records are kept, the same as the one in which the extreme of high pressure was lowest. In seven years the mortality was lowest one month after. In one year one month

before, in one year two months before and in one year four months before the month in which the extreme of high pressure was lowest. The mortality from these diseases was highest in eight years of the observed eighteen years during the same month, in which the high pressure was highest; in two years, one month later; in four years two months later, and in two years one month before the pressure was highest. This month was January five times, December four times, March six times, April twice and November once. Thereby it is demonstrated that the lowest mortality from pneumonia is generally or always found during that month or near that month which has the lowest figure of the extreme "high" and the highest figure of the extreme "low" pressures. When the high rises during the fall then the figure of mortality rises. If it happens that the low shows a lower extreme at the same time, and if this descent continues for the following month or months in which the high pressure continues to rise, then the figure of mortality shows a higher figure in proportion to this occurrence. However, it happens only rarely and not in every year that the low shows a continuous decline when the high has its incline. In some years it is found that the mortality is not in proportion to the ascent of the extremes of high pressure, as for instance, 1890-'91; then the continuity of the rise and perhaps the extreme fluctuations of the low during that period are the important features.

Any one who is conversant with figures of atmospheric pressure, as given by the barograph for the day, week or month, will know that the figures of extremes of pressure will hardly ever represent the result of an oscillation, happening only on a certain day of the month. Chart 6 exhibits the daily high and low extremes for two seasons, December—March, in San Francisco and helps to explain how large a part of the month may be under the influence of the one extreme of the month. In the instance given on the chart an extreme of pressure above 774.7 millimeters (30.50 of an inch) is found eleven times during the season the grip appeared first and only one time the season previous. Chart 7 demonstrates for Berlin how the weekly extremes correspond with the weekly figures of mortality. They show plainly that the mortality rises generally from the very week in which the pressure rises, and that the period of high mortality sets in after the pressure has become unusually high. It is seen here again that if during a rise of pressure for one or more weeks the low descends for the same period, then the mortality shows a corresponding increase and *vice versa*.

Every city as exhibited on the other charts shows the same regularity and periodicity of mortality. In every instance the law repeats itself, that *during the month in which the extreme of high pressure rises to a higher extreme, and that of the low pressure to a lower extreme, the mortality increases correspondingly, but it does so in proportion to the higher rise and not to the lower fall.* This law shows such *regularity, that in any given month of the year probably in any part of our globe we may be able to predict in future whether a greater mortality from pneumonia may be expected or not.* For San Francisco, for instance, during the twenty-two years, the lowest extreme of high pressure was never higher than 763.3 millimeters (30.05 of an inch) and never was found later than September. If then, as in the season of 1891 to 1892, the

highest extreme in August was only 760.0 millimeters (29.92 of an inch) and in September rose to not quite 762.0 millimeters (30.00 of an inch), then no increase of mortality could yet be expected. In October it rose nearly 2.5 millimeters (.1 of an inch) and the same in November, but during the same period the extreme of the lowest pressure had risen to the same extent as the high pressure. This precluded the appearance of high mortality. During December the extreme of the high had risen higher than during the two months previous, and the low had descended lower at the same time to such an extent that a high mortality could be expected, and San Francisco experienced during that month a very high mortality from pneumonia. During January the pressure showed the reverse from December and the mortality fell rapidly. The same in February. *Every one of the different cities shows the same relation of mortality from pneumonia to the course of atmospheric pressure.* The mortality from bronchitis runs almost parallel to that of pneumonia and the one of phthisis shows about the same direct relationship. Wells gives the following figures of mortality from pneumonia per mille of population for the following cities and countries:

Berlin 52 years, 1.21 per mille; London 17 years, 1.69 per mille; Paris 26 years, 2.56 per mille; Boston 42 years, 1.23 per mille; Cincinnati 20 years, 1.54 per mille; New York city 32 years, 2.03 per mille; Philadelphia 48 years, 1.30 per mille; New Orleans 2 years, 1.5 per mille.

I found that the figure for San Francisco 1870 to 1884 was 1.4 per mille, and during 1891 to 1893, 1.5 per mille. For all cities on the immediate coast line of California, it is 1.6 per mille; and excluding San Francisco, only 0.8 per mille. For cities in the coast valleys the figure is 1.3 per mille; for the great central valley it is 1.2 per mille; and for Southern California, inland, it is only 0.4 per mille. Wells found very low figures for Ceylon, 20 years, 0.7 per mille; Jamaica 0.3 per mille; Newfoundland 0.3 per mille. The three latter are outside of centers of high pressure and as Chart 8 shows, Southern California and the immediate coast line with the exception of San Francisco, do not have the high pressure found in the coast valleys and in the central valley.

The good effect that Southern California is reported to have on diseases of the lungs is put in a new light when judged by the character of atmospheric pressure. Normal air pressure shows the least difference during the year, of any California station, in San Diego; next in Los Angeles and San Francisco, and greatest difference is found in the stations of the central valley. Mortality from pneumonia shows similar proportions. It has been noticed that a northerly wind has generally been prevalent during epidemics of pneumonia. Since we know that the relation of wind to air pressure is a constant factor and that northerly and northeasterly winds prevail inside the area of highest pressure during winter all over the northern hemisphere this appears to be an additional proof. From this direction of the wind it will be clear that areas of high pressure will generally travel from East to West. We know that they travel with a velocity of from 500 to 1,500 miles a day. It is no wonder, then, that we find *maxima maximorum* of pressure in different cities of the northern hemisphere during the same month of some years. Ziemssen in his work on

pneumonia said a great many years ago: "After all we can not help but assume that there must be general conditions, perhaps multiplied by local circumstances, which appear and disappear simultaneously in great expanse of space. Of what nature these influences may be is perfectly dark. We would not be forced to think of miasm or contagion. We are more led to believe that fluctuations of atmospheric conditions extending over great areas of the surface of our globe, at the same time, furnish an analogy." To-day we know that atmospheric pressure will appear in such eruptions which are felt at the most populated regions of the northern hemisphere in the same month and perhaps week.

In over 80 per cent. of the forty-nine years observed by me in Berlin, Munich, New York, Cincinnati und San Francisco, a direct coincidence of the highest and lowest figures of air pressure and mortality from pneumonia, is fully established.

If we take into consideration the inaccuracy of mortality statistics in general, then the high percentage must appear striking. There is certainly a parallelism between the two figures that we do not find for any other disease, when compared with this or any other meteorologic feature. The simultaneous appearance of the great epidemics of pneumonia in late years, greater than during the many years previous, together with a continuous rise of high pressure and the great mortality from other acute diseases of the lungs during the same period, the reappearance of influenza at a time when high pressure had continued to exercise its influence for an unusually long period, these circumstances point to the fact that there must be a predisposing cause in high pressure. The figures for Berlin and Munich during the season, 1889-90, indicate directly that the figures of highest general mortality are parallel to the extremes of high pressure as they appear during the different weeks. In both cities the extreme of the highest pressure coincided with the figure of the highest mortality, which had been increased enormously during that period by mortality from phthisis, acute diseases of the respiratory organs, heart disease and old age. Influenza itself furnished the least number of deaths. If a certain increase of air pressure will have such an effect upon the health of the people as to cause pneumonia, or to make them subject to pneumonia, and since "feeble" and a low action of the heart are identical, the first object of future research would seem to be to study the peculiar action of increased air pressure on the blood or circulation of blood in the respiratory organs. If an appearance of an area of high pressure may have such disastrous effects upon human life, then we will not wonder any more why the incubation of pneumonia or influenza may last only hours or a day, why ships on the ocean may get an epidemic of either disease, traveling into an area of such pressure, why remote islands may suffer from these diseases without a possibility of a transferred infection. People living on high mountains may have to suffer when the air pressure becomes relatively higher during such periods. Feeble persons who had an attack of pneumonia one month or one season, may encounter a repetition of the attack as often as the high pressure is repeated. It is almost a relief to know that a phenomenon exists which shows a parallelism to the cause of influenza or pneumonia. Still what we know to-day is not suf-

ficient to explain in which way an extreme air pressure may cause pneumonia. We know from experiments that high pressure will reduce the force of the heart's action. The pressure in the arteries is diminished by it and at the same time a greater amount of blood is found in the inner organs. All this may be called a *postulatum* for the beginning of pneumonia. We practitioners will have a chance in the future to prepare those intrusted to our care, to acquire a proper power of resistance during the time the appearance of a high extreme pressure is telegraphed over the country by the weather bureau, and I trust that it may become more important to us in future to know whether an extreme "high" is hanging over our heads than whether it will rain or be cold on that day. The ideal for the physician is not to discover the cause for disease, nor to cure it, but to prevent it, and if my remarks to-day should be a proper move in that direction it would be another stimulus to continue the arduous and yet pleasant life of a physician.

CEREBRAL LOCALIZATION—WHAT IS KNOWN, WHAT SURMISED, AND WHAT IS ITS SURGICAL VALUE?

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held in San Francisco, June 5-8, 1894.

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The physiology of the nervous system and the functional differentiation of its component parts has been but recently investigated, and is now in many particulars so well established that it seems proper before entering the domain of neurologic pathology to briefly recapitulate, not only that which has been scientifically proven, but the many speculations of eminent investigators that are as yet mere hypotheses. Without going into a detailed history of the evolution of cerebral physiology, I will refer to the great advance made by the anatomists of the seventeenth century. Before that time anatomy and physiology were necessarily theoretical, for as a basis they rested on speculation and tradition, not on the dissection of the human body. But the opinions held regarding the nervous system were even more crude than those that prevailed regarding other portions of the body, for the philosophers, led by Aristotle and Herophilus, had outlined a physiology based on their psychologic theories, and twenty centuries had served but to confound the already existing confusion.

Willis accomplished for the nervous what his contemporary, Harvey, did for the circulatory system. He not only delineated and named the cranial and spinal nerves, but recognized the important fact that the brain is not only divided into gray and white matter and correctly explained the functions of each, but also showed that the gray matter was convoluted simply as a wise provision for inclosing the greatest surface in the smallest space, realizing that there was a direct ratio between intelligence and the volume of gray matter, and further suggesting the possibility of its function being still more differentiated.

The next great advance in the differentiation of the nervous system was Sir Charles Bell's discovery that the spinal nerves subserved the two-fold purpose of sensation and motion; the one entering through the

posterior root bearing sensation from the periphery, the other solely motor, making it exist by the anterior root. This he proved by experiments on living animals and his results, published in 1811, were elaborated with so much detail that our own text-books do not contain any amplification of the theory there propounded. When in 1870 Fritsch and Hitzig announced the result of their experiments on dogs and monkeys, they were but confirmatory of views already advanced by Hughlings Jackson, whose investigations, both clinical and post-mortem, had suggested the existence on either side the fissure of Rolando, of special centers which presided over the movements of the leg and arm. But even earlier than this, Dax had pointed out the close relationship existing between aphasia, right-sided hemiplegia and injury of the frontal convolutions; though it was Broca who definitely located the speech center at the base of the third frontal convolution of the left hemisphere.

The original experiments performed by Fritsch and Hitzig consisted in the removal of a portion of the skull of dogs and monkeys, exposing the brain and irritating the cortex. Before this it had been believed that irritation of the cortex resulted only in convulsions, but when electricity was selected as a stimulus and very weak currents used it was found that irritation of certain convolutions produced definite motions, and so localized were these areas that it was possible for the experimenters to foretell the motion that would follow the application of the electrodes to a given area. This conclusively proved that there was some definite relation existing between these localities and movements of various members of the body.

Ferrier and Horsley in England, and Monk in Germany, modifying the methods of Fritsch and Hitzig, have so extended and varied these experiments as to eliminate all possible errors; the areas have been so incised as to separate them from other cells of the cortex, and portions of the cortex containing these areas have been removed and the resulting paralyses noted. Thus have the old theories been revolutionized and most plausible arguments advanced to support the assertion that not only the special senses, but that motion and sensation are located in well defined and accurately differentiated regions of the cerebral cortex.

So brilliant and so essentially scientific were these experiments that the deductions made from them as to cerebral localization have been accepted not only by the majority of physicians, whose judgment can not be based on personal investigation, but especially by many leading neurologists. But this acceptance is not universal, and it may be said that neurologists are ranged into three schools.

The very weighty names of Brown-Séquard and Goltz appear among those who altogether repudiate localization in the sense that one portion of the cortex intrinsically so differs from another as to possess a different function. They believe that each half of the cerebrum acts as a whole, but that certain portions may be educated and probably do preside over the special senses, motion and sensation.

The second school, represented by Exner, Obersteiner and other conservative neurologists, teach "that certain regions of the cortex are to a greater extent than the rest associated with certain functions." Obersteiner defines his position as follows: "Individual centers and cortex fields are not to be

considered as sharply outlined and definitely marked off from neighboring regions; the so-called centers are rather the spots of maximal relation to functions which fade away into neighboring areas. Hence it follows that the cortex fields to a certain extent overlap one another. We shall speak of the centers in this sense as comprehending the spots of maximal physiologic relation."

The third, known as the English school of localizers, is led by Ferrier, Horsley and Beever. These teach the absolute segregation of centers in the cortex; that they intrinsically differ the one from the other and that consequently their functions differ, and that there are not only regions presiding over the special senses, sensation and motion, but divide the last into finger, hand, arm, mouth, etc., centers; and further contend that these areas are sharply defined, are easily located and, when exsected, produce a permanent paralysis in that member of the body over which they preside.

It is this last which has brought this subject into such prominence. Granting that either the first or the second school be right, it is only a step forward in the study of cerebral physiology, but if the teachings of the abrupt localizers be correct, a vast field



Left hemisphere, brain of monkey.

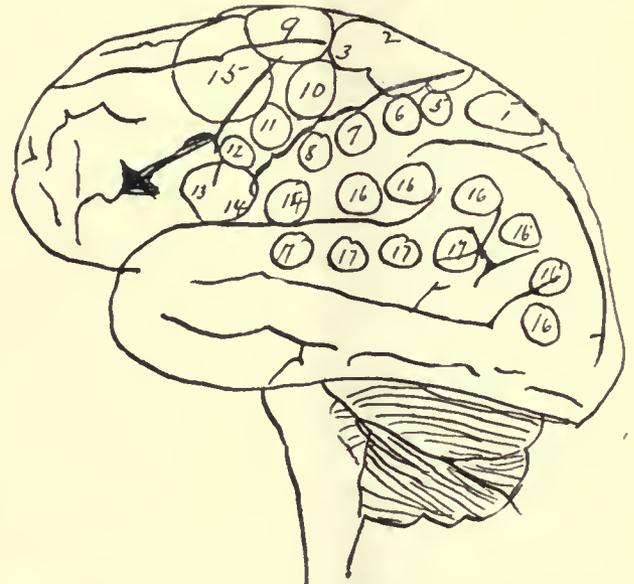
of practical importance has been opened and cerebral surgery will at least receive a scientific recognition, rather than occupy the invidious position it even yet holds among conservative surgeons. For this reason it seems well to review the work of these investigators and to point out what they have demonstrated, as well as the many questions that are still under investigation and to show that some, at least, are unsolvable.

What has been proved is that when certain regions of the cortex of the brain of monkeys, dogs and other animals are irritated by mild currents of electricity, motion is produced in corresponding parts of the body. That portion of the cortex which has been shown to be closely associated with motion is known as the Rolandic region, from the fact that it is composed principally of the two convolutions which are separated by the fissure of Rolando, as well as the parietal lobule.

This region is subdivided into special centers. Irritation of the parietal lobule and upper junction of ascending frontal and parietal convolutions produce advance of the opposite hind limb, flexion of thighs and toes as in walking. When the middle

portion of the ascending convolutions is irritated, movements of the hand and arm follow. The lower junction of the convolutions are in like manner shown to preside over, or at least closely associated with, movements of the mouth, tongue and nose. Posteriorly, near the angular gyrus, irritation results in movement of the eyes and eye-lids, and still farther downward on the superior temporo-sphenoidal convolution there is pricking of the opposite ear, head and eyes turn to the opposite side and the pupils widely dilate. Other regions, though irritable, are not connected with coördinated movements, while much of the cortex is insensitive. Thus it is shown that motor activity, though present to the greatest extent in the so-called motor area, is not confined to it. These experiments have also demonstrated the fact that while each hemisphere is closely associated with the opposite half of the body, to a subordinate degree it also presides over the same side.

What is surmised? That the brain of the monkey and other animals resembles the brain of man to such a degree that what is true of the one holds equally true of the other; that both in man and animals the brain is so differentiated that certain areas



preside over allotted functions and that they are capable of being subdivided. Especially is this true of motion. To a lesser extent it is true of the special senses, and the brain has been mapped out into centers of sensation, hearing, sight, smell, taste and speech, and these have been located as follows:

Motion.—The ascending frontal and parietal convolutions, their superior junction and the paracentral lobule. This, known as the Rolandic or motor region, has been subdivided into finger, hand, arm, mouth, etc., centers, every muscle or group of muscles being represented by a definite area in the brain cortex. In fact, the cortex may be compared to the key-board of a piano, and just as harmony depends on the combination of notes which are touched in succession, so can any given action or series of coördinated movements be obtained by irritating the proper area of the denuded cortex. These conclusions are the result partly of comparison with animals and partly of pathologic research, and may be thus summarized:

Superior parietal lobule (1) advance of hind limb. Upper portion ascending parietal (2, 3, 4),

complex movements of leg, arm and trunk as in swimming. Ascending parietal (5, 6, 7, 8) individual and combined movements of fingers and wrist of hand; prehensile movements. Posterior extremity of superior frontal convolution (9) extension forward of hand and arm. Ascending frontal (10) supination and flexion of forearm. Lower third of ascending frontal and junction of ascending frontal and ascending parietal (11, 12, 13, 14) movements of mouth and nose. Superior and middle frontal (15) and supra-marginal lobule and angular gyrus (16) Movements of mouth, eye deviates, pupils change and head turns (sight). First temporal (17) pricking ear (in animals), head turns and pupil dilates (as in hearing).

Visual Center.—In Ferrier's original experiments this center was located in the angular gyrus (16), as blindness resulted when this was destroyed. But other operators claim that sight is centered in the occipital lobe (16), and showed that when the gyrus only was destroyed and the life of the animal was prolonged beyond a few days, sight returned. On destroying the occipital lobe with the angular gyrus the resulting blindness was more prolonged. Ferrier says: "After extensive destruction of the occipito-angular region in one hemisphere, the temporary amblyopia of the opposite eye leaves a more enduring homonymous lateral hemiopia to the opposite side, yet unless the destruction of the cortex is absolutely complete (and in none of the recorded experiments was this the case), restoration occurs, to such an extent at least, that the defect ceases to be perceptible by any tests applicable to the lower animals." In other words, provided this be the center, some other portion of the brain assumes the function and is able to successfully receive and transmit visual impressions. It is further claimed that the simultaneous destruction of occipital regions in both hemispheres may produce permanent blindness, and Ferrier even goes the length of claiming that these regions are the central expansions of the optic tracts and consequently structurally differ from other centers, and that in his experiments atrophy of the nerves and tracts has followed destruction of these zones. But localizers are by no means agreed among themselves as to many of the minor facts, though the occipital lobe is the accepted center.

Auditory Center.—Experiments made on the lower animals as to the center of hearing are, from the very nature of the facts to be elicited, extremely unsatisfactory. It has been found impossible to eliminate the complications incident to the difficulty of intelligently interpreting the phenomena following the various lesions. Experiments seem to point to the superior temporal convolutions and it is claimed that post-mortem researches bear out this location.

Olfactory Center.—This has been selected from purely anatomic considerations. The roots of the olfactory nerve have been traced to the hippocampal region and the sense of smell has been assigned to the tip of the temporo-sphenoidal lobe. Comparative anatomy teaches us, however, that the olfactory bulb itself is a portion of the brain, and it would seem that if any portion of the brain were selected for special functions this would alone preside over the olfactory sense.

Tactile Center.—There is no question in cerebral localization more undetermined and apparently more undeterminable than is this. It is well known

that the sensory fibers when they pass through the internal capsule are differentiated from the motor tract, but the region of the cortex to which they are distributed has not been determined. Ferrier and his school locate this center in the hippocampal region, but the majority of neurologists agree with Fleisching who believes that the cortical fields of motion and sensation overlap each other, both occupying the Rolandic region.

Center of Speech.—By this is meant an inability to articulate, not to properly understand and appreciate what is heard. Situated at the base of the third frontal convolution of the left hemisphere, known as Broca's convolution, it has received much attention at the hands of pathologists, and medical literature teems with post-mortem facts that prove the close relationship this region bears to articulate speech. It has been further claimed that only in right-handed persons is this center on the left side, while in the left-handed it occupies a corresponding position in the right hemisphere. There is no fact in cerebral localization more generally recognized by the profession than is this speech center, and it may be a matter of surprise that it is not included among those questions of cerebral physiology which has been proven. Nevertheless, that this center presides solely over speech and that its functions can not be assumed by other portions of the cortex has by no means been demonstrated. It is not possible to here enter into a discussion of this point, but it can be stated positively that while many facts point to a connection between this center and articulate speech, it has been conclusively shown that tumors involving this region have not produced aphasia. One such well authenticated case is sufficient to overcome any number of facts which are adduced to support the theory of a well defined speech center. Not only have tumors been found which interfered with the Broca convolution, but embolisms have been recorded in which this whole area was softened and disintegrated without causing a loss of speech. Leading authorities, notably Bateman in his recent work on aphasia, take the middle ground. While they recognize the close relationship between the destruction of the Broca center and aphasia, they deny absolutely that it is in the strict sense of the term a *center*. They believe that it, as well as other regions of the brain bear some, as yet undetermined, relation to the faculty of speech. With all the light before us the most that can be said is that when the Broca center is involved in some destructive process there is often right-sided hemiplegia with aphasia.

From the above summary it will be seen that very little has been demonstrated. The great majority of questions that are of practical importance are by no means settled. The one fact that coördinated movements may follow electrical irritation of the motor area is regarded by many neurologists as simply one of the curiosities of physiology, and they by no means accept the deductions which the localizers have drawn from such experiments.

Ferrier explains these phenomena by supposing that cells in certain areas—not necessarily disassociated because a sulcus happens to intervene—possess an essentially motor function and that when irritated this irritation passes directly to the white fibers which spring from these cells, and that these fibers are collected into differentiated bundles, pass out through the internal capsule, become the anterior

and lateral pyramidal tracts and convey impressions through the anterior cornua into the anterior root. In other words, he teaches that the motor area is the cortical expansion of the motor tract and that consequently the cells from which the fibers spring are functionally differentiated from other cortical cells. Those who are not localizers find much to criticise even here. No one familiar with Ferrier's work doubts the experiments recorded. What they are not willing to accept is the legitimacy of his conclusions. Granting that the brain of the monkey differs from that of man merely in number and complexity of convolutions, rather than any intrinsic quality, and that the cells of the cortex are irritable, they still maintain that each cell is so closely connected not only with adjacent cells and those in neighboring areas, as well as widely separated regions even of the opposite hemisphere, but that an irritant could not be applied which would not equally irritate all the ramifications and connections of these cells. But even the irritability of the cortex is denied. It is well known that nerve fibers can be irritated by many agents, both chemical and physical, but it has not yet been proved that the cerebral cortex is susceptible to other than electrical irritation, and this electrical irritation is attributed to its quality of diffusion. It has been shown that when the exposed sciatic nerve of a frog or the still more delicate galvanometer was connected with the brain, the application of even light currents at a distance resulted in movements of the leg or deflection of the needle, thus showing that there was extrapolar conduction. Therefore, it is claimed that the electricity does not necessarily irritate the cells of the cortex, but may penetrate to the white fibers as they pass through the internal capsule. It is conceded that in this location the fibers are differentiated and that they are susceptible of irritation. The so-called motor region is therefore "motor," only because it happens to be contiguous to the internal capsule, and Dupuy, of Paris, points out the further fact that this region is unusually rich in deeply penetrating blood vessels: "The pia mater over the Rolandic convolutions is almost a complete network of vasomotor fibers and cells, and blood vessels which penetrate into the convolutions. One system of blood vessels only ramifies and ends in the cortex proper; the other enters the white substance by means of larger vessels accompanied by nerves and ganglion cells. It follows from this arrangement that the cortex proper is much more vascular and the white substance or fibers a great deal less so; and moreover that while the vessels irrigating the cortex are spread well over, those going into the white substance are isolated from one another. Now I have shown that those points which when 'excited' by electricity give rise to a motor action, coincide with spots where arteries with nerves penetrate into the white matter or strands of fibers. The best method to demonstrate this fact consists in injecting one carotid artery after having marked with ink the position of the motor centers ascertained beforehand by means of electricity."

Ferrier and his school while not denying the diffusibility of electricity claim that in their experiments its action can not be thus explained. Ferrier says:

"Irritation of the ventricular aspect of the corpus striatum causes general contraction of the muscles of the opposite side of the body; and it is impossible

by applying the electrodes to the surface of this ganglion to produce differentiated contraction in any one muscle of a muscular group." "We know therefore by direct experiment what irritation of the basal ganglia should produce; but the phenomena of irritation of the cortex are of a very different order." And again: "The great and significant feature of the reactions produced by electrical excitation of the cortex is that they are definite and predictable and vary with the position of the electrodes. But there is no fact more strongly urged by the localizers than that of the differentiation of white fibers in the corona radiata and the internal capsule, and Ferrier would be the last to deny that could these fibers after differentiation be separately irritated that corresponding movements would ensue. In fact this is far better established than is cortical differentiation. Dupuy claims that the electricity following the penetrating blood vessels and being so circumspectly applied to the strands is capable of producing coördinated movements—and at least in his recent writings does not say that this irritation necessarily takes place in the basic ganglia.

Another point that has given rise to controversy is the interpretation of the results that follow destruction of the cortex. Having measured the strength of the minimum current that will produce motion, the cortex is sliced off and left *in situ*. It is found that on reapplying the electrodes a stronger current is required to produce the same movement. The localizers claim that in the one case the electricity acted physiologically; in the other physically, and point to the increased strength of the current as proof. Their opponents explain the necessity of the increased currents because of the two new surfaces which have been created and the coagulation that necessarily takes place in the cut vessels, and they moreover urge that no better proof can be adduced that the electricity acts by diffusion of current than the fact that motion will follow the application of electricity to the cortex, even after it has been mechanically separated from the brain and lies merely in apposition. Another fact that is claimed will substantiate this same view is that when the cortex is frozen it is still susceptible of electrical irritation, a statement which Ferrier denies but other and later authorities consider well established.

Another experiment of Frank's consists in freezing the motor center and then irritating the hard frozen surface. It is found that whereas before the freezing the motor action in the limb was longer in duration than the current used and was epileptic, and besides only occurred after a lapse of about six and one-half hundredths of a second, when the same current is applied during the frozen state, the time of reaction is only about four and one-half hundredths of a second and the contraction is only tonic. The claim is made from these results that the reaction time is greater (six and one-half hundredths of a second) when the cortex is not frozen, because it reacts physiologically and the time is shorter (four and one-half hundredths of a second) when the cortex is frozen because it acts physically. This I consider a very unacceptable interpretation; it is unnecessary to state that the white substance, as well as the cortex, is influenced by the freezing process and the irritability of both endangered and altered.

These cortical destructions and alterations of the

motor centers, are, perhaps, the most important proof the localizers have brought forward, but they are by no means agreed as to the interpretation of experiments supposed to be identical. For instance, Ferrier destroyed the angular gyrus with resulting hemianopsia and so placed the visual center in this region but others have shown that this blindness was temporary. As already explained, others have shown this blindness was but temporary, and then placed this center in the occipital region where the results of destruction seemed more permanent, but no experiment yet performed seems conclusive, for the reason that complete removal of the cortex without destruction of the underlying fibers in the higher animal is not possible, while in simple brained animals even great destruction is well borne with but few motor or sensory symptoms. Here, however, the localizers claim that automatism comes into play and can not therefore be compared with brains markedly convoluted.

Another objection to experiments of this kind is that when the brain cortex is mutilated the animal's disposition is so entirely changed that no just deductions can be drawn by comparing it with a normal animal, with whom at best we can not intelligently communicate.

The true and only test as to the truth of this theory that has so far been applied is the observation of lesions in the human brain. Numberless cases are on record where cortical lesions have resulted in paralyses and disturbances of the special senses. Cortical destruction of the motor region is often followed by paralysis, in the frontal lobe by mental weakness, in the occipital lobe by visual disturbances and in the temporal by deafness. Left-sided paralyses accompanied by aphasia are frequently found to have their origin in lesions near the base of the third frontal convolution. On the other hand, equally well defined lesions impinging on or completely destroying these centers have not resulted in corresponding deficiencies.

The importance of these researches is undoubtedly great, for they have opened up a new and fertile field for the experimenter and have added vastly to our knowledge of the physiology of the brain. On the other hand, they have been a basis for the justifications of the many operations performed for the removal of localized growths or deposits in or on the brain, and as such their accuracy and diagnostic value are rightly questioned. Surgeons have interpreted these researches in a manner that conservative investigators can not approve.

Our medical journals are filled with accounts of operations which have either justified the diagnoses, or where the results were not so bad as to completely confound and condemn both the operator and the operation. Unfortunately the many unsuccessful or otherwise disastrous operations remain unreported as regards tumors, even were the localizers able to absolutely and definitely point the way to the surgeon, yet post-mortems teach us that at least 75 per cent. of such growths could not be successfully removed; and were all the results of such operations known, characterized, as many of them are by mistaken diagnoses and surgical mishaps, 95 per cent. would more nearly represent the proportion of the operations which are either useless or criminal failures. Granting that 5 per cent. of the operations result in improvement or cure, this small proportion

does not justify the readiness with which such operations are undertaken. But surgeons have gone further than this. Not content to interfere with pathologic cerebral tissues they have opened brains practically normal, removed the recognized centers and noted results. This has frequently occurred in the so-called Jacksonian epilepsy where consciousness is seldom lost and only one limb or group of muscles is involved. Some of our recent text-books have even gone further and advised exploratory incisions as an aid in diagnosis, as if the trephining of the brain was as simple a procedure as is the opening of the peritoneal cavity, or the results which follow healing as insignificant.

While granting the advance made by experiments on animals in elucidating the physiology of the brain, the modern cerebral surgery based on this is not justified, either by reason of the possibility of accurate diagnosis or the probability that the operation *per se* may benefit. The results of operations even those selected for publication are not encouraging, much less do they lead us to regard the operation as one of minor surgery.

YELLOW FEVER: PATHOLOGY AND TREATMENT.

Prepared for the Pan-American Congress and for the International Congress at Rome.

BY F. PEYRE PORCHER, M.D., LL.D.

CHARLESTON, S. C.

I wish in this paper, based on the study of several epidemics of yellow fever in Charleston, to make three points which are of the first importance; also to give some of the results of my experience as regards treatment and pathology, which I do not think have attracted the attention they deserve:

1. That this fever in Charleston has always been accompanied by what is known as "breakbone fever;" this, though extremely mild, is not distinguishable, but being counted in with cases of true yellow fever, prevents all accuracy in the mortality reports,
2. That yellow fever is fully susceptible of successful management in fair cases, seen early,
3. That life is compromised in the first six to ten hours of the disease; so that it is essential that treatment should be begun early.

Co-existence of Yellow and Breakbone Fever.—Invariably two forms of fever existed together, namely, yellow fever, and a milder and more ephemeral, intercurrent species known and designated as "breakbone." Yet this was also not by any means ephemeral, for it often had a duration of several days. Whether they constituted two distinct species, or were only varieties of one and the same malady, has, strange to say, never been decided—no distinct lines of demarkation between the two have ever been satisfactorily established—no physician, however acute, having clearly pointed out any precise diagnostic difference. Though many cried "Eureka," upon more rigid scrutiny the hopes they offered of a solution of the difficulty proved fallacious.

Among the observers there were to be found the lax and the strict constructionists, so that the usual confusion prevailed; *quot homines tot sententiæ*—there were as many opinions as there were persons to utter them. The question was, it must be confessed, surrounded by many difficulties, for while some forms of fever were very mild, and some characterized by black

vomit and suppression of urine were very fatal, others presented every intervening shade of difference between the two; and though the access of what proved to be the simplest cases was sometimes severe and violent, the intensity of the disease was dependent for the most part, I think, upon the amount of climatization enjoyed by the party suffering; and its gravity and its termination, whether favorable or unfavorable, would be modified, it seemed to me by neglect, by delay, or methods of management injurious or beneficial in their effects.

Individually, I am of opinion that, with many who by careful and assiduous attention on the part of the attendants were rescued from falling into a dangerous condition, and who recovered—the result would have been quite the opposite had they been managed otherwise. So that it was the early treatment and the appliances, and the eternal vigilance which sufficed to change the issue, and which did change it; and I hold that such cases, so metamorphosed by the simple, but important difference of management, would have had a very different termination; and would then, even by the most skeptical, have been placed in the category of true yellow fever, which was denied them if they did not get almost or quite into the third stage. The mild cases (breakbone, so-called) may get well with little or no interference. The difficulty was that they could not be surely distinguished at their early inception; and the stranger, in my experience, sometimes had attacks which, when vigorously managed at the beginning, were fully as innocent as those from which natives suffered, and which in these received the designation of breakbone. But in a fever like this which does its work so rapidly, it was at least plausible to believe and to argue that neglect, delay, the avoidance of the proper means and appliances for reducing temperature, etc., would have very much to do with modifying the nature, history, and ending of each case. This need not excite surprise, for did we treat scarlet fever or even measles with agents as active as those we were in the habit of administering in yellow fever, they would inevitably be made quite as fatal.

Pathology.—The peculiar poison when first introduced in the system produces (through nervous paralysis of the capillary arteries, perhaps) intense fever and great excitement of the circulation, with torpor of the glandular and secretory apparatus. It shuts up all the secretions and excretions, and with a high fever which it creates, rapid destructive metamorphosis of the tissues occur, caused by the intense combustion going on; so that spoliative treatment, in the shape of mercurial, saline, or other purgatives, is imperatively demanded at this inceptive stage. These are to be accompanied by revulsives, hot foot baths, and the application of cold to the upper extremities, in order, severally, to empty the intestinal canal and the torpid glandular organs, to diminish temperature, and to contract capillaries. All these means, also, serve incidentally, but powerfully, to lessen the tendency to nausea, and to irritability of the stomach. The latter does not decidedly lead to, or induce black vomit, as is commonly supposed, though the one often accompanies or precedes the other. Both result from the same efficient cause, namely, the altered condition of the blood, induced by the fever. The peculiar vomit is probably owing to what Warren calls "mortified blood," blood thinned by the decomposing action of excessive fever (a

quality peculiar to the yellow fever poison alone) transuding into the stomach and blackened by its acids. I could discover by the microscope,¹ frequently used, no distinct difference between this and other bloody matters vomited, which have been acted upon by the gastric juice, as where blood from a cancer is poured into the stomach and afterwards ejected.

The temperature in this peculiar fever, if unsubdued, leads infallibly and of necessity to subsequent trouble, to destructive tissue changes, to blood poisoning, to black vomit, to albuminuria, to coma, or to convulsions. I have seen thorough and persistent sponging with ice-cold water, when combined with the use of the other agencies advised, reduce the temperature, lessen all the bad symptoms in a surprisingly short time; having the power seemingly to change the entire character of the disease and imparting comparative mildness to its whole subsequent career. I will stand to this truth, for in the perception and practical carrying out of it lies the whole virtue of the plea which I advocate and assert to be successful.

In general terms, then, our first efforts must be directed to the relief of the intestinal and glandular torpor which always exist and which is marked by costiveness; we must diminish the cutaneous and general heat, empty the vessels of the system which are laden with impure blood, and obviate the tendency to renal engorgement indicated by the frequent presence of albumen. This is effected by the revulsives, aided by a mild alkalin diuretic, to be referred to subsequently. Then we must strive cautiously at construction, and while allowing the recuperative powers full exercise, we are to do nothing to impair the strength remaining, or weaken the energies of the constitution which have become greatly enfeebled. The unacclimated who are seized with the fever are nearly or quite always in a quasi-critical state, ready at any moment to take the descending path and to become dangerously ill; hence they require as careful handling as children do with scarlet fever. While, therefore, nothing is omitted which will tend to diminish the fever their strength must be carefully husbanded, for the slightest neglect, the failure to keep down the temperature by the application of cold water, or too much medication, though these may seem light transgressions, are powerful and weighty in turning the balance.

Mercurial and antiphlogistic purgatives used at the beginning, serve to diminish the heart's action, to lessen the inflammation by spoliation, by the drain of fluids from the body, augmented by the cooling operation of the salines. All of these are measures only to be employed at the beginning, using the agents in sufficient amounts to effect our object, which is to empty the bowel once thoroughly and effectually, without, as I urged, weakening the patient any more than is absolutely required. Purgatives are on no account to be persevered in. The failure to discontinue them after the efficient action of those used on the first day is procured is, I am sure, a grievous error.

Several authorities commit the fatal mistake of repeating the mercury and cathartics and pushing their use much too far. Even Blair, though in my judgment eminently on the right track, and for this reason very successful, permitted his xx of calomel and xviv

¹ Illustrations of Disease with the Microscope. Prize Essay. Charleston, C. S. A., 1861.

of quinin to be repeated under emergencies, and be used again and again as often as four times; I prescribe it invariably, but never more than once, unless it is not retained or does not act.

In a fever like this, of one paroxysm (but with a remission somewhere between the twelfth and thirty-sixth hour, occurring more distinctly when the proper means are used early,) which is exceedingly violent at the beginning, if unchecked, it does all the violence it is capable of in a very brief period.

I have been the first, I believe, to make a most important declaration; that life is virtually compromised in the first fifteen hours of its career. In such a fever, where the danger and the terrible sequelæ are owing entirely to the extreme intensity of the eremacausis, and the injury worked in the system by the high combustion which acts principally upon the blood, a certain treatment flows logically. There is no time to be lost in setting about it, and it is only to be regretted that our measures can not anticipate the invasion of the attack.

I sincerely believe that thousands of lives could have been, and can be saved by a system of management begun at the very commencement of an attack of the disease, before the fever has had time to produce its direful effects, and by methods simple in their operation, perfectly compatible with reason and common sense, and also based upon a view of the pathology and progress of the disease.

That, consequently, where the demand for medical aid is so urgent, when physicians can not see their cases early—such precious time being lost by their enforced absence—an exception must be made to our usual procedure, and the people in such need must be told what to do before the physician arrives. This is required by the fact, which should be recognized by every one, that death results from the insidious and peculiar fever of the first six to ten hours—whenever this is permitted to go on unchecked—through failure to use these means which are perfectly adequate to restrain and keep down the temperature. So that when a man has been ill for twenty-four hours or forty-eight hours with yellow fever, the attendant is not responsible, and treatment which would have been efficient used early is not to be condemned because it fails at the stage where irremediable organic changes have taken place; and the practitioner who boasts that he has fifty or sixty patients on his list does not know that the last installment (those he can not see for ten to fifteen hours) are, in many instances, already irretrievably doomed.

In fair cases and temperate individuals, treated early, there is no need for any violent third stage, for any black vomit, albuminuria, suppression of the urine, etc.

It is a mistake to suppose that yellow fever is necessarily a fatal malady, that epidemics vary greatly in malignancy, and that we must fold our hands supinely. The truth is that physicians in this city and elsewhere report at the end of the season very few deaths. Belot, of Havana, claims that 95 out of 100 fair cases seen early may be cured, and I agree fully with him. I have practiced with success the method to be related in detail (see also *Charleston Medical Journal and Review*, since 1858, and President's address before State Medical Association of South Carolina, 1872). Dr. C. W. Horsey adopted the treatment in the fever of Fernandina, Fla., 1878, others

have employed it successfully, and Surgeon Sternberg refers to it approvingly in his elaborate and able article in Wood's Hand-Book of the Medical Sciences. I had long shown by the adoption of Blair's system, materially modified, the application also of cold water was the foundation fact in the treatment. In confirmation of this, Prof. T. O. Summers, of Nashville, says: "Cold water is the remedy in yellow fever." (Paper on treatment of yellow fever in 1879).

Treatment.—The treatment consists: 1, in sponging assiduously the head, hands and arms with ice-cold water at the very commencement of the attack, not losing an hour, and repeating this at intervals whenever the temperature rises, ice-water being quite capable of reducing the temperature. Towels soaked in the ice-water are preferable to sponging; fifteen to twenty minutes generally suffice for each application, its necessity being determined by the existence of pyrexia. Few perform this simple but essential procedure as efficiently as they should do; 2, give immediately Blair's "calomel, grains xx; quinin, grains xxv" (in proportion to ages), and but once. I have never seen the quinin produce a single ill effect, though given when the fever is intense; 3, follow in three or four hours with a saline cathartic (sulphate of magnesia), which is cooling and antiphlogistic; 4, apply mustard plasters to the entire abdomen, and use hot mustard pediluvia from the beginning of the attack, and repeat them frequently. These may be followed by a cantharides plaster upon the abdomen—which certainly does no injury. After the saline has acted, give an effervescent or antacid mixture of this nature (which also had the support of the late Prof. E. Geddings): Potas. acetate, 1 dram ad 2 drams; potas. citrate, 1 dram; morphia, 1 grain; water, 6 ounces. A dessert-spoonful every two or three hours. Used to quiet gastric irritation and to act slightly as a mild antacid and diuretic.

No other treatment or active medication are required, save the continuance of the cold application and pellets of ice given internally if necessary. Doubtless a few drops of tincture of aconite added to the mixture, or given separately, might prove serviceable.

By this method those recover, according to my experience, carefully recorded, who are seen early; who possess their organs in a state of integrity; with the intestinal canal, liver, kidneys, and other emunctories in a fair condition. This surely is not asking too much; and to claim that recovery will almost invariably ensue in such cases, under the plans detailed elsewhere, and on this occasion, is, if I am correct, making what I can not but regard as a true and important advance. This I hope and believe will one day be fully acknowledged. It is spoken seriously and earnestly without lightly coming to the conclusions, and I sincerely trust that the expression of them will not be regarded as presumptuous or premature.

How different is this from a former system of mercurial purgatives repeated every five or six hours, or a constant effort to induce ptyalism by giving mercury with opium at any and every stage of the disease—with the omission of other measures insisted on here as of the first importance. Persons seized with such a fever, who are seen for ten or twenty hours, those who already suffer from organic lesions,

whether of the stomach, liver, or kidneys, whose digestive organs (so essential to the nutrition, growth, and repair of the system) are irritated and inflamed by the use of intoxicating drinks, can not be expected to respond to any treatment, however judicious and appropriate.² In such subjects there is great tendency to irritability of stomach; the purgatives are not retained, the inflammatory stage (fever) runs high, and can not be subdued. Congestion of the internal organs, kidneys, etc., with albuminuria, occurs; black vomit sets in; and uremic poisoning, with coma, generally closes the scene—during attacks of violent convulsions. Under such conditions, all agents prove nugatory; every effort is necessarily unavailing; and these cases—falsely and illogically reasoned from—bring reproach upon true and legitimate treatment, which can be shown to be serviceable in those who, from the beginning, are not plainly beyond the reach of art.

In my humble judgment, if not the height of folly, it is at least extremely unfair to decry or, which is worse, to abandon, a course of management which is eminently and strikingly successful in nearly or quite all the cases of the class previously described, because it fails to cure those who have no right to expect a miracle to be worked in their behalf.

Any treatment which is successful is not so by accident, but because it is based upon the requirements and real nature of the disease and throughout does the patient no harm. It is high time for the intelligent members of our profession, particularly if they be at all apathetic, to give up the pleasing idea that the practice of physics is all guesswork, in which one artist does full as well as another; that fate and the disease have the control, and that always when a child or man dies the "physician who heals is Death."

THE CAISSON EXPLOSION OF BATTERY F, SECOND REGIMENT OF THE U. S. LIGHT ARTILLERY.

BY EDMUND ANDREWS, A.M., M.D., LL.D.

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The writer is at present in charge of a number of soldiers wounded by an accident so rare, that hardly any officer in the United States service has seen an example of it.

The singular character of the wounds produced, and the rarity of the causes producing them, render the cases most instructive for study.

The late riots in Chicago, by obstructing the United States mails, and arresting commerce on interstate railways obliged the general government to send to Chicago about 2,000 regular troops to maintain order.

On the 16th of July, Battery F of the Second Regiment of U. S. Light Artillery was moving at a trot on Grand Boulevard, supported by a company of the Seventh Regular Cavalry, when suddenly the three ammunition chests of the first caisson exploded with terrific violence.

The caisson was drawn by four horses, which were guided by two mounted drivers. Two cannoneers sat on the limber, or forward chest, but fortunately there were no soldiers on the two others. Two sergeants were riding beside the column, and also part of the

cavalry escort. A number of citizens were on the sidewalks, and at the doors and windows of the adjacent houses.

The two cannoneers on the limber were literally blown to pieces and the fragments scattered hundreds of feet. Two of the mounted men were also killed, and fifteen men were wounded. Three citizens received injuries. Nine horses were killed.

The singular character of the wounds will be noted below.

There were 126 cartridges of cannon powder in the chests amounting to over 400 pounds, besides a large number of shrapnel, and other loaded shells.

The subjoined cuts, and some of the facts about the nature of the shells, etc., are from an article furnished to the *Chicago Tribune* by an educated military officer.

There were two kinds of projectiles in the caisson; one, the simple steel shell with a time fuse. These were all picked up afterwards unexploded. The other kind were the complicated shrapnels which have percussion as well as time fuses, and exploded all

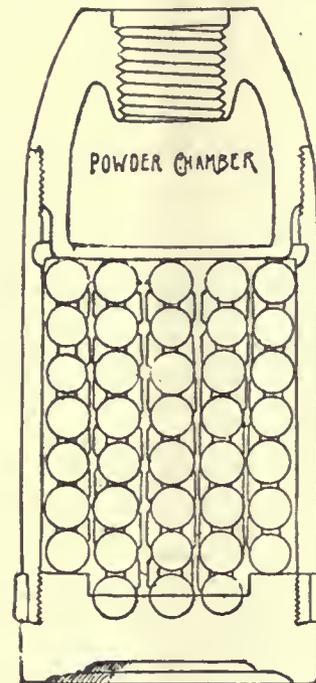


Fig. 1.—Longitudinal section of shrapnel.

about wherever they struck the ground. The shrapnel shell is named from its inventor, Gen. Shrapnel. Fig. 1 shows a longitudinal section of one.

The top of the shell is closed by a metallic plug screwed in and containing a complicated arrangement for firing the powder in the shell, whenever it strikes, or sooner if desired. Below the plug is a chamber filled with a small charge of powder—two and three-fourths ounces—just enough to burst the shell as it flies toward the enemy, while the pieces spread out in the form of a cone and continue on their course, making awful destruction. Below the powder chamber there is a larger cavity containing 162 lead bullets mixed with rings of cast iron. The bullets, added to broken rings and fragments of shell make for each shell over 300 pieces of metal to be shot fiercely into the faces of the enemy.

Experiments made to determine the effect on a target showed that the flying pieces pierced the wood

² "There is no hope for the drunkard."—S. H. Dickson.

so closely that there was hardly a spot as big as two hands which had not been struck. It is one of the most terrific instruments of war.

Fig. 2 is a transverse section of the bullet chamber.

Fig. 3 shows the cast-iron rings for holding the bullets steady.

It will be observed that in shrapnel the bursting charge is small, so that when a stationary shell explodes, the pieces do not fly laterally with great velocity. The terrible effects in war are caused by the forward velocity given by firing the shell from the cannon. In the present case the shells were not fired from the gun and hence though fifty-three of them exploded, few of the wounds contained any bullets or pieces of iron.

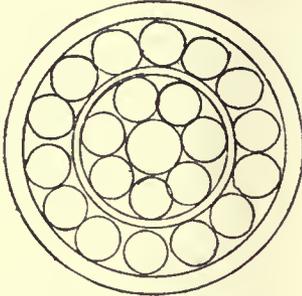


Fig. 2.—Transverse section showing the arrangement of balls.

The remarkable feature in the injuries placed under my care is that nineteen-twentieths of the wounds were made by the big unconsumed grains of modern cannon powder which are nearly half an inch in diameter and penetrate like bullets. Those who were most severely injured were under too much shock to bear transportation to the distant camp, hence five were brought to me in Mercy Hospital, and one to Prof. E. W. Andrews at Michael Reese Hospital.

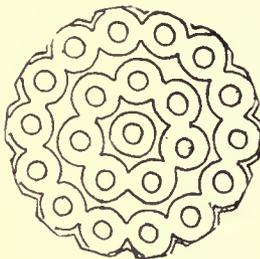


Fig. 3.—Cast-iron rings.

The latter soldier, Private Stoltz, sat on his horse in front of the exploding limber chest, receiving the projectiles in his back. The grains of cannon powder in the chest were large and irregular in form, averaging about the size of chestnuts. Thousands of them flew in every direction like bullets, some burning as they flew, and many probably not even on fire. Aside from the flying pieces of powder, a great globe of flame enveloped the whole area near the caisson. Stoltz's hands and the back of his neck were blistered by the flame. The parts covered by clothing escaped blistering but his entire back down to the line where the posterior elevation of the saddle-tree protected the nates, was perforated by hundreds

of cannon powder masses, so that there was hardly room to touch him with the point of a finger without inserting it into one of the orifices. Generally the wounds penetrated about three-quarters of an inch and the surfaces were black and pulpy as if the connective tissue were half crushed and half burned. The grains themselves could not be found in definite form, either having been burned up in their beds, or else been softened by the blood into a paste. Some of the larger wounds contained broken chips of wood from the limber chest. One large piece of wood five inches long and an inch wide had pierced the skin endwise and lay along the seventh rib. No bullets nor pieces of iron were found, but some of the wounds were deep, and bullets or pieces of iron may have been in the interior depths. As he was in a dying condition thorough search was impossible. The patient was delirious and died in six hours of shock.

Sergeant L. Leiner was brought to Mercy Hospital suffering severe shock so that great fears were felt that he would not rally. However, in twenty-four hours he had pretty well reacted. At the time of the accident he was riding beside the column a little to the rear of the exploding caisson, so that he received the blast in front. His face and hands were blistered by the flame, the whole front of the body, from head to ankle was punctured with powder lumps similar to those of Stoltz, but fewer in number. Perhaps a hundred in all. One of the wounds penetrated through the rectus abdominis muscle, so that the finger could be inserted, but the peritoneum was not penetrated. Pieces of wood were extracted from that wound and from several others, but most of the orifices contained nothing tangible. One wound over the ligamentum patellæ allowed the finger to run up into the patellar bursa and the front of the bone was chipped. A piece of iron about half an inch long lay there, but the capsule of the joint was not opened. He is now out of bed.

Private O'Donnell received the charge also in front, and had perhaps a hundred powder punctures. The shock was severe. The face and hands were blistered. One wound of some size was received on the eyebrow and others in various parts of the face and body. Several pieces of wood from the ammunition chests were extracted, and also a piece of copper, derived from the copper ring that encompasses the base of each shrapnel shell.

Trumpeter H. Antes, Seventh Cavalry, received numerous wounds over the front of the face and body, one of them chipping the end of the clavicle. Pieces of wood were found but no metal, yet he had apparently been struck by a large fragment of iron or wood, for the right deltoid muscle was torn away, the acromion process was shattered, the tuberosity of the humerus was carried away bodily and the shoulder-joint was laid open along its outer border. Several small pieces of wood and chips of bone were removed, but no metal. The wound extended behind the scapula below the spinous process. It was cleansed and dressed antiseptically. In a few days he was removed to Fort Sheridan, where Surgeon-Major Girard exerted himself to get rid of all septic remnants of bruised flesh and crushed bone and then trimmed the flaps and brought up the remnant of the deltoid and sutured the flaps together, thus covering the wound and the opening of the joint, with an excellent prospect of saving the articulation from sup-puration and ankylosis.

The wounds of the other soldiers were similar in character.

One lady in an adjacent house had her arm cut, probably by flying pieces of glass.

Another lady received a projectile from a shrapnel cutting off the tendon of Achilles.

A boy of 14 years passing on a bicycle, received two shrapnel shots in the calf of the leg.

So far as I had opportunity to observe, none of these men received any injury to the globe of the eye, though their faces were perfectly peppered with wounds. This seems to show that the explosion was not absolutely instantaneous, since they had time to shut the lids before receiving the blast.

As to the rarity of this accident, it is well known that ammunition chests are occasionally exploded in battle when struck by the shells of the enemy, but to do so when simply traversing a smooth road is so unprecedented that only four cases are on record in the U. S. Army, and in only two of them are the facts clearly established. The investigations already ordered will doubtless discover the causes, and prevent such disasters in future.

2520 Prairie Avenue, Chicago.

TWO CASES OF INTESTINAL OBSTRUCTION.

Specimen presented and remarks made at a meeting of the Medical Society of the District of Columbia.

BY I. S. STONE, M.D.

SURGEON TO COLUMBIA HOSPITAL, ETC., WASHINGTON, D. C.

Case 1.—R., colored, age 21, had been sick three weeks with specific pelvic suppuration. She had no symptoms of intestinal obstruction or of nephritis. She had the usual preliminary treatment incidental to laparotomy for pyosalpinx. Salts were administered freely and acted well the day before operation. Her urine was examined on entering the hospital and again the day of operation and pronounced free from albumen. A microscopic examination was not made. The operation was made on June 6 at 10:30 A.M. Everything passed off in a satisfactory manner. Intestinal adhesions were not difficult to overcome. The patient was placed in the Trendelenburg posture and every precaution was taken to complete the operation in a thorough and satisfactory manner. The pelvis and lower abdomen was flushed with rather more than the usual care, as quite a large quantity of pus had escaped in the removal of the greatly distended pus sacs. A glass drain tube was placed as usual. Nothing unusual occurred after the operation until the next morning when the transverse colon was found distended greatly. The administration of enemata had but little effect in dislodging the collection of gas, and the stomach refused at first to retain fluids. Afterwards during the afternoon and evening of the day following operation, salts and castor oil were both retained in full quantity without overcoming the fatal obstruction. The patient did not suffer greatly from pain. There were few symptoms of peritonitis and, in fact, the prompt occurrence of the symptoms after operation did not suggest peritonitis as a cause of the distension. The drainage tube was removed in thirty hours and a long forceps with a piece of gauze was used in the drain tract to ascertain if the intestines were anywhere adherent. The forceps moved freely and easily, thus demonstrating the absence of pelvic peritonitis. At the autopsy this was proved correct, as there was only one point where the intestine was adherent, namely, to the pedicle on the right side.

The quantity of urine passed was estimated by the house physician at eight and one-half ounces during the forty hours the patient survived the operation. This decrease in the quantity of urine was thought due to the obstruction, and the kidneys were not thought diseased. Ether was used as the anesthetic but only a small quantity was required, as the patient very rapidly came under its influence.

The operation was not more difficult than usual, and was done with deliberation and care in every detail in less than forty-five minutes. The patient died forty hours after operation. The autopsy six

hours later revealed two points where the intestine was occluded. One specimen shows the large bowel at junction of the transverse and descending colon just under the spleen. A stenosis exists at this point. Air could easily be forced through this narrow passage before the specimen was laid open by the pathologist. When the autopsy was made I thought this stricture might be due to change in the intestinal wall after the operation, or due to intestinal spasm. But the section plainly shows an organic stricture permeable during life when intestinal peristalsis was not diminished. But this was not the only source of obstruction. A diverticulum was found tightly drawn across the ileum about three inches above the cecum. The greatly distended ascending colon appeared to press the lower end of the small bowel forward and thus added to the twist of this diverticulum, which completely occluded the bowel at this point. The small intestine was distended with fluid and intestinal gas to this point. This diverticulum is two inches long, three-fourths of an inch wide at its central portion and gradually narrowing toward each end. It appears to be a congenital abnormality and much resembles an abortive mesentery or mesenteric fold.

The theory of the case is somewhat as follows: After the operation very little flatus was forced through the lower stricture even with the aid of enemata. The transverse colon soon became distended causing pressure upon the stomach and displaced the diaphragm with heart upwards. Rapid and feeble heart action supervened and the patient had the appearance of secondary shock. The obstruction near the cecum did not permit the entrance of fluids into the large bowel, and in consequence the narrow structure of the colon would not yield to the feeble peristalsis of the distended bowel.

Still another element of unseen danger entered into the combination which produced the fatal result. The quantity of urine was greatly diminished, and as above stated this was thought due to obstruction high up in the small intestine. At the autopsy, the explanation was found in the kidneys. Both kidneys present undoubted evidence of nephritis. This fact affords another instance of the very unreliable nature of our usual tests for this disease prior to surgical operations, and especially in view of the influence of ether upon the kidneys. The examination of the patient's urine was made upon two occasions by internes in whom I have perfect confidence as to integrity and capability. No albumen was found. Finally there would appear but slight probability that the nephritis in this case could be of only forty hours duration, or in other words be entirely due to the use of ether.

WASHINGTON, D. C., July 10, 1894.

DR. I. S. STONE, 1504 H Street, N. W., Washington, D. C.:

Dear Doctor:—The specimens in the case of the colored girl, Ragland, consisting of the large intestine and kidneys, have been subjected to a microscopic examination in the laboratory of the Museum with the following results: The stricture at the junction of the transverse and descending colon shows, on section, marked thickening of the longitudinal and circular muscular coats of the bowel, as well as increase of the submucous layer. The mucous membrane lining the stricture was somewhat atrophied. From this examination I am led to believe that the stricture was organic in its nature, and probably congenital in origin. The kidneys show an advanced degree of fatty degeneration of the epithelium lining the secreting tubules, as well as that lining Bowman's capsules and covering the Mal-

pighian tufts. There is also a perceptible increase of connective tissue throughout the kidneys.

Very respectfully,
WALKER REEDE,
Maj. and Surg. U. S. Army, Curator Army Med. Museum.

The next case of obstruction was one of great interest although the cause was entirely different, being due to the presence of a dermoid cyst of the ovary with a twisted pedicle:

Mrs. P. had been taken ill on June 6 with severe abdominal pain, nausea and vomiting. The use of enemata failed to afford any relief, after several days of vigorous efforts on the part of her physicians, Drs. Harding and C. W. Brown of this city. I was called in on June 10 to see if operative measures might afford relief. A tumor was found filling the pelvis nearly to the umbilicus and appeared to be more upon the left side. The very great distension of the abdomen made a careful examination difficult but sufficient was learned to justify prompt abdominal section which was done an hour later. A very dark sac of an ovarian tumor was found and removed. Four twists of the pedicle caused the almost gangrenous condition of the cyst. Light adhesions of intestines to the sac, and also some adhesion to the parietes and sac were soon disposed of, the abdomen flushed and closed without drainage. Including the time of giving the anesthetic until the abdomen was closed occupied about thirty minutes. The patient's condition before operation was very precarious and caused her physicians great uneasiness. Under morphia and heart stimulants she bore the operation very well and rallied from shock in a very satisfactory manner. Her bowels discharged great quantities of gas the morning after the operation and the recovery has been uninterrupted and without incident.

SOME UNUSUAL EFFECTS OF QUININ ON THE SKIN.

BY J. SCHNECK, M.D.
MT. CARMEL, ILL.

Perhaps the most common dermal effect of quinin, when administered internally, is a form of hives or urticaria in which the surface is fairly covered with irregular shaped reddish colored blotches, varying in size from that of a dime to the palm of the hand. The skin is slightly elevated, has a hard, tense feel to the touch; there is usually intolerable itching and burning; sometimes the skin is so sensitive that even the slightest touch causes severe pain and feels as if a raw surface had been touched.

In other cases the eruption is in the form of a rash; similar to that seen in scarlet fever. Often there is a uniform flush of the surface of the skin as in an erythema. Quite frequently a herpetic eruption follows the administration of quinin, which may be located on the lips, ear, cheek or prepuce. I have a lady patient in whom a 5 grain dose will produce an acute coryza.

There is a rarer form in which a small circumscribed area is affected whenever quinin is administered. I have treated an old lady for years in whom 10 grains of quinin, given during one-half a day, will cause large reddish-purple blotches to appear on the ulnar margin of the left hand, and another, about the size of a half dollar, on the upper portion of the left concha; the eruption is accompanied by a hot tingling sensation and disappears during the following twenty-four hours after the remedy has been given; the same train of symptoms invariably occur when she takes quinin.

Another case is that of a carpenter in whom a course of 20 grains of quinin, given in 4 grain doses two hours apart invariably produces a similarly colored condition of the skin, on the back of the left thumb, between the first and second joints. The

burning sensation is very severe, the epidermis is raised into a blister and afterward shed.

A still more singular case is that of a young farmer in whom 20 grains of quinin will cause the mucous membrane covering the glans penis to change to a dark purple color, accompanied by intense itching, followed by the shedding of the epithelial layer in the course of the following week.

Another instance is that of an intimate friend in whom 4 grains of quinin will cause a most annoying itching of the glans penis in from thirty to sixty minutes after it has been taken. If taken at bedtime the itching will continue until morning. The party is about 50 years old, and during the last eight or ten years of his life this effect has invariably followed the use of quinin, while previous to that time this effect was not noticed, although he has taken quinin frequently since early childhood. This last instance is of especial interest as it indicates the length of time required from the ingestion of an ordinary dose of quinin until its physiologic effects are produced.

In the lower forms of animal life the sloughing of the skin is a common and useful function. May not the shedding of the cuticle which we see in many skin diseases and the similar effect of some drugs on the epidermis find a rational explanation in this primitive function? In either case it is an angioneurotic process, which is either circumscribed or general in its manifestations. May they not both be forms of erythema, which are easily induced, from the presence in the skin of hereditary peculiarities? It can make no difference whether we adopt the theory of Lamarck; that man has been evolved from the lower forms of life by the ever present law of heredity; or that of Darwin, that man is the highest resultant of the law of the survival of the fittest in the struggle for existence in the ever changing environments on the earth; or to the more modern doctrine of Weismann, that these changes are due to an innate energy in the germ-plasm which tend continually to the production of higher forms of life and to the adoption of better and more complex organs and organisms. In either case we find ourselves so very closely related in the physiologic functions to the lower forms of life that one naturally concludes that the ease with which the epidermis is raised and shed in man, may be due to the reappearance of a former condition.

What it is to be One's Physician.—To be one's physician, the Supreme Court of Arizona holds, in the case of the Mutual Life Insurance Company of New York v. Arhelger, decided March 8, 1894, means to attend upon him or consult with him in a professional capacity about his state of health; that is to say, to prescribe treatment, if necessary, and give directions and advice calculated to relieve from sickness and restore to health. This definition has an important practical application, because it is usual for life insurance companies to include among the subjects to be covered by the medical examination inquiries with regard to when the applicant for insurance consulted or employed a physician. In this case, where the applicant was asked when he last consulted a physician, to which he answered, "Not since childhood," and warranted his answer to be true, the Court holds that if he consulted any physician in a professional character, or received any treatment or advice at the hands of one, it was his bounden duty to disclose the fact in answer to the inquiries, and if he failed to do so his warranty was thereby broken.

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SATURDAY, AUGUST 4, 1894.

THE PRESENT STATUS OF MEDICAL EDUCATION IN
THE UNITED STATES.

A rapid evolution in medical education is apparent in this country. Not content with the extension of requirements for the degree of M.D. from two to three courses of lectures, there is most convincing evidence in the events of the last few weeks that point to the immediate adoption of the four course requirement by every reputable medical college in the country. The action of the College Association in adopting the four years' course with attendance upon four courses of lectures goes into operation in 1895. All the colleges in Chicago, Harvard University, University of Pennsylvania, College of Physicians and Surgeons New York, Jefferson Medical College, University of Michigan, University of Minnesota, and many others have already adopted the four-term requirement. The indications point to definite action in the adoption of the four-year course at once by all the colleges in Ohio, Missouri, Iowa, and by a limited number of the Southern schools. The extension of the courses of medical instruction will reduce the number of students somewhat, but not enough to affect the income of the colleges. Experience has shown that in the last few years colleges extending their courses have had increased attendance and largely increased incomes. The increase from laboratory fees has been particularly noticeable. With the four-year requirement in practical operation in this country we shall hear less regarding the poor quality of medical education. The appointment of a committee in the College Association on minimum of professional study and to prepare a curriculum of study for each branch to be taught in the proposed four years' course was most wise. This Committee consists of PROFS. CONNOR, of Ohio; VAUGHN, of Michigan; QUINE and

DAVIS, of Illinois; STEMEN, of Indiana; and MILLARD, of Minnesota, all of them teachers of experience.

There has been a noticeable lack in uniformity of grade and entire lack of uniformity in methods. The amount of work upon each branch has been greatly governed by the views or wishes of the individual instructors. In one college the student would be offered a thorough course of instruction in hygiene; in another no instruction whatever. In the division of work under the four years' curriculum our colleges will follow in the footsteps of foreign schools. The work will be divided into the scientific and clinical departments; the scientific work being largely embraced in the first two years. In the first two years of the course we trust that didactic methods will rapidly give way to recitation work, and in the last two years bedside instruction will greatly displace the old method of massing the students into an amphitheater for a general clinique.

We trust the Committee will go to the bottom of this all important subject, and that at next year's meeting the Association will scan their labors most thoroughly. We hope also that the Committee will give the study of pathology and therapeutics a prominence in the work of the last two years, that their importance merits. Systematic laboratory and classroom work should be provided for in pathology during the last two years. The course in therapeutics can not be too thorough. In short, the entire work of the four years' course should be greatly confined to the so-called fundamental branches, with the elements of the special branches, reserving thorough courses—the specialties—to post-graduate schools or the so-called "special courses" approved by the undergraduate colleges.

NARCOMANIA.

Experts and noted writers agree that this term describes more accurately the condition of many inebriates, than dipsomania. The latter indicates a thirst mania, which is very rarely seen, and of short duration, while narcomania is a mania for relief, or the intense desire for the anesthetic effects of alcohol, opium or any drug which will quiet the physical or psychical sufferings of the organism, and is common to most cases of alcoholism. An inebriate who has become powerless to control this alcoholic impulse, and who gives way to it continuously, or at intervals, is a diseased man requiring medical recognition and care.

Such men are what may be termed defectives, and in most cases are of bad judgment, weak, erratic, changeable feelings and morbid enthusiasts. Recently the prominence which a few men of this class have taken in the affairs of the country, bring up the question of their mental condition, and suggest a new study and change in public sentiment. A practical illustration is that of a business man, at

the head of a large industry, who drinks to great excess at intervals, and whose bad judgment and insane-like reasoning has on several occasions caused great suffering to those whom he employs, and the community in which he lives. Lower down, a man who drinks at intervals has attacks of delusional mania and causes distress and suffering to those about him; or commits crime which perils the interests of the community.

Another class growing more prominent, are so-called reformed inebriates, who after years of excessive use of spirits, seemingly stop drinking, and become wild agitators, and sensational leaders of impractical theories. They call themselves pioneers, socialists, and are active to change and disquiet the existing order of events. They are prominent in all new schemes for money, power and popularity; and after an uncertain period relapse, and become wilder and more irregular. They are becoming prominent in every community, as supporters or opponents of every possible good or bad theory, quackery, delusion, socialism, anarchism, and are so-called reformers of every degree. As advocates of "gold cures," they have tried the treatment and then enter upon the business of curing others. Becoming officers of branch cures, they urge the most extravagant expectations in pecuniary returns, and possibilities of curing others. Later the institution is bankrupt, and they relapse and disappear. The head centers who provide the secret remedies, wisely receive all pay in advance, and never trust, while the credulous stockholders and supporters of these branch cures, trust to the pretensions of these reformed officers.

Many of the extreme reformers, who create a large following for a time, then disappear under a cloud, are of this class of narcomaniacs. Sometimes in medical circles these cases appear, urging some very startling innovations in remedies and treatment, or claiming some discoveries which threaten to change all existing order of events. Not unfrequently they pose as enthusiastic advocates of some half way proprietary medicines.

The general public overlook the fact that such cases are "border briars," and not unfrequently pass over into the realm of insanity, both acting and reasoning like insane men. In the interval they may pass unobserved in many circles, and be credited as of sound mind. But when they commit crime and become objects of study, a new chain of symptoms appear, pointing out states of degeneration not noticed before. Physicians should enter upon this neglected field of psychical and obscure mental symptoms, and be able to make diagnoses of cases, that are seldom recognized until they fall into the hands of specialists. Narcomania is only one of many of these obscure degenerative mental disorders, which may go so far, then stop, or continue to some pronounced

phase of insanity. An early diagnosis of a paranoiac and defective brain, and appropriate care and advice, would save most disastrous consequences later. So-called habits, conduct and methods of reasoning, should be the subjects of medical study as much as the heart's action, the temperature and reflex of the body.

The narcomaniac is diseased and requires medical care and treatment, and the general practitioner is in a position to study and understand these cases more clearly than the specialists.

THE REDUCTION OF THE ARMY MEDICAL DEPARTMENT.

Congress has cut down the Medical Department of the Army. If a bill had been introduced for this special purpose and the arguments for and against its passage had been heard, we take it for granted that our Federal legislators would not have crippled the Department. The blow was dealt by a proviso to that part of the Army appropriation bill which provides for the 1894-95 expenses of the Medical Corps. This proviso, which reduced the number of Assistant Surgeons from 125 to 90, was on the bill when it was reported to the House of Representatives by the Military Committee, MR. OUTHWAITE of Ohio, chairman. Although we now know why the committee made this attack upon our medical *confrères*, it was at the time a great surprise, for we were under the impression that the Medical Corps was in good repute and deservedly so, at the Capitol Building. The energy and ability of the Surgeon-General had just created an Army Medical School out of nothing, or which is the same thing, out of materials which although ready at command had not up to this time been utilized. Its first session had closed and the value of its work was fully recognized. An Examining Board had been ordered and over fifty candidates invited to compete for the six vacancies then existing, when this proposition of the Military Committee became known. To the disappointment of the candidates the order convening the Board was revoked and the examinations postponed indefinitely, depending on the action taken by Congress. The Surgeon-General would have been warranted in filling the vacancies under the existing law, but he evidently preferred to manifest his readiness to obey, in a military way, the spirit of legislative control.

It was only after the bill had been reported to the House of Representatives that this proviso became generally known to those interested in the welfare of the Department. One of MR. OUTHWAITE's arguments in favor of the reduction was that no protest against the proposed action had been made by the medical profession. The ASSOCIATION telegraphed from San Francisco, California, sustaining the Corps and commending it to Congress, but this, with similar

action by state and local medical societies was too late to influence the action of the House of Representatives already taken. The Senate expressed its views by rubbing out the proviso, but when the bill came to conference a compromise was adopted, reducing the number of Assistant Surgeons from 125 to 110.

There can be now no appointments in the Medical Department of the Army until this reduction has been effected. But for this there would have been ten vacancies to be filled now; six more places must therefore be vacated before an appointment is made. Under the law, examinations may be made at any time, passed candidates being held for appointment to such vacancies as may occur within two years after their successful examination. The Surgeon-General will no doubt issue a circular of information on this subject to those concerned.

This reduction necessarily postpones the second session of the Army Medical School so far as passed candidates for the Medical Department are concerned, and delays experience in its management and work; but no doubt each member of the faculty will keep his course in view and make use in perfecting it, of the time and experience already gained. This School of Sanitary Science and Preventive Medicine as applied in the Army should not be permitted to lapse.

Moreover, an effort should be made to have Congress re-consider this ill-advised legislation. The Army needs its full complement of specially trained sanitary officers. On them we rely for the protection of our camps in time of war, for the organization of our field and general hospitals and the induction into each newly formed organization of that *esprit du corps* needful to its successful operation. It is difficult to see how the Medical Corps can accomplish its work, deprived of 8 per cent. of its young men. Medical officers sometimes break down under sickness, and all are entitled under the laws to a certain allowance of leave of absence, which each can only get when there is a spare officer for his relief. Many large posts have only one surgeon on duty, and troops are frequently ordered out from such posts without a medical officer. Instead of reducing the Corps there should be enough of spare officers at the command of the Surgeon-General and his medical directors to have qualified medical attendance with every squadron patrolling the Mexican frontier, and with every detachment subject to the dangers of field service.

We trust that this action may be reversed at the next session of Congress.

DENGUE AND YELLOW FEVER.

An epidemic of dengue is reported in the U. S. military barracks at Key West, Fla. DR. JOSEPH Y. PORTER, State Health Officer of Florida, says that

there had been, up to the 18th ult., 75 cases out of the garrison of 115, and that "this epidemic has been characterized by some phases not described usually in the text-books and has been an interesting study." In his report (*Abstract of Sanitary Reports*, July 27, 1894), DR. PORTER does not specify the features which constitute the unusual phases of the epidemic nor the characteristics which make it an interesting study. From the report of G. B. YOUNG, Passed Assistant Surgeon, M. H. S. (*loc. cit.*), it appears probable, however, that the features of interest consist in some abnormalities of the pathognomonic relations of pulse and temperature; he says: "There has been a marked disproportion between the pulse and temperature in about all the cases; the temperature has not been high; I noted, however, two cases especially interesting—in one the temperature was 104 degrees, pulse 85; in the other, temperature 103.4 degrees, pulse 78." In dengue the pulse usually increases in frequency as the temperature rises, until the maximum is attained, and then falls, *pari passu*, as the fever declines—unlike yellow fever in which the pulse generally falls on the third day while the temperature continues to increase.

This "epidemic" derives whatever of practical importance it may possess from its value as an illustration of the great gain to the material interests of the country which accrues from increased knowledge and more exact diagnosis of the so-called quarantinable diseases. Within a very few years this occurrence, coupled with recent arrivals of yellow-fever infected vessels, might have caused a panic throughout the South Atlantic and Gulf States, and the enforcement of the unscientific, illogical and even barbarous quarantine restrictions of the period resulting in untold injury to commercial interests and values.

Prior to the introduction of the clinical thermometer, dengue was looked upon by many physicians as a mild form of yellow fever, a view which gained color from some of its symptoms, but especially from its tropical habitat, the influence of locality and its association with certain seasonal influences—all in common with yellow fever. For example: A continued high temperature being an essential condition of its epidemic prevalence, and this being put an end to on the first appearance of frost; its limitation, for the most part, to towns, and of these, to the filthy, low-lying quarters of seaports; its intense foci being in the 'tween decks of ships and in the crowded centers of squalid population, etc.

Epidemiologists are now agreed that epidemics of dengue figure to an undue extent in the "tabular statements" of yellow-fever epidemics, in the history of this latter disease prior to 1860, and are disposed to consider many of the reported cases of recurrent attacks of yellow fever in the same individual as mistakes in diagnosis. There is now, however, little

danger that the appearance of dengue shall be mistaken for that of yellow fever, and so throw a group of States into a paroxysm of unreasoning terror and the establishment of "shot-gun quarantines," as happened so lately as 1880, in Tennessee, Arkansas, Mississippi and Louisiana on the occasion of the passage of the towboat *Raven* and its barges up the Mississippi River with cases of this disease on board.

The lessons of dengue at Key West in 1894 are that advances in medical science are the only reasonable foundation for the modification of quarantine restrictions affecting travel and traffic—the bases of commercial prosperity; that one of the best investments for the Nation would be the necessary appropriation and adequate legislation for the promotion and utilization of such advances; and that a Department of Public Health operating through existing Bureaus, is the logical and ultimate agency through which to give potency and effect to these advances in preventive medicine.

VITAL STATISTICS.

A correspondent (DR. S. B. GRIFFIN, of Stockton Springs, Me.) asks the JOURNAL to furnish him "the statistics for 1890, or later, of the mortality of each State in the Union and, especially, the number of deaths from consumption in each thousand deaths in each State."

As the JOURNAL is in frequent receipt of similar queries from its subscribers—and which have hitherto been answered individually from the best sources of information at hand—it seems well to say that there are no trustworthy vital statistics for "each State in the Union." The only authoritative compilation of such data is that of the decennial census of the United States, and this covers—for such purposes as these inquirers have in mind—only those States and cities which have in force some legally authorized system of registration of deaths and causes of deaths.

In the following summary, which is of interest to the general reader sufficient to warrant its presentation in this form, will be found such authentic information of this character as is at present available. It covers only those States which enforce a registration of deaths and causes, to-wit: Alabama, Connecticut, Delaware, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont, and the District of Columbia. In addition to these, the census embraces also the vital statistics of some thirty-six "registration" cities, for the details of which reference must be made direct to the census reports.

In the States above enumerated, and in the District, the total deaths during the census year were 427,538, which, in a population of 21,093,320, gave a rate of 20.27 per thousand. In the States in which no regis-

tration system was in force with a population of 41,528,930, the death rate, as computed from the enumerators' returns, was only 10.79 per thousand—a figure obviously unworthy of any serious consideration.

As to deaths from consumption in these registration States and in the District the following are the figures per thousand of all deaths: District of Columbia, 139.16; Delaware, 158.98; Massachusetts, 134.28; Rhode Island, 124.17; Alabama, 115.55; Vermont, 125.76; New York, 121.44; Connecticut, 121.36; New Jersey, 112.33; New Hampshire, 106.24. The total deaths in this group from this cause were 31,743, which, with the population above given, would make an average death rate from consumption of 1.50 per thousand.

On the other hand, the enumerators' returns for the non-registration States, show 70,456 deaths from consumption in a population of over 41,000,000—a death rate from this disease of 1.69 per thousand, or largely in excess of the rate shown in the registration group.

Similar, if unequal, discrepancies are shown in the death rates from other diseases in the States which register deaths and the causes thereof and those which do not. Obviously there is no basis upon which to compute the relative frequency of any given disease in any given State. The best that can be done is to compare the death rates from given diseases in the baker's half dozen of registration States and the thirty-six registration cities.

There are no vital statistics worthy the name in the United States, as a whole.

BOOK NOTICES.

Text-Book of Abdominal Surgery. A Clinical Manual for Practitioners and Students. By SKENE KEITH, F.R.C.S., Ed., assisted by George E. Keith, M.B., C.M. With illustrations. Pp. 508. Philadelphia: J. B. Lippincott Company. Chicago: A. C. McClurg & Company. Price \$4.50. 1894.

The book before us teaches fairly the existing state of abdominal surgery. It is divided in two sections. Section I comprises eleven chapters and is devoted to the surgery of the abdomen. Section II has five chapters, in which "the Surgery of the Abdomen Peculiar to Women" is discussed. The chapter on "Examination of the Abdomen" is especially valuable and interesting. We notice, however, that no reference to air inflation as a means of aiding auscultation is made. The air bag is so common an adjunct to our armamentaria in America that its omission seems strange. The book bears evidence on every page of the vast experience of the immortal Thomas Keith, under whom the authors practiced for seventeen years. It may, therefore, without much stretch of the imagination, be taken as coming from the master himself. The great candor, the simplicity of its style, and its direct statement are among the chief characteristics of the work. The advice as to measures in emergencies is sound, and the instructions on after treatment are such as may be implicitly followed. If we might venture an exception it is that the practice of the authors seems to encourage the administration of morphia to a degree not

usual in this country, and indeed quite unnecessary if we accept the dicta of some of our recent authorities. In controlling thirst where there is vomiting, we notice that our authors commend rectal injections of milk and water (page 79.) We commend the book as one destined to become a favorite.

Transactions of the Vermont State Medical Society for the Year 1893. Published by the Society.

This volume records the proceedings and papers of the eightieth annual meeting, which was held in Rutland, Oct. 12 and 13, 1893. One of the most interesting features of this meeting was the plea of the accomplished Secretary of the Society, Dr. D. C. Hawley, for a stronger organization. He recommended the members to rally around the standard of the AMERICAN MEDICAL ASSOCIATION, and the support of the JOURNAL, and volunteered to receive the annual subscription of any who desired to become members.

The prize papers for the year were respectively by Dr. O. W. Sherwin, of Woodstock, on "Septicemia" and by Dr. E. M. Pond, of Rutland, on "Peritonitis." The President's address by Dr. H. R. Wilder, of Swanton, was an interesting one. The Vermont Society seem to have solved the problem of what to do with Vice-Presidents as they have here an excellent address by Vice-President Brewster, on "The Treatments of Phthisis Pulmonalis." He divides the treatment into three heads: 1. Prophylactic; 2. Medicinal; 3. Climatic. In the discussion which followed, the creosote treatment had several ardent advocates. There are many interesting papers in the volume and all are well written. A biographical sketch of the late Dr. Walter Carpenter, by Dr. Henry D. Holton, followed by a reprint of the constitution and by-laws, conclude the volume. Many societies have more pretensions transactions than this Green Mountain octogenarian, but few are of more solid worth or more carefully edited.

A Modern Wizard. By RODERIGUES OTTOLENGUI. New York and London: G. P. Putnam's Sons. Chicago: Brentano. 1894.

This novel has for its heavy villain a Dr. Medjora, a very learned physician, who hypnotizes people at will. He kills his second wife with cultures of diphtheria bacilli, and by means of a poison which he has discovered—"sanatoxine"—he makes himself a raving maniac to escape the consequences of his crime. He has, however, in the meantime carefully educated his son in hypnotic and other lore, and is firmly of the opinion that the son will discover the antidote to "sanatoxine" and then restore him to his senses. The "sanatoxine" Dr. Medjora has carefully prepared from the cerebral insanity center. The story is cleverly told, and from a detective standpoint is effective, but on the whole leaves a bad impression.

When to Send Patients Abroad for Water Cures and Climatic Treatment. By DR. THOMAS LINN. Detroit: George S. Davis. Paper, pp. 76. Price 25c. 1894.

This is one of the series of the Physicians' Leisure Library, as useful in its way as any of its predecessors. Since a certain class of patients must be sent or will go abroad anyway, to health resorts no better than those to be found at home, it is well to know where to send them and this knowledge Dr. Linn furnishes concisely and intelligently in this little hand-book.

NECROLOGY.

JACOB HART, M.D., of New York, at Ohiopyle.—Harold Groffe, M.D., of St. Paul, July 29.

SOCIETY NEWS.

American Electro-Therapeutic Association.—The following is the preliminary program of the American Electro-Therapeutic Association which will hold its fourth annual meeting at the New York Academy of Medicine, New York, September 25, 26 and 27.

President's Address—Dr. W. J. Herdman, Ann Arbor, Mich., Professor of Diseases of the Mind and Nervous System and Electro-Therapist in the University of Michigan.

REPORT OF COMMITTEES ON SCIENTIFIC QUESTIONS.

On Standard Coils—Dr. W. J. Morton, New York.
On Standard Meters—Dr. Margaret A. Cleaves, New York.
On Standard Electro-Static or Influence Machines—Dr. W. J. Morton, New York.
On Constant Current Generators and Controllers—Dr. W. J. Herdman, Ann Arbor, Mich.
On Standard Electrodes—Dr. A. Laphorn Smith, Montreal.
Stand and Electrode for Static Electricity, exhibit of same, Dr. Lucy Hall-Brown, Brooklyn, N. Y.
On Electric Light as a Therapeutic and Diagnostic Agent, Dr. Margaret A. Cleaves, New York.

THE CONSTANT CURRENT.

Physics; Current Distribution—Mr. W. J. Jenks, M.I.E.E., New York.

Physiologic Effects—Prof. H. E. Dolbear, President Tufts College, Boston, Mass.

Therapeutic Uses; General—Dr. A. D. Rockwell, New York. Gynecology, The Galvanic Current in Catarrhal Affections of the Uterus—Dr. G. Betton Massey, Philadelphia.

Suites e'loignes du Traitement Electrique Conservateur Gynecologie. Grossesses consecutives—Dr. Georges Apostoli, Paris.

Metallic Electrolysis—M. le Docteur Georges Gautier, Paris; Dr. W. J. Morton, New York; Dr. Margaret A. Cleaves, New York; Dr. A. H. Goelet, New York.

Treatment of Urethral Stricture, Report to date—Dr. Robert Newman, New York.

Diseases of the Eye, Electro-Therapeutics of—Dr. L. A. W. Alleman, Brooklyn, N. Y.

Notes on Goitre and Improvements in Apparatus for Treatment of same—Dr. Chas. H. Dickson, Toronto.

Diseases of the Throat—Dr. D. S. Campbell, Detroit, Mich. The Action of Electricity on the Sympathetic—Dr. A. D. Rockwell, New York.

Diseases of the Nervous System, The Treatment by the Galvanic and Faradic Currents—Dr. Landon Carter Gray, New York.

Electric Sanitation—Prof. John W. Langley, Ph.D., Case School of Science, Cleveland, Ohio.

Physics of the Electric Light in Relation to Organized Matter—Prof. John O. Reed, Ph.M., Assistant Professor of Physics, University of Michigan.

Hydro-Electric Methods, Physics and Appliances—Mr. Newman Lawrence, M.I.E.E., London.

Special Hydro-Electric Applications—Dr. Margaret A. Cleaves, New York.

The Hydro-Electric Therapeutics of the Constant Current—Dr. W. S. Hedley, Brighton, England.

INDUCTION CURRENTS.

Interrupted Currents, Physiologic Effects—Dr. W. J. Engelman, St. Louis, Mo.

Therapeutic Uses; General Faradization—Dr. A. D. Rockwell, New York.

Gynecology—Dr. A. H. Goelet, New York; Dr. H. E. Hayd, New York; Dr. A. Laphorn Smith, Montreal.

SINUSOIDAL CURRENT.

Physics—Mr. A. E. Kennelly, F.R.A.S., Philadelphia. Physiologic Effects—Dr. W. J. Herdman, Ann Arbor, Mich.; Dr. J. H. Kellogg, Battle Creek, Mich.

Therapeutic Uses—Dr. Margaret A. Cleaves, New York; Dr. Wm. Jas. Morton, New York; Dr. J. H. Kellogg, Battle Creek, Mich.; Dr. Holford Walker, Toronto; Dr. A. H. Goelet, New York.

Le Courants Alternatifs; Leur Transformation; Leur Mesure et Leurs Applications Therapeutiques—M. le Docteur Gautier et Larat, Paris.

On the Sinusoidal Current Method of Regulation, the E. M. F. and Resultant Current—Dr. Lucy Hall-Brown, Brooklyn, N. Y.

STATIC AND STATIC INDUCED.

Physics—Prof. Edwin Houston, Ph.D., Philadelphia.

Therapeutic Uses, General Therapeutic Uses—Dr. Wm Jas. Morton, New York.

The Treatment of Chorea—Dr. D. R. Brower, Chicago.

Static Induced—Dr. Margaret A. Cleaves, New York.

High Frequency Currents derived from Static Machines as per Method d' Arsonval—Dr. J. H. Kellogg, Battle Creek, Mich.

IN MEMORIAM.

Dr. Wm. F. Hutchison, Providence, R. I., and Dr. John Chambers, Indianapolis, Ind.—Dr. Robt. Newman, New York.

Dr. Plymon S. Hayes, Chicago—Dr. W. J. Herdman, Ann Arbor, Mich.

PUBLIC HEALTH.

A Summary Proceeding.—Upon the motion of the Indiana State Board of Health thirty-three of the principal citizens of Whiting, Ind., have been arrested under an indictment for maintaining nuisances prejudicial to the public health, and a summons has been served upon the Standard Oil Company in an action alleging that it allows impurities to flow into Lake Michigan, thus polluting the water supply of adjacent towns and cities.

Intensification of Measles.—The London *Lancet* sees, in the increased mortality from measles during the past decade, ground for believing that the disease is undergoing an intensification of type and regrets, in the interest of preventive medicine, the diverse views which obtain among the several sanitary authorities who have added measles to the list of notifiable diseases as to the value of the proceeding. "A disease which in this country exacts a death toll of from 6,000 to 14,000 persons annually, and an uncertain but far from insignificant amount of partial disablement for life, can not be a matter of indifference to us," more especially in view of the increased death rate noted.

Boston and Philadelphia.—In a popular article in the *Forum* for July, presumably based upon special census reports, the relative mortality rates of Boston and Philadelphia are discussed. Contrary to the usual rule that the larger a city the higher its death rate, Boston had, in the census year, an average mortality of 23.59 per thousand, while Philadelphia had a death rate of only 21.86. Some of the causes leading to this are the lower average level of the site of Boston, the larger proportion of foreign-born inhabitants and the greater density of population. Concerning a factor of urban mortality, upon which the *JOURNAL* has heretofore dwelt, it is noted that "the low proportion of tenement houses in Philadelphia, and the fact that in that city each family, as a rule, occupies a separate dwelling, has a powerful influence in reducing mortality." Whatever of consolation the citizen of "the Hub" may derive from the comparisons in the article is to be found in the statement that "the man who lives in his own house in Boston has as long an expectation of life for himself and his family as the man under similar circumstances in Philadelphia."

Heat and Health.—What is claimed to be the hottest season on record does not seem to affect injuriously the public health. On the contrary, except in isolated localities, the summer death rate from the seasonal diseases is believed to be below the average. On the other hand, there is an unusual number of deaths from insolation—seven deaths in one day being attributed to this cause in Philadelphia—from violence, and especially from suicide. Theorists, who have heretofore speculated on the thermal relations of crime and other sociological factors under the alliterative titles of "Sun and Sin," "Heat and Hades," etc., may find further data for their excogitations in the records of the present summer. Possibly they may trace some connection between

the present delay in tariff legislation and the temperature of Washington. Certain it is that never before have our National legislators been called on to endure a more momentous session under more trying seasonal conditions. Senators McPherson, Voorhees and Vest of the upper house alone, are already reported as invalided—the first from the unspeakable ventilation of the Capitol, the second from a chronic ailment aggravated by the same cause, and the last by an erysipelas said to be due to the notoriously unhealthy environment of the District in hot weather. There are reasons other than political why Congress should make haste to adjourn.

"Newspaper Cholera."—A Chicago daily paper (the *Mail*) furnishes intrinsic evidence of reading the *JOURNAL* to good purpose. In a recent editorial under the above heading it says: "The usual deaths from 'genuine Asiatic cholera' are taking place—in the newspaper columns; there was one yesterday at Meredosia, in Illinois, another at a whistling station, somewhere in Indiana, and still another at Confederate Crossroads, Ky., or some other equally likely locality. There is little excuse for these efforts of the imagination this season; surely there has been thus far no dearth of legitimate sensational news that it should now be necessary to conjure up a conjunction of cholera and Congress. As a matter of fact this country has rarely been favored with so healthful a summer season as the present. Except in New York and one or two other unfortunate localities, where sickness and the death rate have been swelled by excessive heat, there is a remarkable paucity of the usual seasonal diseases, and there is nothing threatening in the health conditions abroad. There is hardly cholera enough to 'go round' in Europe, and the plague is subsiding in Canton and Hong Kong; while health authorities, both in this country and elsewhere, were never before so vigilant, so well informed, nor so thoroughly equipped for efficient service."

Should We Vaccinate?—"Ought we to continue to vaccinate if we can not give a scientific why and wherefore for our work?" is the question which the *Hospital* (London) essays to answer. And it answers, Yankee fashion, by asking other questions. "Ought a baker to bake bread, and his customers to eat it, if he can not give a scientific demonstration of the process of fermentation which takes place in the dough? Ought a farmer to sow corn who is not able to explain the chemic-physiologic process of the development of the radicle and the plumule?" Facts and empiricism, arts and manufactures, all take precedence of science in the order of human development; and we must test vaccination as we do other matters for which, as yet, we are unable to give a scientific explanation—that is, ask of vaccination this question of questions: "What has it done in the world?" And the answer is, that it has defeated in open conflict one of the deadliest enemies of mankind and has put us upon lines of investigation which may yet rob all pathogenic organisms of their terrors. If such should be the grand result it is obvious that the mind of man, by as much as it is delivered from ignoble bodily fears, by so much it will rise to greater and greater heights of boldness and intellectual achievement. "But medical men, as the custodians of the science as well as of the art of healing, must constantly remember that vaccination and inoculation can never achieve these magnificent results until they are firmly established upon a basis of scientific reason as well as upon a foundation of solid and unchallengeable fact."

Foreign Epidemic Diseases.—Asiatic cholera continues to manifest itself with sufficient frequency and in localities enough to keep the sanitary authorities of Europe on the alert. The Prussian Commission of the Vistula basin reports

twenty-two deaths from cholera and eleven new cases of that disease during the week ended July 28. The sickness was mostly among laborers and raftsmen. At Emmerich, on a Rhine vessel towed from Holland, the Health Commission found a cholera patient. A strict river inspection has been instituted at Dusseldorf and Cologne. Suspicious cases have been reported from Granberg, Thorn, and Bohnsack. The Cholera Commission of the Health Office met at Berlin, July 28, to decide upon the precautions to be taken along the Russian frontier. The pioneer and pontooning exercises of the military on the Vistula have been postponed as a precaution against cholera. A dispatch from Travemuende, Germany, says a stoker of a steamship, arrived there from St. Petersburg, died July 30 from cholera. The Governor of Warsaw has forbidden the usual pilgrimage to Czenstochav on account of the prevalence of cholera. The Spanish Consul at Marseilles, having telegraphed that cholera is epidemic at that place, the number of deaths very large and the authorities concealing the actual situation, the Government has ordered stringent precautions to be taken at all Spanish ports on the frontiers. A medical commission has been sent to Marseilles with instructions to report the facts. And so on *ad infinitum*; all of which redounds to the benefit of this country, inasmuch as these items are made the text for sermons in many keys by the daily press on the virtues of sanitation and the necessity for "cleaning up," and inspire such utterances as this from New York:

"The existence of Asiatic cholera in European seaport cities and the ravages of the plague in China do not cause the least uneasiness to the officials of the health department here. The rules regarding the inspection of immigrants before they sail are now enforced, and it is next to impossible for cases of cholera to find their way aboard ships."

"Won wek" the bubonic plague, seems to be dying out in China, but its ravages have by no means been overestimated; a "blue book" issued, July 28, by Sir Walter Robinson, English Governor of Hong Kong, says that 120,000 people died from the disease in the Canton district alone.

MISCELLANY.

Change of Address.—Dr. A. P. Ohlmacher, of Cleveland, has removed to 54 Fifth Avenue.

Illness of Bismarck.—A Berlin cable of the 30th ult., announces that Prince Otto von Bismarck is suffering from an attack of prostration from the heat which was intense everywhere throughout Germany. Since the Prince is in his eightieth year much solicitude is felt for the result.

Another Woman Honored.—Dr. Jessie M. Weston, one of the graduates of the Woman's Medical College of Philadelphia in 1893, has been elected to the medical staff of the Connecticut State Hospital for the Insane at Middletown, occupying the only medical position which the Nutmeg State government has thrown open to women.

Pest-House Site Purchased.—The city of Chicago has just acquired title to a tract of ten acres within the city limits whereon to erect a contagious-disease hospital. The city architect, Mr. Finkler, has prepared elaborate plans for a model construction upon the site. The price paid for the land is \$20,000.

Studying Hospitals.—Drs. John Osterman, G. F. Edenbailer and F. G. Scherer, Indianapolis, J. L. Carson, Fairland, and Z. H. Hauser, Columbus, all of Indiana, are making a study of hospitals in the leading cities for the purpose of obtaining information for the use of the Indiana State Board of Health. They visited the hospitals of Chicago early this week.

Bacillus of the Plague.—Rival discoverers of the bacillus of

the bubonic plague are already announced. Kitasato, the Japanese pupil of Prof. Koch, claims to have identified the microbe as first cousin to the cholera vibrio—but, according to the newspaper accounts, it is a "slender, short bacterium," totally unlike the spirillum of Koch. A Dr. Ericsson, practicing among the French residents of Hong Kong, has also isolated the "simon pure" plague germ. Meanwhile the bacteriologic world awaits "a bill of particulars."

"Caprination."—At the suggestion of Dr. Daniel F. Wright, of Clarksville, member of the Tennessee State Board of Health, the Paquin Vaccine Laboratory at Columbus, Mo., is conducting a series of experiments with a view of determining the relative merits of the cow and the goat for the production of anti-variola virus, on the theory of the immunity of the latter animal from tuberculous and syphilitic infection. In his letter Dr. Wright says: "I think it important that the words 'vaccine' and 'vaccination' should not be used in reference to the new inoculation, but 'caprine' and 'caprination.' 'Vaccine' being derived from 'vacca,' the Latin word for the cow, would be inappropriate for an operation in which the cow is not used at all; 'caprine' and 'caprination,' derived from 'capra,' a she goat, being the proper substitutions." How about the anti-cholera "vaccination," *et id genus omne*?

A Peculiarity of Messages Relating to Sickness or Death.—It is usually the duty of every person who would hold another responsible for the consequences of an act to give him such notice as will put him on his guard. Telegraph companies frequently escape liability for damages resulting from errors in the transmission of messages, or unjustifiable delay in delivering same, because there was nothing in the messages to put them on notice that such damages would ensue. But the Court of Civil Appeals of Texas holds, in the case of the Western Union Telegraph Company v. Porter, decided May 3, 1894, that when the general nature of a communication is plainly described by its terms, and when it relates to sickness or death, if the agent receiving such dispatch desire information about the relationship of the parties concerned he should seek it from the sender, and, if he fail to do so, his principal is charged with the information which inquiries would have developed.

Women as Sanitary Inspectors.—Dr. Moreau Morris, of the New York City Board of Health, is quoted in the *New York World* as having the utmost confidence in women of medical attainments as sanitary inspectors. Dr. Frances G. Deane has had two years' experience as a member of the sanitary corps, and Drs. Alice Mitchell and Helen Knight have recently been appointed to similar positions. Dr. Morris believes "that the fact of their being women will enable them to get into the homes of the poor where a man would be received with suspicion. The work that these women are engaged in is not the easiest, consisting as it does of a thorough canvass of the tenement houses in the district set apart for their work. They must visit every room, inspect sinks, peep into closets and climb innumerable stairs. Then, too, the people the sanitary physicians come in contact with are very apt to eye with displeasure the intrusion of strangers. On the whole, the work of the woman doctors of the Health Board is undeniably hard."

Rules Concerning What Patients Tell Experts.—The established rules of evidence, it is well-known, exclude hearsay testimony. As a consequence, the physician who makes an examination, as an expert, for the purpose of giving testimony in a case, will not, as a general thing, be permitted to state what the patient told him in reference to the specific cause of the injury giving rise to the litigation. But there is another rule, which is just as well settled: the United

States Circuit Court of Appeals holds, in the case of the Union Pacific Railway Company v. Novak, decided April 2, 1894, that the physician may testify to what the patient said in describing his bodily condition, and the character and manifestations of his pains, when such statements become necessary to enable the physician to give his opinion as an expert, on account of the latent nature of the facts to be proved by it. The action or non-action of the internal organs can not readily be seen. In such cases the statement of the injured party is ordinarily admissible, in order to enable the expert physician to determine the real nature of the trouble at the time of the examination.

Power of Indiana Township Trustee to Employ Physicians.—

The township trustee is by statute in Indiana the overseer of the poor. He has no power to make a contract binding upon the county, when the board of commissioners has employed a physician for the purpose of treating the poor of the township, except in cases of emergency. But the Appellate Court of that State holds, in the case of Board of Commissioners of Lawrence County v. McLahlon, decided May 16, 1894, that in the event the board of commissioners of the county fail to employ a physician, or make suitable provision for them, in sickness, the trustee may do so, and the county will be liable therefor. And it further holds that although it appeared from the evidence that the board of commissioners had employed a physician for a certain township, who was acting in that capacity at the time the services in suit were rendered, yet if it was true that this physician lived seven miles from a poor person requiring attendance, that the physician was old, and in ill health and unable to attend, the trustee had power to employ a physician, and the county would be liable for the services rendered.

For the Medical Student.—As an antidote to that plea for the unfit,¹ in which the hardships that the medical student suffers under the present curriculum of medical colleges is portrayed, pray regard the following regimen for the summer interregnum—mark you—prescribed by Dr. E. R. Axtell incumbent of a chair in the Medical Department of the University of Colorado:

"On every week day you are to rise at 6 a.m. One hour is given for the toilet and for breakfast. On Tuesdays, Thursdays and Saturdays, the days on which you recite, review your lesson from seven until seven forty-five. If you recite from eight to nine, walk to the place of recitation, and after it is over return to the room at once and study until twelve. From twelve to one get your noon-day meal, which under the schedule I am giving you should be the main meal of the day. From one to two in the afternoon you should go to bed. Do this in earnest. Throw off your clothes, don some cool sleeping gown and darken the room. Your alarm clock will tell you when it is two o'clock. From two to five you study. From five to six you exercise. Walk, ride, use some Indian clubs, box or wrestle. Some of the greatest tussles of my life occurred between my room-mate and myself, between the hour of five and six. Supper is taken from six to seven. Then a rest until seven thirty. Then study until ten. Go to bed at once."

The Professor rather naively adds: "This advice I am free to say I did not always follow, but it is good advice." And the average student will follow the example rather than the precept of the Professor.

Another Strychnin Antidote.—In the *Archives de Physiologie*, 1894, p. 32, M. G. Grigorescu announces that in the course of some experiments to determine the action of toxic substances upon the excitability of peripheral nerves and muscles he has developed the fact that butyl-chloral opposes the toxic action of strychnin. He found that if injections of strychnin were made (in frogs), those which received also

the butyl-chloral remained torpid, while those with strychnin alone were tetanized. After some hours the butyl-chloral was eliminated, and then these frogs were seized with tetanus, as were the others. On repeating the antidote up to the elimination of the strychnin, complete cures resulted. The observations demonstrate that butyl-chloral energetically opposes its physiologic action to the physiologic action of strychnin.

Hyrtl's Law.—"Damning with faint praise" is a feeble characterization of the effort of Dr. Thomas Dwight¹ to sustain the law of Hyrtl, that "the manubrium of the female sternum exceeds half the length of the body, while the body of the male sternum is, at least, twice as long as the manubrium." In his, as yet unpublished, observations, Dr. Dwight has found that in 342 sterna—222 male and 120 female—there were almost precisely 40 per cent. of exceptions to this law. And yet this conservative anatomist affirms that "the averages of my measurements confirmed that law, but—that the exceptions were equal to the cases in accord with it." (The *JOURNAL* inserts the dash for the purpose of emphasizing the exceptions.) What Prof. Dwight says, in effect, is that while Hyrtl's "law," as to the sternum in the identification of the sex of a given skeleton is correct, it would fail in two cases out of five. A judgment based upon Hyrtl's law as thus confirmed would hardly do to go to a jury of the average American citizen. The odds are not enough.

The Physician's Wife.—In a notice of "The Physician's Wife," by Ellen M. Firebaugh, the reviewer of our contemporary, the *British Medical Journal* (July 14, inst.) pays the following tribute to the American wife of one physician:

"If France may claim to have founded the school of realistic romance, in which the passions, the crimes and the vices of life are exposed with the ruthless veracity of the dissector, to America belongs the honor of having developed that daintier and more delicate style of realism in literature, in which the common everyday life of common everyday persons is portrayed with such sympathy and intimate knowledge of circumstance that all who read feel the truth of the description. The physician whose life the wife illustrates with such delicate touches and an art which simulates simplicity, is no hero of romance nor worker of miraculous cures; he is only the country doctor whom we all know, who may be seen any day driving in his gig from house to house, giving friendly nods to passersby, or who wends his way night after night along the dark lanes under the stars to carry aid to a distant sufferer. But the sympathy of his wife makes us henceforth better understand his long toilsome days, his broken nights, his disappointments, his sense of the world's ingratitude, his loving service of others. His wife quietly notes it all; she misses none of the humor and pathos, and even the doctor himself does not escape her gentle irony."

The book must be worth reading.

Power of Court to Exclude Non-Expert Opinions as to Sanity.—One of the instances where non-expert witnesses may express their opinions is on questions of sanity. But their right to do so is not unrestricted. In the case of *Denning v. Butcher*, decided by the Supreme Court of Iowa May 25, 1894, it was insisted that all that is necessary to qualify the witness is a statement of the facts and circumstances upon which his opinion is founded, and their sufficiency can not be questioned. The right of a non-expert witness to give an opinion based upon facts fully disclosed to the jury has always been recognized, says the court; but, it adds, It is equally clear that the trial court has the right to determine whether such facts have been disclosed as to entitle the witness to express an opinion. That is a preliminary question and a power which must be possessed by the court, else

¹ *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*, June 23, 1894 p. 960.

¹ The Shattuck Lecture for 1894, on "The Range and Significance of Variation in the Human Skeleton," delivered before the Massachusetts Medical Society, June 12, 1894.

such a witness, on stating a single fact of such a character that no opinion of sanity or insanity could properly be based thereon, would be permitted to give his opinion as to the party's mental condition. True, it may be impossible to lay down a rule as to just what statement of facts would show a sufficient foundation to warrant the giving of an opinion by a non-expert witness. That must depend upon the circumstances of each case, and must be left for the trial court to determine in the exercise of a wise legal discretion; and its ruling in that respect should not be disturbed, unless it clearly appears that it has not properly exercised the discretion with which it is vested.

Allowances for Autopsies.—The case of Moser v. Boone County as decided by the Supreme Court of Iowa May 18, 1893, was reviewed at length in the JOURNAL of July 15, 1893, (Vol. xxi, pp. 97, 98), on account of the remarkable position which the Court there took. It held, it will be remembered, that, under the amended statute of the State, the compensation allowed by the county board of supervisors to physicians or surgeons summoned by the coroner to make a scientific examination at an inquest is conclusive, in the absence of fraud, and that a physician is not entitled to maintain an action to determine whether his services are not in fact worth more than the amount allowed.

From this position the Court has now receded. It granted a re-hearing, and May 23, 1894, rendered its second, and more satisfactory decision. The two cases before relied on to support its determination, it now points out arose before the Code was amended, and are not conclusive on the principal question. The claim for services rendered under the law as amended, it holds, is not liquidated when it is presented to the board of supervisors for allowance. That board has power "to examine, settle, and allow all just claims against the county unless otherwise provided by law." Ordinarily, it continues, the action of the board on an unliquidated claim is not final, but suit may be brought thereon after it has been presented to the board as the statute requires. For these and other reasons, the Court now holds that it is the duty of the board of supervisors to allow a reasonable compensation for such services, and that, if it does not, the physician or surgeon who renders them has a right to collect such compensation by an action against the county.

More Newspaper Medicine.—A London, England, dispatch speaks of an American found dead recently in the slums of Glasgow, at whose post-mortem examination it was found that "the body showed that he had died of fright." Whereupon our esteemed contemporary, the *New York Medical Journal*, expresses a desire to learn what the post-mortem signs of fright are, and adds that newspaper medicine is almost always amusing, but generally without intention. An entertaining example of intentional humor in connection with medical matters was given in an editorial article recently published in the *New York Times*, in which the writer evolved a theory of the American tendency to use middle names. He says: "The middle letter made its appearance in America immediately after the first great epidemic of influenza. We may therefore feel reasonably certain that it was one of the innumerable sequelæ of that exasperating disease. It attacked nearly every boy and girl in the country, and in most cases assumed a chronic form. The recent epidemic of influenza, which has for the last five years devastated the noses and throats of America, has been followed by the development of the middle name in full, and this in its turn will become chronic. The fact that the middle letter appeared in England before the influenza merely shows that so far as Englishmen are concerned, the two have no relation to each other. When, on the other hand, we find that

immediately after a severe attack of influenza Mr. W. D. Howells becomes 'William Dean' Howells,' and Mr. James W. Riley becomes 'James Whitcomb Riley,' it is impossible that we should fail to see that these facts stand to each other in the relation of cause and effect."

Abandonment of Sidney Barracks, Nebraska.—During the past ten years a change has been taking place in the character of the military posts of this country. At the close of the War of the Rebellion the regular Army became scattered over the Western Territories in small commands of one or two companies to protect settlers from hostile Indians. These commands, when not in tents, were usually housed in poorly constructed huts of adobe, logs, or boards. The country furnished the material in the rough and the soldiers the labor, so that but little money was expended in providing shelter for the troops. The water supply was wagoned in barrels from the neighboring creek or river; waste water sank into the ground or ran off its surface according to the porosity or inclination of the site, and sewage was deposited in pits as in the temporary camps of active service. A few years later as railroads opened up communication, the necessity for many of these posts ceased and the troops were concentrated at railroad centers where they could be dispatched to various points as occasion required. At most of these larger posts excellent barracks have been built of brick or stone, well lighted and ventilated, provided with free supplies of pure water and with satisfactory arrangements for the disposal of waste water and sewage.

Sidney Barracks, Nebraska, has recently been added to the list of abandoned posts. Troops camped on its site in 1867 to protect the line of the Union Pacific Railroad, and two years later accommodations were completed for a troop of cavalry and a company of infantry. On account of its position on the line of rail, the buildings at this post were superior to most of those constructed in the West at that period. They consisted of frame buildings, lathed, plastered, ceiled, shingled and ventilated by shafts through the roofs. The site was on Lodge Pole Creek, about forty miles above its junction with the South Platte River. The Creek is a small stream running through the arid plains of Wyoming and Nebraska in a valley one or two miles wide, with sandstone bluffs about seventy feet high on either side. Outside of the valley the general appearance of the country is that of a vast undulating plain unbroken by trees or high grounds. An irrigating ditch carried a plentiful supply of clear water from the Creek through the post and the adjoining village of Sidney, and permitted the growth of box elder and cottonwood as an attractive feature of the locality. A post garden furnished an abundant supply of vegetables and the hunters of the command kept the messes generally supplied with venison. The post has been a healthy one during the twenty-seven years of its existence; and as its postal, telegraph, supply and traveling facilities were good, it has always been regarded by the medical officers as one of the better class of stations in the country of the Platte River.

Not a Candidate for Congress.—The editor of this JOURNAL is not a candidate for Congress as announced in various contemporaries. His name will not be mentioned in the convention which will be held on this date. The editor, however, can not refrain from expressing his sincere thanks to those of his contemporaries who have kindly and favorably noticed his candidacy as announced in the secular press.

Hospital Notes.

NEW HOSPITAL, ELGIN, ILL.—The new hospital at Elgin, Ill., for infirm male patients, was opened July 23, with thirty-two inmates.

INVESTIGATE MINNESOTA INSANE HOSPITALS.—The report of the Board of Physicians appointed by the Governor of Minnesota to investigate the insane hospitals of the State, favors the establishment of a separate hospital for epileptics, and also the building of another insane hospital, to be located near St. Paul and Minneapolis.

MINNEAPOLIS CITY HOSPITAL.—City Physician Weston has appointed the consulting staff of physicians for the City Hospital. None but regulars have a place on the Doctor's list.

The appointment of the staff settles a vexed controversy, several irregulars having applied for appointment.

Following is the list:

Physicians—J. H. Stuart, M.D.; W. P. Spring, M.D.; C. L. Wells, M.D.; C. J. Ringnell, M.D.; H. B. Sweetser, M.D.; J. W. Bell, M.D.

Surgeons—W. A. Hall, M.D.; J. W. Little, M.D.; C. G. Weston, M.D.; J. H. Dunn, M.D.

Obstetrics and Children—A. B. Cateo, M.D.; P. M. Holl, M.D.

Nervous and Mental—W. A. Jones, M.D.; L. M. Crafts, M.D.

Pathologists—J. C. Stewart, M.D.; A. F. Irwin, M.D.

Gynecology—A. W. Abbott, M.D.; F. A. Dunsmond, M.D.; F. R. Woodard, M.D.; W. G. Byrnes, M.D.

Eye and Ear—Frank Allport, M.D.; C. J. Spratt, M.D.

Washington Notes.

THE MEDICAL DEPARTMENT OF THE COLUMBIAN UNIVERSITY.—The announcement for 1894 and 1895 is just published. The clinical facilities have been greatly increased and at a meeting of the clinical professors last week many important matters were arranged. Practical instruction will be the watchword.

DR. H. L. E. JOHNSON in charge of the Department of Women's Diseases, has organized a maternity service for the purpose of giving clinical advantages to medical students and young graduates.

THE CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—Three hundred emergency cases were treated in the hospital during the month of July. Many operations were required including abdominal section. The unfinished wards have been completed and furnished and will greatly increase the usefulness of the institution. The annual report to June 30 shows a large increase over last year's work. Miss West, the Superintendent, has found by experiment that the asphaltum and artificial stone floors can be rendered aseptic, whitened and made to look new by washing them first with a saturated solution of permanganate of potash and then, while wet, with a saturated solution of oxalic acid in water. This is inexpensive and does not injure the floors.

THE COXEY AND INDUSTRIAL "ARMIES" which have located in the outskirts of the city number about one thousand and more are expected in a few days. Their condition is deplorable to the highest degree. During this heated season without shelter and badly clad they are eking out a most vicarious existence, depending for food upon a few berries picked from the fields and "threadbare" charity. On account of the unusually large number of persons who belong here who have to depend upon charity, much less can be given to the "army" and they can hardly keep body and soul together. Why these poor deluded creatures continue to come here, or remain after they arrive and see the condition of affairs, is beyond human mind to explain. Sooner or later this persistent violation of hygienic laws must be followed by some grave epidemic which will carry off a large number of them, previously weakened and debilitated. What degree of immunity other citizens will have, is a mere conjecture.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from July 21, 1894, to July 27, 1894.

Major CURTIS E. PRICE, Surgeon, order assigning him to duty at Ft. Custer, Mont., is revoked, and he is granted leave of absence for one month, to take effect upon being relieved from duty at Ft. Porter, N. Y. By direction of the Secretary of War.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending July 28, 1894.

Medical Inspector B. H. KIDDER, ordered as member of Board of Medical Examiners, Navy Department.

Surgeon C. G. HERNDON, detached from Board of Medical Examiners, Navy Department.

Surgeon G. P. BRADLEY, detached from receiving ship "Wabash," and to the Navy Yard, Mare Island, Cal.

P. A. Surgeon E. P. STONE, detached from Marine Recruiting Rendezvous, Boston, and to the "Wabash."

Surgeon F. B. STEPHENSON, ordered to the Marine Recruiting Rendezvous, Boston Mass.

Marine-Hospital Changes. Official list of changes of stations and duties of medical officers of the U. S. Marine-Hospital Service, for the four weeks ended July 21, 1894.

P. A. Surgeon D. A. CARMICHAEL, granted leave of absence for thirty days, July 20, 1894.

P. A. Surgeon A. H. GLENNAN, to inspect unseviceable property at Delaware Breakwater Quarantine, July 6, 1894.

P. A. Surgeon W. D. BRATTON, to report at Bureau for temporary duty, June 27, 1894.

P. A. Surgeon J. J. KINYOUN, to proceed to Cape Charles Quarantine for special temporary duty, June 30, 1894. Designated to represent Department at International Congress of Hygiene and Demography, July 9, 1894. To inspect unseviceable property at Boston, Mass., July 17, 1894.

P. A. Surgeon H. D. GEDDINGS, to report at Bureau for temporary duty, July 20, 1894.

P. A. Surgeon C. P. WERTENBAKER, to proceed to Delaware Breakwater Quarantine for special temporary duty, June 30, 1894.

P. A. Surgeon G. B. YOUNG, to inspect quarantine stations, July 20, 1894.

PROMOTION.

Asst. Surgeon B. W. BROWN, commissioned as Passed Assistant Surgeon, July 19, 1894.

LETTERS RECEIVED.

(A) Anglo-Swiss Condensed Milk Co., New York City; Aneker, A. B., St. Paul, Minn.; Adams, J. F. A., Pittsfield, Mass.; Andrews, B. J., Burlington, Vt.; Ayer, Washington, San Francisco, Cal.; Atkinson, Wm. B., Philadelphia, Pa.; Andrews, Edmund, Chicago, Ill.

(B) Brown, Charlotte B., San Francisco, Cal.; Baughman, J. N., Flat Lick, Ky.; Brick, P. L., Le Mars, Iowa; Bates & Morse Advertising Agency, New York City.

(C) Canfield, Wm. B., Baltimore, Md.; Comegys, C. G., Cincinnati, Ohio; Caples, Byron M., Wauwatosa, Wis.; Cooper, Wm. C., Troy, N. Y.; Cincinnati Sanitarium, College Hill, Ohio; Crawford, M. H., San Francisco, Cal.; Cutter, John A., New York City.

(D) Dolliber-Goodale Co., Boston, Mass.; Denison, C., Denver, Colo.; Duunung, L. H., Indianapolis, Ind.

(E) Erwin, A. J., Mansfield, Ohio; Eaton, F. B., Portland, Oregon.

(F) Frazee, A. B., Kipple, Pa.

(G) Gedge, D. McC., San Francisco, Cal.

(H) Hofmann, J. A., San Francisco, Cal.; Hartz, Henry J., Detroit, Mich.; Hibberd, Jas. F., Richmond, Ind.; Hare, H. A., Philadelphia, Pa.; Huntington, T. W., Sacramento, Cal.; Hummel, A. L., (2) Philadelphia, Pa.

(I) Ingals, E. F., Chicago, Ill.

(J) Jackson, W. R., Mobile, Ala.; Jenkins, J. F., Tecumseh, Mich.; Judson, A. B., New York City.

(K) Keen, W. C., Glasgow, Ky.; Kerrick, H. C., Broeton, Ill.; Knox, S. P. B., Santa Barbara, Cal.; Keenan, D. M., Troy, N. Y.

(L) Lydston, J. A., Chicago, Ill.; Lee, J. F., Chicago, Ill.; Love, J. J. H., Montclair, N. J.

(M) Martin, W. A., San Francisco, Cal.; McNutt, W. F., San Francisco, Cal.; McBride, M. A., Leesville, Texas; Meade, S. J. D., Cincinnati, Ohio; Montgomery, D. W., San Francisco, Cal.

(N) Norbury, Frank P., Jacksonville, Ill.; Neff, J. H., Kalamazoo, Mich.

(P) Pennington H. V., London, Ky.; Porcher, F. P., Pineopolis P. O., S. C.; Parkhill, Clayton, Denver, Col.; Pierson, Allen, Spencer, Ind.; Price, M. F., Los Angeles, Cal.

(R) Rush Medical College, Chicago, Ill.

(S) Sanders Enno, (2) St. Louis, Mo.; Smith, Q. C., Austin, Texas; Salix Chemical Co., Boston, Mass.

(T) Tidd, E. J., Clark, Pa.; Tuck, W. O., Plymouth, Ill.; Topliff, C. L., New York City; Tray, J. L., Toledo, Ohio; Taylor, A. H., San Francisco, Cal.

(W) Woodruff, I., Alton, Ohio; Ward, R. C., Northfield, Mass.; Wrieker, W. R., Shelby, Ohio.

(Z) Zeller, Geo. A., Peoria, Ill.

PAMPHLETS RECEIVED

A Case of Cysticercus of the Vitreous. By W. Cheatham, A.B., M.D., Louisville, Ky.

A Great and Growing Evil. By S. D. Van Meter, M.D., Denver, Col.

The Removal of Stone in the Bladder. By Wm. S. Forbes, M.D., Philadelphia, Pa.

Operative Treatment of Internal Hemorrhoids as practiced by American Surgeons. By Claude A. Dundore, M.D., Philadelphia, Pa.

An Act to Regulate Practice of Medicine and Create State Board of Examiners in Louisiana.

Errors in School Books. Boston; Pope Manufacturing Co. 1894.

"Chaucer's Doctour of Phisyk." Reprinted from the Bristol Medico-Chirurgical Journal.

Malarial Cachexia, Chronic Malarial Poisoning, Chronic Intermittent. By N. L. Gulce, M.D., Meridian, Miss.

Modern Cremation as a Means for Disposal of the Dead. By A. E. Regensburger, San Francisco.

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No. 6.

ORIGINAL ARTICLES

OPERATIVE TREATMENT OF FIBROID TUMORS OF THE UTERUS.

Read in the Section on Obstetrics and Diseases of Women at the Forty-fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1894.

BY FRANKLIN H. MARTIN, M.D.

VICE-PRESIDENT CHICAGO GYNECOLOGICAL SOCIETY; PROFESSOR OF GYNECOLOGY, POST-GRADUATE MEDICAL SCHOOL; SURGEON TO THE WOMAN'S HOSPITAL OF CHICAGO; CHAIRMAN SECTION ON OBSTETRICS AND DISEASES OF WOMEN, AMERICAN MEDICAL ASSOCIATION.

Under three heads may be considered the operative treatment of fibroids of the uterus:

1. Hysterectomy.
2. Removal of the appendages.
3. Vaginal ligation of the broad ligaments.

The only absolutely sure cure for fibro-myomas of the uterus lies in the total removal of the uterus. This may be accomplished when the accompanying tumors are small, by vaginal hysterectomy, but as a rule abdominal hysterectomy alone is reserved for these difficulties.

While in hysterectomy, we have a certain remedy for the removal of fibroids, we also have in the method a definite percentage of danger. While experience, antiseptics and skill have put the method on high scientific grounds, and made it highly justifiable, yet even in the hands of the most experienced, when we operate on each new case, no matter how favorable it may appear, the grave responsibility of that certain mortality of 5 per cent. hangs over us.

There is much in the last few years' work in this line of surgery to encourage us. The old extraperitoneal method of Péan's of attaching the pedicle immovably in the lower angle of the abdominal wall is giving way to the intraperitoneal methods of Baer, the more elegant vaginal fixation of Byford's, and the total extirpation of Eastman's. The results have given us shorter convalescence, eliminated serious sequela and the development of several well-nigh perfect methods, gives the operator who is wedded to none, a freedom to adopt the one of several well-tried methods which may best apply to the case in hand. During the last year, in my operating I have drawn upon the methods of Péan, Eastman, Baer and Byford indiscriminately, as the particular method seemed to me to best fit the particular case in hand. So far as my experience goes, however, I feel safer after having performed an abdominal hysterectomy when I have found the case suitable for Byford's method and the operation is done according to his technique.

REMOVAL OF THE APPENDAGES.

This is an unsatisfactory operation for fibroids and I seldom resort to it except in a complicated case, where the abdomen has been opened for the purpose of removing the uterus, and where for some reason the latter operation is impracticable.

When the tumor is small and hemorrhage has been a distressing symptom, relief and occasionally a cure may be expected by this method. Frequently, however, the tumor will continue to grow and occasionally the hemorrhage will not be modified. If you *do* remove the appendages for the purpose of establishing an artificial menopause and for the purpose of causing a reduction of the size of a fibroid by modifying its nutrition, remove not only the ovary and the tube thoroughly, but draw these organs sufficiently high, and make your ligature sufficiently low to include the main trunk of the spermatic artery as well as its branches to the tubes and ovaries. It is not difficult to remove both the ovary and the tube of a given side and leave the ovarian artery (its main trunk) entirely outside of the ligature. In removing the appendages for fibroids, if I had to leave the main trunk of the ovarian artery untied or Johnson's menstrual ganglia intact, including the uterine third of the Fallopian tube, I should feel safer in leaving the latter and tying the vessel. It will assist, too, in these cases while the abdomen is open, to place a ligature deeper in the broad ligament as suggested by Dr. F. B. Robinson, in a manner to include the ascending column of the uterine artery.

If the appendages are to be removed then, in the case of fibroids a thorough job should be done, including not only the removal of the tube and ovary but also the thorough tying of the main trunk of the ovarian artery.

VAGINAL LIGATION OF THE BROAD LIGAMENT.

This operation which was original with me and first described in an article read by me before the Chicago Gynecological Society, Dec. 16, 1892, consists in ligating the contents of the base of the broad ligament from the vagina. In suitable cases the ligation may be carried sufficiently high on one side to include the ovarian artery.

OBJECTS OF THE OPERATION.

The objects of this operation may be summarized under the following heads:

1. To deprive by a comparatively simple procedure an abnormally over-nourished uterus of the bulk of its blood supply by ligating the main channel and trunks of the uterine arteries.
2. To still further deplete the uterus in desperate cases by including, where practicable, not only the uterine arteries of both sides but also the ovarian artery of one side.
3. To cut off the nutrition of the uterus by ligating a large proportion of its nerve communication as well as its blood supply.

THE PHYSIOLOGIC EFFECTS OF THE PROCEDURE.

The deprivation of the tumor of its blood supply causes starvation and rapid atrophy of the growth, and has a direct and immediate effect in checking uterine hemorrhages. The severing of the nerve

communication to the hypertrophied uterus modifies profoundly its nutrition and favors atrophy, and also renders the uterus powerless to communicate its blood draught; thus retarding collateral circulation.

The technique of the operation has been described frequently; I will, therefore, but briefly summarize it here:

1. Patient should be prepared exactly as for a vaginal hysterectomy.

2. Place in an exaggerated lithotomy position and insert two retractors so as to expose the cervix.

3. Transfix cervix with a strong handling ligature.

4. With curved scissors incise the mucous membrane of the vaginal vault to the right and left of the cervix to the extent of about one and one-half inches on each side.

5. Draw the cervix strongly to one side and with the finger dissect the tissue of the base of the broad ligament of the opposite side, free from the bladder in front, and from the rectum behind, until it can be grasped to the height of one and a half to two inches free from all attachments.

6. With a strong handled, curved, pedicle needle armed with a double No. 12 silk ligature, the exposed ligament should be transfixed at its center, the lower ligature tied firmly and the upper one carried to the limit of the exposed ligament and also tied. They should be cut short.

7. Close the vaginal vault incision with a running catgut suture.

8. Treat the opposite side in the same manner.

9. After douching the vagina thoroughly with an antiseptic fluid, pack it loosely with iodoform gauze.

As this operation is new, and still on trial, I will take the liberty of reporting briefly my last two cases and giving a general summary of my first cases:

SUMMARY OF CASES.

I have now operated on eight cases of uterine fibroids by this method.

Case 1.—Was a tumor of considerable size extending to or above the umbilicus. The hemorrhage was exhaustive, and the patient greatly reduced in consequence. She was operated on Nov. 15, 1892. Considerable time has therefore elapsed since the operation. The tumor has decreased in size, but is still easily outlined, the patient writes me. The hemorrhage is now much modified and is no longer a source of alarm. She has had a severe attack of la grippe since the operation; is a chronic dyspeptic, and having these disagreeable complications I feel that I can pronounce the case a success. The patient considers her condition greatly improved—hemorrhages cured, tumor materially reduced and pressure symptoms have subsided.

Case 2.—Is a perfect cure. I have had an opportunity of seeing this patient almost every month since she was operated on (Dec. 3, 1892). "The hemorrhage has ceased completely. There has been very scanty flow at menstrual period. All pain has ceased." The patient's health has improved so that from a state of almost complete invalidism she is transformed into a strong and healthy woman. The improvement was progressive from the day of the operation. The enlargement of the uterus, or tumor, is now scarcely perceptible.

Case 3.—I have heard from but once—four months after the operation. She was operated on early in January, 1893. The flowing which had been, previous to the operation, excessive, had decreased in duration and amount one-third.

Case 4.—Was a large adherent myo-fibroma extending above the umbilicus, profusely hemorrhagic, for which laparotomy had been unsuccessfully performed—neither the appendage nor the tumor being removable. The case was a desperate one. The patient had not been out of bed on account of the loss of blood and general weakness, for several months. She was operated on Jan. 5, 1893. The hemorrhage ceased immediately and has never been excessive since. The tumor has decreased until it is not now more

than three inches in diameter. The woman is strong and vigorous, in good flesh and in perfect health. Menstruation is regular but scanty and there is no pain. The case in its course and behavior has been gratifying in the extreme.

Case 5.—Has not been under observation since June, 1893. She was operated on Jan. 8, 1893. Four months after the operation Dr. F. H. Geer reported "the menstruation only lasted two days; very scanty; no pain. Fibroid diminished in size until the uterus is about normal. Patient claims that she is cured."

Case 6.—Upon which I made a preliminary report in the *American Journal of Obstetrics*, Nov. 1, 1893, on which I operated Aug. 2, 1893, is still under observation. The last report from her husband (who is a physician of unusual ability), contained in the article referred to, was for Oct. 26, 1893. The amount of menstrual flow was normal in quantity, lasting but a few days. The pain was slight. By referring to the preliminary report it will be seen that this patient had been an invalid. She flowed excessively and almost constantly. The tumor was about the size of a four months' gravid uterus. The pain at and following the excessive flow was excruciating. The next report was, in January, 1894: "I have to report," the husband says, "that Mrs. X. menstruated from December 19 to 24. That the amount was about the same as before, *i. e.*, slightly above normal. Pain rather excessive for two days (possibly due to rheumatism and neuralgia). After flow had ceased I examined, and found ligature in vagina and also small sinus opening to left side of cervix. Since then there has been slight discharge from same. She had been suffering some pain at that point, no pain since ligature came away." He adds enthusiastically: "Taken all in all, the result so far is a grand success. Jan. 17, 1894, he writes: "Mrs. X. is up to-day (the fifth day) after the easiest menstruation she has had in her life—pain moderate and on one day. This in face of the right side still discharging. In the next two months I expect to have a well woman. The uterus is now practically normal."

Dr. Wm. H. Humeston, of Cleveland, Ohio, reported to me in private correspondence the following interesting case bearing on this subject. The case was afterward published in the *Western Reserve Medical Journal*, of Cleveland. He says:

"I had an extreme case in a lady 47 years of age. The tumor is as large as one's two fists—an interstitial fibroid. She was reduced to the lowest extremity, exsanguinated, frequent attacks of syncope and constant flowing for three months. It was out of the question to do any other operation. I ligated the left uterine artery and a good portion of the broad ligament. I had some difficulty but not a great deal. I believed, on account of her bloodless condition, that if I ligated both sides she might have had subsequent sloughing. She has done exceedingly well. Flowed a little for two days following the operation but none since. Her condition is rapidly improving, appetite, strength and blood returning. I shall not do the other side unless occasion demands. I endorse your operation heartily. It is reasonable and practical."

LAST TWO CASES—(NOT PREVIOUSLY REPORTED).

Case 7.—Mrs. S., aged 35, from Denver, Col., with a uterus about double the normal proportions, containing two or more centers of development and of an extremely hemorrhagic tendency was the seventh case operated on. The case had been treated unsuccessfully by curettement, electricity and the ordinary remedies for checking uterine hemorrhages. The uterus was retroverted but free from adhesions. The patient was prepared carefully, and at the Woman's Hospital, on Nov. 11, 1893, I ligated the base of both broad ligaments, and shortened the round ligaments. The uterus was drawn well down, and each broad ligament after incising the mucous membrane covering them in the vault of the vagina, was dissected free from the bladder and rectal attachments and then ligated with two strong silk ligatures. These ligatures were placed high enough to include the uterine artery and all its branches, and all of the contents of the base of each broad ligament. The ligatures were cut short after they were tied, the mucous membrane of the vagina was re-united with a running catgut ligature, the vagina packed with iodoform gauze. The round ligaments were then shortened and the uterus left in a position of anteversion. Three days later the gauze was removed from the vagina, an antiseptic douche was given and a Smith-Hodge pessary was inserted. The antiseptic douches were then continued daily. The first menstruation was due four days after the operation. It did not appear. The second menstruation also failed to

appear, notwithstanding the fact that menstruation had ordinarily been exhaustive.

One of the wounds caused in the operation for shortening the round ligaments suppurated, and necessitated the patient remaining in the hospital until the latter part of January. The patient complained of dizziness about the time when the menstruation was due. This symptom continued with different degrees of severity for some time, gradually disappearing. February 13, three months after the operation, the first flow appeared. The patient writes: "First menstruation came on the 13th of this month, without pain, but quite profuse for first two days. Since then, has continued including to-day (the 18th). Discharge light."

March 19, 1894, the patient reports: "Am feeling fairly well this month. Had pain in back with last menstruation which commenced March 13. First three days quite profuse; last four days very little. No dizziness this month." April 18, she writes: "Menstruation came four days in advance of schedule time; continued one week. Am in fairly good health."

Case 8.—Mrs. Z., Muscatine, Iowa. About 35 years of age. No children. Multiple fibroid of uterus approximating in size a four months' pregnancy. Hemorrhage profuse, followed for a week by excruciating pain. Patient became extremely ensanguinated at each menstrual period. Frequently the flowing would last for two weeks. The uterus had been curetted. Electricity failed to control the hemorrhage and only partially modified the pain. The irregularity of the uterine canal undoubtedly accounted for the failure of the electricity. Nov. 28, 1893, the patient submitted to my operation for ligation of the broad ligaments. The tumor was developed more to the left side into the left broad ligament. I succeeded in separating the broad ligament for a height of two inches. On the right side a large double ligature was employed, while on the left side first a double and finally a second one higher and farther away from the uterus was applied. The ligatures were cut short, the vaginal vault closed with catgut, and the vagina packed with iodoform drain. The first menstruation was due three days following the operation. A slight watery discharge occurred instead of blood. Two days following the operation the patient complained of pain similar to that which ordinarily occurred after menstruation. Feb. 1, 1894, the patient's husband writes: "She commenced her menstruation January 25, and it has continued until to-day, February 1. One day less than last time. Had one day of some pain,—not bad. She is getting stronger and can get around the house without being very tired, although she has not yet ventured out." February 26, the report is: "Mrs. Z. was sick this time six days, the same as last time. Had considerable pain, two days of which was very severe, the same as she complained of before the operation. She is getting along very nicely. She is now able to go out, and takes a walk every day." March 26, the husband writes: "I am ready to make another report but not as good a one as I would like. Mrs. Z. was sick on time and the flow was very little compared to what it has been, lasting but three days; but she had a great deal of pain—some before she was sick, and it was quite bad for two days after the menstruation. . . . Everything seems to be working very well if she could only get rid of that pain." April, menstruation still decreasing in quantity. The pain decreasing. "There was one day of pain," the husband writes, "and the flow did not amount to but very little." May 6, he writes: "Mrs. Z. has been feeling splendidly all this last month. Last week was her time to be sick again. The flow did not amount to anything, just enough to show. . . . In regard to her general health it is excellent. Eats well, sleeps well and goes out every day the same as other women. Has gained her natural amount of flesh and a little more." I examined the patient May 19. The uterus was reduced in size one-half. Patient in perfect health.

GENERAL CONCLUSIONS.

1. In hysterectomy we have an operation which is bearing the test of time well; in selected cases in the hands of well trained men it is the only absolute cure yet demonstrated for a certain class of fibroids.

2. The objections to hysterectomy as a cure for fibroids are, the long training necessary to safely equip an abdominal surgeon for this most formidable of pelvic operations, the great rate of this operation in the hands of the tyro, the long prostration, accompanied frequently with nervous symptoms fol-

lowing otherwise successful hysterectomies, its inapplicableness to extremely exsanguinated and otherwise reduced patients, and finally its inevitable death rate of at least 5 per cent. in the hands of expert surgeons.

3. Removal of the appendages as an operation for fibroids is usually unsatisfactory, and should not be resorted to except as a last resort in a complicated case where the abdomen has been opened for the purpose of removing the uterus, which operation for some reason has proved impracticable.

4. If the appendages are removed for the purpose of establishing an artificial menopause and for the purpose of reducing small fibroids by modifying their nutrition, make sure to include in the ligature the main channel of the ovarian artery.

5. Vaginal ligation of the base of the broad ligament for fibroid of the uterus is an operation still on trial. As far as we have history of cases to back the theories of the operation it has stood the test.

6. Vaginal ligation of the broad ligament is a minor operation from the standpoint of mortality, and it is a minor operation from the standpoint of immediate and remote shock to the patient. It can be performed on any patient without risk, in almost any condition of physical prostration or weakness, so long as she is capable of taking an anesthetic.

7. The operation is prompt in saving blood. It succeeds in cutting off one-third more blood to the uterus than does the Battey-Tait operation. Theoretically and practically it immediately checks uterine hemorrhages, and at once begins the diminution of the myoma by depriving it of its nourishment.

8. The operation of ligation of the broad ligament does not leave an abdominal scar, does not unsex the woman, as does both hysterectomy and the Battey-Tait operation.

9. There are no good reasons why ligation of the broad ligament should not be an early procedure in all conditions of uncomplicated fibroids of the uterus in which the operation is practicable, even though in a few cases, subsequently, a more radical operation might be necessary.

10. The operation of vaginal ligation of the broad ligament is practicable in all interstitial or moderately subperitoneal fibroids in which it is possible by careful dissection to expose the base of the broad ligament high enough to include in a ligature the uterine artery and its branches.

Venetian Building, Chicago.

DISCUSSION.

DR. McCALL of Mich.—I have watched the evolution of this subject with a great deal of interest from the early methods of removing fibroids to the ideal and complete method, as described by the gentlemen here to-day. If that method can be made a success in all operations, it certainly is as nearly ideal as we could wish.

The method I have pursued mostly has been the abdominal method, although I felt at all times that that was not an ideal perfect method. I have in a few instances removed the entire uterus by complete ligation of the broad ligaments. That operation has probably been done by Dr. Martin, of Berlin, more frequently than by any other of this class of operators. I saw Dr. Martin perform that operation a great many times, and on very large tumors, and very difficult ones; ligating the whole of the broad ligaments from above downwards, and removing the whole of the uterus. His success in that operation was, perhaps, as good

as we could expect in the character of cases he had to deal with. Still the mortality was large.

Our President, in removing the whole uterus without using any ligatures except on the upper part of the broad ligament, leaving the uterine arteries entirely in the pelvis, gives us the ideal operation. Still I suspect in a great many of the cases that we have to operate upon we will not be able to do that as nicely as our President has done in the cases he has reported to-day. I know it must be a very difficult operation where there are large masses in a broad ligament—very difficult to get around those, and very difficult to enucleate the whole mass without opening the tissue of the tumor or without disturbing the capsule of the tumor. If we do that we get hemorrhage, and in either way there is difficulty.

The time has not been sufficiently long to say anything with regard to ultimate results in my own cases. Present results are very good. I think I shall make use of this operation much more frequently than any other, where we get our cases early, provided the results prove to be as good as described by Dr. Martin to-day. It is certainly the best conservative method we have.

As Dr. Martin has said, the great difficulty has been that we have not tied deep enough and close enough to the uterus. It would be well in many cases to tie as close as possible to the uterus; tie deeply so as to involve the whole of the ovarian artery. In a certain number of cases an operation will arrest the menstruation and arrest the development of the growth of the tumor, and be a success.

Dr. Martin's operation is more simply and easily performed, and certainly will diminish the quantity of blood going to feed the mass in its growth, and I think by that operation performed very early, in a large number of cases it would save the trouble we might have afterwards.

DR. BEVERLY MACMONEGLE, of California—I feel that it is necessary to bring out all we can on this important subject. All the modes of treatment known to us have been gone over by these distinguished gentlemen. I regret that I was not here in time to hear the paper of our distinguished President. Therefore I can not say what I think of his operation, as I do not exactly understand it. However he made a small report in one of the journals, which I had the pleasure of reading, which leads me towards the direction in which he is working. I can say that an operation which leaves no ligature in the abdominal cavity, an operation which causes no more hemorrhage than his does is most commendable, and as safe an operation as can be done in the abdominal cavity.

I want to bring before you the question of malignant degeneration, which has not been brought out, that I have heard. I have enjoyed very much Dr. Martin's paper on his operation for tying the uterine arteries and not resorting to total extirpation. It is our duty to consider our patients always, and in order to do that we must give those patients the benefits of the least dangerous treatment; we must combine the different methods of treatment and give such medicines as seem to add to the good results of the case. We want to have at our disposal an operation which shows no deaths. I think it is possible that we might combine the three methods and get a result even better than what our friends here have attained.

But the question in my mind is whether there will be malignant degeneration after tying the arteries. The operation is more or less experimental. What the result will be we will have to wait and see. The reason I raise this point of malignant degeneration is that I have had the misfortune to continue with my electric treatment so long that I have turned, as near as I can judge, a fibroid tumor into a malignant type. I have recently operated on a girl whom I have treated for a good while. I treated her with electricity for

a period of two or three years, giving her always benefit and comfort and relieving her hemorrhage. The tumor appeared to grow softer. Eventually she became so ill that she came to me to perform a radical operation. The electricity had possibly been applied too strong. I removed the uterus entirely. I tied the ovarian and uterine arteries and drained through the abdomen.

Now understand me that I mean the possibility of malignant degeneration is an argument against Dr. Martin's operation, but I think we should have this point in view. Therefore I ask Dr. Martin to give us another report later on, whether or not after reducing the tumors by the abdominal method there is simple degeneration of the tumor or malignant degeneration.

I can not criticise the President's operation in any way, and from what I know of it I have nothing but praise for it.

The fixing of stump outside of the abdominal wall is an operation that is still supported by our best men and should give us the best results. Dr. Keith, whom we ought never to forget to mention, has done most of his surgery in this way. His results are better than mine, I am sorry to say. But they are enough to justify us in following this method if we are not accustomed to working inside the abdomen. I don't want to disregard that operation entirely, because I feel that it has been the means of letting me out of a tight place and saving my patient's life.

If we have a uterus the tumor of which is growing and the hemorrhage is so great that we are about to lose our patient, it is necessary to remove the tumor by the abdominal section and total extirpation. The operation and results of Dr. Baer are good. He leaves an aseptic stump, and opens a canal so as to prevent drainage into the abdominal cavity and create poison. That operation I have not done myself.

We have neglected to mention an operation (which I tried once or twice and found very satisfactory) called the extra-peritoneal method, and which is described by Dr. Gough. In my cases I had good results. The objection I have had to it is the time it requires, and exposing the patient during the operation.

I want to ask a question of Dr. Smith in regard to the use of electricity, and that is if in his treatment he punctures the tumor. I do not do so.

I also have a question to ask Dr. Martin, and that is, if a woman can become pregnant after this operation of tying the uterine arteries. We have still remaining the ovarian arteries and the Fallopian tubes supplied with their natural amount of blood. If the woman does become pregnant will injurious results follow?

DR. MARCY, of Boston—I labor under a disadvantage in not having heard these speakers, and yet it is possible there is something to be gained. Sidney Smith once declared it was better for him to review a book before he had read it as he was then entirely unprejudiced. Therefore I am in a state for discussion. I have thought and written a good deal upon these subjects, and an experience through two decades has caused me to have some pretty positive ideas as to the treatment of fibroid tumors. We have all been co-working in these directions for a good many years.

A word in regard to electricity: In a very early day when Dr. Cutter, of New York, used electricity in the treatment of tumors, I had my own experience. I saw patients go to their deaths that I had myself put in the hands of these masters, and I became satisfied that the use of electricity as thus applied was not a wise procedure.

Some of you may remember that when the International Congress was held at Washington I presided over the Section on Diseases of Women. Some of the strongest advocates of this system were present, and all were anxious to give their experience. It was an experience meeting day

to those who were present and will never be forgotten. I returned home a convert to this new method of treatment I used this treatment and I had an experience that I might summarize in two or three sentences. I do not declare that patients were not benefited, and that means a good deal; but I will also say that I discourage the application of electricity in the arrest of the growth of fibroid tumors almost without exception. We may regard these cases from one or two standpoints:

1. If the case is or is not operable. If it is an operable case, we may divide it into several classes. In a case where the tumor is small and the patient is young the probabilities are that small tumor will be larger; that patient will become an invalid, and by and by there will be regret that we have neglected an opportunity most favorable for her relief or her cure. This class of cases I believe are best treated by abdominal operation; by ligation of the vessels and the removal of the appendages. I think we have a large consensus of opinions in this direction and that it is wise teaching. It is an operation that should be encouraged. This operation of Dr. Martin's is in this direction. In small fibroid tumors it is not dangerous to remove the appendages. In larger growths from my own experience I am positively of the opinion that this operation ought not to be performed without the removal of the appendages. If the patient is a well woman and comparatively young and the growth is increasing, then I am sure the President of this Section, and the men whom I face in discussion will agree with me that it is wise to remove it. But why is it that this has so slight a hold on the profession? It seems to me that we do not have the ability to treat the wound as we would like to, for the reasons that we are fearful of hemorrhage first, and that there may be something left in the abdominal cavity which will prove injurious.

You and I know full well that the class of cases we can thus treat are the exception, and that we must have some device that shall enable us to remove those growths that fill and crowd in such a way that the functionary organs can not go on. And we are driven to one or two extremes in treating those cases. One is advocated by your President. I give it full approval in certain cases. I believe the results are admirable. I believe ideal surgery is the one that gives the greatest number of cases the greatest possible relief.

I have for a long time felt it was not necessary to open the vaginal cavity for a variety of cases. In this method advocated by the President the abdominal incision is at once closed, and that ends the operation, and drainage tubes may be avoided.

This subject is so large that I hardly know what to omit in the discussion. In these cases a great many things have to be taken into account. But when it is determined that there is a foreign body in the abdominal cavity I think it is better to remove it. I know there are dangers; and yet that is the reason why we discuss these questions to-day, so that we may minimize our dangers. As we look back we see that every year adds very materially to success in treating this class of cases, and the percentage of cures increases.

Dr. MONTGOMERY—I feel we are greatly indebted to the President for his excellent presentation of his method of operating. He has shown us how to do away with the ligatures, but I must confess that in performing operations of this kind I feel much safer in having ligatures applied to the uterine and ovarian arteries. I have used two ligatures, and cut away the uterus without any subsequent hemorrhage or trouble.

There are a number of cases in which it is impossible to perform an operation and leave a stump, the uterus has been so taken up by the large growth of the organ. In my ex-

perience I have found it better to have a cervix left. We are then certainly much better able to sterilize and render clean the vagina, and to insure thorough and complete drainage. When we consider those cases in which we may be able to leave a small stump, we find that those patients who have had the uterus removed through the vagina subsequently experience no inconvenience for want of support.

This operation of Dr. Martin's has many advantages in cases where hemorrhage is a source of danger; those cases where it may not be thought desirable to resort to so severe an operation as the removal of the entire organ. In such cases it may serve a very useful purpose. In such case, however, it would be a question with me whether the patient would be safe in an operation by ligating the uterine artery upon either side and ligating an ovarian artery upon one side; whether the removal of so large a supply of blood from a tumor of considerable size would not be dangerous. But the fact that it has been done and the patients have recovered is certainly a better demonstration than any theories upon this subject.

With regard to the application of electricity, I am very glad that Dr. MacMonegle has spoken of the danger of malignant degeneration. In my experience I do not think that the application of electricity to the uterine canal is a safe method of treatment; it causes irritation of the mucous membranes, it seems, which is not beneficial.

I would like to ask Dr. Martin if he has had experience in the use of electricity in treating fibroid tumors.

PLACENTA PRÆVIA—A PLEA FOR ACCOUCHEMENT FORCÉ.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY LLEWELLYN ELIOT, A.M., M.D.

WASHINGTON, D. C.

At the last meeting of the Section of Obstetrics and Diseases of Women, I presented a paper, "Accouchement Forcé in Certain Obstetric Complications," and mentioned placenta prævia as one of the complications. (See JOURNAL, Vol. xxi, September, 1893.)

It will not be necessary to speak of the causes or the symptoms of placenta prævia, nor shall I refer to statistics to show the relative frequency of centralis, marginalis, and lateralis, or the mortality of the mother and the child, since statistics collected upon this subject are misleading. All varieties are usually included under the general heading, placenta prævia. Next to a case of puerperal convulsions, this is the most appalling accident to be met with in the lying-in room. Called, as we are, only at or after the occurrence of hemorrhage, there is little time to draw the lines of fine distinction. Time is only for action, and upon that action frequently depends the lives of two human beings. To tampon will stop the hemorrhage so far as external appearances go and will lull the medical attendant into a feeling of false security, while delivery frequently increases the hemorrhage, during the time of delivery. Many perform version, bringing down the feet, so as to tampon with the child's body; others proceed to immediately dilate the os and force delivery.

I believe no woman should be allowed to continue to suffer from these hemorrhages after the child has reached the age of viability, but that she should be delivered in accordance with the severity of the hem-

orrhage. This I consider conservatism, for it is just as possible and as easy to resuscitate a child in the seventh month, when it has not been subjected to the effects of repeated hemorrhages, as it is to resuscitate one that has been subjected to the effects of these hemorrhages in the ninth month. The woman, certainly is in a better condition before these losses, to withstand operative interference.

Cæsarean section, as recently successfully performed by Dr. A. C. Bernays (*JOURNAL*, Vol. xxii, May 12, 1894), is an operation I would hesitate a long time before performing for this trouble. The same applies to the Porro operation.

We all admit, even its most enthusiastic advocates, that there is danger in performing accouchement forcé, that serious accidents may occur, that it may become abused and thrown into disrepute by adoption by every one engaged in medicine; still should a cervix be lacerated an immediate trachelorrhaphy may be done by placing the woman upon her back, drawing the uterus well down and introducing our sutures; should a rupture of the uterus occur an immediate laparotomy and suturing the rent will be necessary; septic infection may occur through use of dirty hands; hemorrhage may be continued through division of the circular artery, but this can be controlled with a ligature. But on the other hand, in natural labors how many times will the cervix be lacerated with forceps, or the passage of the child's head and shoulders; how many times will the uterus be ruptured; how many times will septic infection occur even in the practice of the most rigid follower of antisepticism; and how many times will the circular artery be injured? I believe they will occur as frequently in the one case as in the other. Even should these accidents or any of them follow accouchement forcé, does it in the least militate against the operation, in the proper hands? Accouchement forcé is a simple operation; its performance requires patience but boldness with entire confidence in his ability on the part of the operator. The fingers are introduced one after the other into the cervix and separated to their fullest extent; the uterus contracts, the hemorrhage checks and labor is terminated very shortly, either spontaneously or with the forceps. The fingers appreciate the dilatation as it progresses and do not therefore exert any undue force. To me, nothing appears simpler. The difficulty we will most frequently meet is an old cicatrized os, which will give way to patience on the part of the operator. Whether to give an anesthetic—chloroform—or not, will rest with the operator, although chloroform is believed to increase the danger of relaxation of the uterus after delivery. I should be guided in its administration by the suffering of the woman. The child is born, the pressure is relieved from the bleeding points, and the uterus is usually relaxed; if hemorrhage again occurs, we must resort to active measures to contract the uterus and stop the bleeding. Fluid extract of ergot in drachm doses, irrigation with hot or cold water, pressure, introduction of ice, electricity, massage, or better still packing the uterine cavity with iodoform gauze. Rectal injections of strong infusion of coffee, or of a solution of table salt will assist in reviving the patient.

While obstetric text-books, in general ignore this method of treatment, it would be much better were more attention paid to it.

1106 P Street N. W.

DISCUSSION.

DR. ESCHELMAN—I do not want to talk myself; I am not accustomed to talking. But I recollect many years ago in Philadelphia, we had a doctor there, now deceased, who would start up and talk and take a false position just to start the boys talking. I will try and do the same thing. In Philadelphia where I practiced medicine—(I am now in California for my health, and have been more or less for seventeen years, and of course I am far behind in everything; but on the subject of placenta prævia I have taken considerable interest in my practice,) it was my misfortune to be called to attend a case that was in the care of a homeopathic physician, and not caring to take the responsibility too much on myself and not having much experience with placenta prævia I sent for Dr. Ackley or Dr. Wilson. Well, the gentleman who was sent brought both by mistake so that there were three of us together there. It proved to be twins, with the placenta prævia presenting great difficulty on account of the interlocking of the children, and our patient died after ten days.

This case set me to thinking considerably on the subject, and with some prejudice I had against placental delivery I made my mind that the forceps was the best instrument in placenta prævia, and for the purpose of preventing hemorrhage to use the child as a tampon. In watching these cases, however, I found that there was a great deal more placenta prævia than I had ever dreamed of before. A good many of my miscarriages were placenta prævia, and in a large number of cases they are generally disposed of in that way by hand; but my experience is that with the os uteri dilated, I have never had any trouble in introducing a narrow-bladed forceps, grasping the head, bringing it down upon the placenta and using it to tampon and check the hemorrhage and deliver with labor pains gradually a living child. That is all that is contained in it. Dr. Davis, of Wilkesbarre, read a paper before our State Medical Society assembled in Philadelphia, and after dwelling considerably upon that (he was the principal consulting physician as I understood in obstetrics, in Wilkesbarre, had met a large number of cases and made it his study) he ended up by saying that the whole credit of this method in the delivering and treating was due to myself. I have thought during these many years that I have been out of practice that it would be interesting to me to hear something of placenta prævia, and know how the profession are treating it now.

DR. WHITNEY, of Oregon—I rise to speak because I want to ask for information. About four weeks ago I had my first case of placenta prævia. That was a case of placenta lateralis. While I did very well with that case, saving both the life of the mother and the child, yet it has made me think more about these cases and I would like to know more about what I would do if I had a case of centralis. This paper does not talk very much nor give us a great deal of information on centralis, and I would be glad if some one would discuss that phase.

DR. CHESNEY, of Philadelphia—One naturally has some hesitancy in discussing a paper when the writer thereof is not present to close the discussion. The paper is valuable, if only that it brings before us for consideration one of the most practical subjects that we have to consider in our daily work. Fortunately, indeed, it comes rarely to any one of us to meet such an emergency. I have in the past when engaged in the active duties of an obstetrician had a number of instances where such difficulties were presented for my immediate action. It goes without saying that none of the many emergencies that come before the obstetrician, present graver causes for alarm than the terrible hemorrhage which may meet him at the threshold of such a case. He then has no time for the weighing of nice distinctions, and

he must necessarily in many cases—in all cases—employ such means as will enable him rapidly or as rapidly as possible to dilate the cervix. It is a question of comparative safety with him then. Many of the cases I think are just as Dr. Eschelmann stated who quoted from Dr. Levinger, formerly a distinguished practitioner of Philadelphia, they are cases of lateral placenta where the placenta does not very materially interfere with the delivery of the child, when a certain degree of dilatation has been obtained. But practically it comes down in my opinion to this—that we must as rapidly as possible dilate, turn and deliver; and in the case of the question that was asked by the doctor from Oregon, the case of central implantation, it is my opinion that the finger and then the hand of the physician should rapidly pierce through the placental mass and if possible bring down the child as a uterine tampon. It will not materially delay delivery, and will of itself be the best dilator; and as was also remarked it will frequently be found that the first hemorrhage will increase the dilatation of the cervix, if it had not been found already somewhat considerably dilated, and that comparatively little difficulty will be found in its further dilatation and in the delivery. There is no criticism at all as to the many means suggested for the after treatment of the hemorrhage, save that very few of them are at our command at that time. The rapid massage of the uterus through the abdominal walls, the injection of copious quantities of hot water, as copious as will be permitted by the contraction—the hoped for contraction of the womb—the introduction either by the mouth, of hypodermic injection of strychnia, or strychnia and ergot, will in a great majority of cases answer every purpose. I would, however, feel disposed to note the suggestion or information of the writer that there is little danger or comparatively little danger to the child after seven months' gestation, that is in regard to resuscitation. On the contrary, I think there is great danger in all cases of placenta prævia, but particularly where hemorrhages are manifested comparatively early—great danger to the child in its delivery.

DR. MARTIN, of Chicago—I can not discuss this question intelligently, Mr. Chairman, but like the doctor from Oregon I would like to ask one question. We have here practical obstetricians; I see a number of them, and in the last year or eighteen months we have been startled by the reports of Cæsarean section for placenta prævia; in the last ten years from time to time we have been met by propositions that at first seem equally as startling as this, and I would like to ask the question simply to bring it up for discussion. You must remember that the gynecologic department of the AMERICAN MEDICAL ASSOCIATION ought to take the lead in the discussion of all such matters, and I would like to have that point dwelt upon by some of the practical obstetricians present. I, also, with the doctor who has just spoken, am sorry that the author of the paper is not present. I remember last year at Milwaukee he read a paper advocating the gradual dilatation of the cervix by the fingers, and it precipitated a very lively discussion which was taken part in by Howard Kelly and a number of the other lights of the Section; the whole point gathered around those finger nails, and it brought up the old discussion of antiseptics, and the danger it was stated there was, of bringing such a procedure before a mixed society or advocating such a procedure before a mixed society. And while it does not seem necessary any longer to insist upon cleanliness in obstetrics, at the same time there is that element of danger to any one who should be a little careless; and the whole question, then, of the cleaning of the hands came before the meeting for discussion. I remember twelve years ago in a clinic given in Mercy Hospital by Dr. Quine, one of the most brilliant physicians of Chicago, he made this statement, and

it seemed remarkable then and there was really no explanation for it—he made this statement, that he had noticed that after delivery, in all cases where it became necessary to introduce the hand in the uterus, that fever invariably followed. We know now what that means. And the question of importance is, now, Do we know all of us what it means? It means simply that we must watch our hands, that we must wash our hands, not only a minute, or a minute and a half, but that we should prepare them with the same carefulness that we prepare them for a laparotomy; and a physician in general practice can not prepare his hands for laparotomy with soap and water, one of the best methods of preparing them, without employing some twenty minutes or a half an hour. Any man, to assist in laparotomy, must employ not less than twenty minutes with a scrubbing brush and nail brush, with a file and with hot soap and water. And I believe that if we would adopt the method adopted in the Johns Hopkins Hospital for these cases, we would be more certain of cleanliness, and that is to wash our hands first until they are thoroughly mahoganized in a saturated solution of permanganate of potash until this matter is thoroughly scrubbed into the hands, then with a saturated solution of oxalic acid we should thoroughly scrub it off—not entirely, because of the cleansing power of the permanganate of potash and of oxalic acid, but to insure thorough scrubbing. And in any post-graduate work where we are obliged occasionally to ask men whom we are not acquainted with, to assist in important operations, I always insist upon that preparation of scrubbing in order that the hands should be thoroughly cleaned; not that we would be any better prepared after half an hour's scrubbing but that insures the scrubbing. Therefore in this method of procedure if it is the proper method, the one point most to be borne in mind is that the hands must be thoroughly cleansed. I hope some one will discuss the point of Cæsarean section.

DR. MONTGOMERY—After having the privilege of hearing this paper on placenta prævia, I will say that it is one in which I for a long time have had a great deal of interest. It is the one condition in which I think that the life of the child should not be considered, but that the life of the mother should take the first consideration. Whether you consider particularly placenta prævia, lateral or central, you have the woman in a condition where hemorrhage begins early, probably the fifth month; where she is likely at any time to have hemorrhage so serious as to endanger if not to take her life, it is unwise it seems to me to temporize in such a condition. Just as soon as the diagnosis of placenta prævia is established, in such a case the product should be evacuated, running no risks, of the life of the individual being endangered. In those cases in which the hemorrhage takes place later in the period of gestation, in those cases in which it is evident that the placenta prævia is one of lateral rather than central, in which the hemorrhage is slight, we may then possibly temporize, taking occasion to provide against a serious emergency. But even in such a case it is wise to bring on premature labor, not permit the patient to go on and take the risk of completing the full term of gestation. The important consideration is that of thorough antiseptics in every procedure. It is well recognized that the nearer we bring an obstetrical case to the surgical stand, the better will be our result, and the less frequently will we have the unpleasant sequel to follow it. In these cases we may readily and rapidly produce labor by placing the woman under anesthetic, introducing the finger into the cervix, dilating gradually until first one and then two fingers get introduced, rupturing the membrane, turning by Braxton-Hicks method, and drawing this into the cervix. This of itself prevents hemorrhage and enables you to control the subsequent operation.

I don't think that the operation of the Cæsarean section or the Porro operation, as was suggested some years ago, is necessary or advisable in placenta prævia. I don't think that we should consider the life of the child as a matter of great importance, when we realize the great frequency of the death of the mother and child from such a condition.

DR. NEWMAN—Some one asked in regard to the treatment of cases of placenta prævia centralis. As the previous speaker, Dr. Montgomery, has said, there is little question but what those ought to be treated after the Braxton-Hicks method, that is, immediate perforation of the placenta with one or two fingers, turning and delivering, the child to be used as a tampon. Here we check the hemorrhage immediately, whereas it is frequently at the sacrifice of the child. It is the most prompt, safe, and I think generally recognized method of handling those cases. Certainly a case of so great importance as a case of placenta prævia, should be treated strictly on surgical principles, as all obstetric cases ought to be. The surgical conditions are only properly performed by having everything necessary the same as we have in capital surgical procedures, and we have a lying-in room for such cases as those. We should by all means have the woman on a table. Do not attempt to do turning or difficult obstetrical procedure with the patient lying in bed. There are more advantages than one in having the woman on a proper elevated surface, where you can do what you try to do easily and much more efficiently. A word in regard to the anesthetic. The author of the paper hesitates about using an anesthetic. I think that hesitation is well founded, certainly as regards chloroform. Chloroform is a dangerous anesthetic after extreme hemorrhages. Many of these cases are such that chloroform acts badly. An exsanguinated condition is extremely dangerous to the use of chloroform. I think, however, that better work is done ordinarily under an anesthetic than without it, but ether should be the anesthetic under these circumstances. It is a very profitable subject and I wish more would engage in its discussion, as it is extremely useful for the practitioner in rural sections. I think the treatment in rural sections must be a decided, prompt, efficient and surgical procedure. In our hospitals or in large centers where we have nurses, capable nurses, almost equal perhaps to a physician in managing obstetric cases, sometimes perhaps we can temporize, certainly in placenta prævia emergencies; but we can not do so in rural sections where the woman's life is in danger at any hour of the night or day. After the discovery of the condition, the woman should be delivered as promptly as possible, certainly so where good attention can not be had in constant attendance.

DR. GARRISON, Illinois—I for a long time have wondered why we in the rural sections did not have as much septicemia as we did in the hospitals. Dr. Price, of Philadelphia, explained the matter; he said our soap was better; we used home-made soap. Supposing I should be called ten miles to attend a case of placenta prævia, I would not probably have any permanganate of potash in my case. Should I go back to my office and get it and scrape my hands twenty minutes when the woman is dying? No; I keep my soap for the rural districts in the kitchen perhaps, and scrub my hands thoroughly and my woman goes through without any septicemia.

DR. WESLEY, California—In a practice of a little over fifteen years in general practice, I have met with some fifteen or twenty cases of placenta prævia. I have adopted different methods in treating those cases, sometimes perforating the placenta, getting hold of a leg and bringing it down for the purpose of tamponing and arresting hemorrhage. Practicing in a rural district where we are frequently called fifty miles, we find the patient often exsanguinated when we get

there. There is no chance then to save the life of the child; the child is already dead. We must not take the life of the child into consideration at all; and I believe in that class of cases that Dr. Simpson's is the proper treatment: To at once detach the placenta entirely, bring the placenta down, then stimulate the uterus and get the head down, do not turn at all, put on your forceps and deliver the woman. In cases where there is no such great loss of blood and there is a probability that the child is alive, then I should adopt a method of perforating the placenta, turning, bringing down one leg and delivering the child gradually; but I believe where you find the patient has lost much blood and where the child is dead that the proper method is Sir James Simpson's method, to remove the placenta at once.

DR. ESCHELMAN—I would like to say as regards the question of turning and delivery and the use of the forceps, in turning and delivery you have to have a dilated womb of about the size of a practitioner's hand, about two inches and three-quarters, at the risk of septicemia; but in introducing the forceps you have always less danger from hemorrhage—I have never met anything else. You only want about an inch of dilatation; you introduce the forceps by perforating the placenta if it is central implantation, or one side if it is most convenient, you grasp the head—and as a general rule with the manipulation outside of the abdominal walls you feel how your forceps applies to the head—you can bring down the head and tampon the placenta at once. You have no more hemorrhage. If you grasp the head and bring it down upon the placenta your hemorrhage ceases. Then if your forceps are not properly adjusted, you can adjust them between pains and work with the pains, and deliver your child usually in fifteen to thirty minutes' time, with the result of saving mother and child both. That is my experience and the experience of Mr. Davis who works with me. Now I can not see any object in introducing the hand and turning the child crosswise in the uterus, for the length of the child to distend the lateral diameter of the uterus. You have the size of the hand and the danger of manipulating with the hand, when with a narrow-bladed forceps about one inch—seven- or eight-tenths of an inch, one of my forceps is, and another one an inch—you can introduce the tips of your two fingers, and if you are skilled at all with the forceps you can apply it to the head and know by holding the handles, as a man knows when he holds the fishing-rod when to pull, and you can manipulate without any hemorrhage; that is my experience.

DR. CARPENTER, of Pennsylvania—I have listened to the discussion of this subject with great pleasure, and I would not rise at this time excepting that it occurred to me lately to have three cases of placenta prævia, two of which I treated in the manner which originated in our State, if I am not mistaken, by applying the forceps after first having by proper manipulation gotten the head in position where it could be grasped, and by chance or by skill getting the head brought down so as to compress the placenta previously pushed to one side by the hand against the uterus so as to stop all hemorrhage. In one of those cases I held the head for half an hour, the os not having been thoroughly dilated, until the constant, steady pulling force accomplished the dilatation and then delivered the child. In that case the woman was exsanguinated and the gentleman who called me in, and his assistant, was engaged the entire period of over an hour in giving her constant hypodermic injections of whisky and strychnia.

The second case I treated in the same way but had no assistance. I was several miles away from any assistance, and I delivered the woman of a dead child the same way.

The third case I was called in consultation; it was central implantation, and as I tore through the placenta I

found and brought down the foot and delivered her, but she died ten minutes after the shock. I am satisfied that if in that case I had avoided the temptation of seizing the foot, if I had pushed it aside by external manipulation and got it so that I could have held the head against the placenta for a long enough period to enable stimulation, I could have saved the life. The point being that in such cases you have no time to waste, if the woman requires to be kept alive by hypodermic stimulation; in other words you have no time to do it. With hypodermic stimulation you can wait as long as you please and you can hold the head down against that hemorrhage. I regret to this moment that the temptation to the rapid extraction caused the loss of a life.

SOME OF THE USES OF STRYCHNIA IN OBSTETRIC PRACTICE.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY JOHN MILTON DUFF, M.D.
PITTSBURG, PA.

In February, 1893, I read a paper before the Pittsburg S. S. Medical Society on, "Strychnia in Obstetric Practice," a synopsis of which appeared in the *Therapeutic Gazette* of May 15, 1893. Incidentally, in a paper "On the Care of Pregnant Women," read by me at the last meeting of the American Association of Obstetricians and Gynecologists, published in the annual transactions of that Association for 1893, I referred to some of the indications for the administration of strychnia in obstetric practice. R. Bell, in the *British Medical Journal*, page 715, 1890, refers to strychnia as an aid in parturition, as does Dr. J. C. Edgar in the *New York Journal* of May 12, 1894. Almost simultaneously with my own paper of May 15, 1893, there appeared in the *Medical and Surgical Reporter* of May 13, 1893, an article on "Strychnia vs. Ergot in Obstetric Practice," by G. V. Hall, M.D., L.L.D., of Wheaton, Texas. Various other articles have been published, directly or indirectly pertaining to my subject. I do not present it to-day with the idea that I may say anything new, but rather that I may say that my observation and that of a few friends, who have kindly worked along the same lines, emphasizes the fact that strychnia is a most valuable agent in obstetric practice; and I shall be most happy if I can only awaken a general interest on the subject such as will assure a more general use of it during the next year, so that we may the more correctly define its uses and merits.

The very limited field given for observation in the practice of a few men will not warrant us in drawing conclusions of a radical character. However, I have no hesitancy in asserting, that with the judicious use of strychnia, the indications for instrumental delivery will be far less frequent, and ergot will only occasionally be called for during or after the third stage of labor. It reduces the number of abortions, and especially premature deliveries, by giving tone to the uterine muscles and nerves, as well as by its general tonic influence. It improves the appetite and digestion, keeps the bowels soluble, prevents insomnia, regulates the circulation, and in the weak insures a more rapid and less painful labor. After its use after-pains are not so frequent and the danger of post-partum hemorrhage is greatly reduced. That it is constant in its action and that benign results follow

its administration in every case I can not claim, as I have occasionally given it when it completely failed to produce desired results, and I am not unmindful of the fact that I have seen apparent evil results from its administration in a few cases.

Case 1.—Mrs. S., mother of six children, has always had tedious labors, instrumental deliveries; on two occasions severe post-partum hemorrhage. Now pregnant eight months. She is given strychn. sulph. one-thirtieth of a grain three times a day. First stage of labor two hours; second stage one-half hour; third stage ten minutes.

Case 2.—Mrs. N., gave birth to a child at term fourteen years ago; since then has had three premature births at seven and a half months, and five miscarriages at about four and a half months. She is now four months pregnant. One-thirtieth of a grain of strychnia given per diem for ten days, reduced to one-sixtieth of a grain twice a day, which was kept up every other week. She carried to term and was delivered of a nine and a half pound boy.

Case 3.—Mrs. K., belongs to a family of bleeders. There is history of post-partum hemorrhage in mother and grandmother and in two out of four sisters. Has had two children; lost a large quantity of blood after first labor, but could not say it was a hemorrhage. After second labor had severe hemorrhage. In third pregnancy was given one-thirtieth of a grain strychn. sulph. for three weeks prior to labor; no hemorrhage.

Case 4.—Mrs. S. A., mother of seven children; after last six labors has had slight hemorrhage, and after-pains very severe. Her last three deliveries have been instrumental. She is given one-thirtieth of a grain strychn. three times a day for seventeen days prior to labor. Her labor was natural, of two and a half hours duration; no hemorrhage and only very slight after-pains.

I might thus report over fifty cases, in which I felt I might in justice refer the results to the effects of strychnia, but they would simply be repetitions and unnecessarily take up the time of this Association.

Aside from the conditions I have just referred to, the woman who has been subjected to the strychnia treatment will, all other conditions being equal, suffer less shock from the throes of labor, and if an anesthetic be necessary will submit to it more kindly and with less danger than the woman who has not had the preparatory treatment. With this conviction in mind it is now my habit, on all occasions where I am called upon to apply instruments or administer an anesthetic, to first give a hypodermic injection of from one-twentieth to one-thirtieth of a grain of strychnia; more especially would I insist upon this if the woman had not had previous strychnia treatment.

As I have already in an article upon that subject condemned the routine practice of administering ergot after the third stage of labor as unscientific, unnecessary and not devoid of danger (See *Therapeutic Gazette*, May 15, 1893), I would say that the treatment I here recommend is not suggested as routine, but as indicated in each given case, for every case in the hands of the scientific obstetrician is treated of itself, by itself, and for itself. My observations, however, warrant me in making the broad assertion that with the judicious administration of strychnia, prior to labor, the cases in which ergot will be indicated after the third stage of labor will be very rare. The action of strychnia is effective and more prompt.

For the purpose of further study on this subject, I will regard it as a personal favor if those who have adopted or may adopt this treatment, will communicate with me on the results of their observations, to the end that I may tabulate them.

DISCUSSION.

DR. LAPHORN SMITH—I should not have risen to speak upon this subject had any one else taken the floor. I think the paper and subject is of too great importance to pass

without some discussion to fix it a little more in our minds.

I have not myself had a very large experience, or any experience in fact, with strychnin used in the manner which Dr. Duff has brought to your notice; but for ten years past I have been in the habit of giving to confinement cases that I had under my care, previously to being called to them, a mixture of strychnin, phosphoric acid and iron. I have been peculiarly fortunate in cases of post-partum hemorrhage in my practice, and perhaps that may be explained by the fact that I have given these women strychnin of about one-fortieth of a grain three times a day.

The advantages of strychnin over ergot are very evident. I must confess that I have always been a great believer in ergot; I dislike to go to a confinement case without the very best ergot that can be got, in my bag. I give 1 drachm of fluid extract by the mouth a little after the delivery of the placenta, and I don't feel safe in taking my hand off the uterus until that ergot has had time to take effect. But that is precisely the objection to ergot; that it takes fifteen or twenty minutes to be absorbed. I have never used hypodermic injections because I have heard of so many cases of abscesses from it; but I have used very largely the fluid extract of ergot given by the mouth.

I have heard of a great many cases of death in different parts of the country from post-partum hemorrhages. Now if a dose of strychnin used hypodermically will control that hemorrhage and cause contraction of the uterus, we can be sure of obtaining results in a short time—a few seconds I think would be enough to take effect—it is a great advantage over ergot.

Another objection to the use of ergot is, that it is difficult to get a first class preparation. I don't know whether this is the experience with other physicians, but it is with myself. If you ask a certain number of physicians whether they are sure of ergot acting, they will tell you they are not. I have always taken great care to use a preparation that I had tried and tested and found reliable.

Strychnin is a standard drug; it is always the same, and is much more reliable than the various preparations of ergot. I think it is well worth our while to try strychnin, and report the results at the next meeting of this Section. I shall certainly do so, and report to Dr. Duff what I think of that method of controlling post-partum hemorrhage. Strychnin is a great tonic, and I think its use before confinement will be of great benefit.

DR. CARPENTER—I think that the matter of dose has a great deal to do with the administration of ergot. As Dr. Smith has just told us, a teaspoonful of fluid extract of ergot is given. It seems to me that is a very unnecessary dose in ordinary cases. The effect is a greater persistent spasm of the muscles of the uterus—a very painful thing and increases the after pains. Simply used as a preventive, a teaspoonful of fluid extract of ergot is an unwarranted large dose. It is a great deal better if you feel bound to take precautionary measures, in the absence of any immediate indications of danger, to give 15 drops of a good preparation, and then wait to see if any further doses are needed. Otherwise you will have a patient in twenty-four hours suffering from after-pains, and you have to undo that which you have been doing, and give this patient some comfort.

As to Dr. Duff's method, it commends itself very much to a man in general practice, and who has all sorts of work to perform. There are one or two points that may be noted

Anesthetics—which are so valuable and so constantly used by many of us in cases of labor—are antagonized by strychnia so far as their dangerous effects are concerned. I remember that twenty-nine years ago Prof. Gobrecht, formerly of a medical college in Philadelphia, and afterwards surgeon in the army, had a case of chloroform poisoning. The chloro-

form was taken with suicidal intent in a hotel where Dr. Gobrecht was fortunately staying. He resuscitated and eventually saved that case by the hypodermic injection of strychnia and artificial respiration. That case made a great impression on my mind, and in respiratory diseases, since then, where the respiratory power is feeble—paresis, perhaps—I have been in the habit of giving strychnia constantly. I believe it is valuable in other diseases than those that pertain to parturient women. I have found it so useful that for a month before the pains come on I have put strychnia into their medication, whatever it might be.

Chloroform is the best of all anesthetics in labor, and the use of strychnia with it is better than anything else; it enables you to give chloroform with a certain freedom and comfort that you can have in no other way. Not only does strychnia influence the muscles of the uterus, but it has a decided effect upon the whole nervous system. The patient gets up better, and I think it is the best means to bring a woman safely through her parturient state. I have used it for many years.

DR. F. H. MARTIN—I hope I may be pardoned if I talk on a few more papers. I am very much interested in this subject, because I have had experience with it, but not exactly on the line indicated by the Doctor. The physiologic effects of strychnia are well known. It is a powerful constrictor of muscular fiber; it is a tonic constrictor. It has also in the same way a powerful effect upon the vasomotor nervous system—whether through the nerves or through the muscles of the uterus, this has not been determined—but it has a powerful influence in constricting blood vessels. It also is a powerful tonic. If strychnia is to be used for the purpose as indicated by the Doctor, it should be used, it seems to me, in good stiff doses; used as the abdominal surgeons use it in their efforts to get a tonic contraction of the muscular coats of the bowels.

Now pain in the bowels in the parturient state is caused by cramp, and the cramp is a clonic spasm; anything that will produce a tonic contraction of the bowels will accomplish the desired effect without pain; anything that produces a clonic spasmodic contraction will produce pain. I suppose nine-tenths of the abdominal surgeons in this country use strychnia more than they use morphin; simply because it overcomes the clonic contractions of the bowels and relieves wind pain.

I use strychnia in this way: I begin six hours before an abdominal section to give one-twentieth of a grain of strychnia hypodermically every hour until five hours after the abdominal section—until I get a half grain in the abdomen, until frequently my patients, while they will not complain of gas pain, will reach a point where they begin to get a little stiffening in the back of the neck—a tonic contraction. By administering strychnia that way once an hour, you can use it safely. It is impossible to use too much of it, for the nurse watches the effects. In giving one-twentieth of a grain doses you can reach as high as half a grain without deleterious results.

Used as a tonic for a month before confinement I believe it would bring good results, and used, as may seem to some of you, in heroic doses.

DR. JOSEPH EASTMAN—I can not let this paper pass without making a few remarks. I see at once that the surgeon can learn something by association with obstetricians; surely the obstetricians can learn something by association with surgeons. It is very clear to my mind to-day—never before—that the more we study obstetrics on surgical lines, the better success we will have. For example, laying aside all conclusions as to parturial fever that have been advanced by the eminent teachers of the day, studying all forms of fever, of elevations of temperature, studying its prevention,

studying its treatment, and following out on surgical and other lines, we will have as good success as we will have in any other way, and a thorough preparation of the vagina for the child. If the forceps should be used, if a laceration should occur, or a wound of the cervix, then the patient has the same preparation as I give to a patient for surgical effort.

The use of strychnia, as has been mentioned by the author of this paper, is exactly in the surgical line. None of us would think of performing a surgical abdominal section without giving the patient a powerful tonic before, and frequently during the operation, and directly after.

I use *nux vomica* a great deal in place of strychnia. Two years ago its use was impressed very forcibly upon my mind. I stopped at a harness shop to have a bridle repaired, and after waiting awhile I discovered my horse was gone. I found him right away in a livery stable near by, and the stable keeper was pouring a bottle of medicine down his throat. He said the horse was nearly dead with wind colic and he was giving him *nux vomica*. He said he always kept it and it cured wind colic at once. That is practically what the livery stable men and the horse doctors knew all along, and I found there was something that could be learned from them.

The effect of ergot is not as well understood as it ought to be, and perhaps I shall advance nothing new. The normal contraction and relaxation of the uterus is rhythmical—there is a period of contraction and a period of relaxation. If we wish to get water out of a sponge we squeeze it, and then relax the fingers and squeeze again until the water is all out. The uterus empties itself of blood by a rhythmic contraction and relaxation, an alternate contraction and relaxation. The accumulation of this blood in the uterine cavity is frequently the exciting cause of after pains. After pains are but nature's effort to expel clot. Strychnia given as we give it in surgical cases secures a clonic contraction, while the effect of ergot is a persistent tonic contraction without the normal relaxation which the uterus should have.

Hence I would insist that ergot is frequently the cause of an interruption, in that normal clonic contraction, and prevents the uterus contracting down to the size it should be.

So, studying these questions from a surgical point of view, it seems we would study them about as thoroughly as in any other way.

I thank the Doctor for reading this practical paper here. I know his study of the subject is very thorough, and will be of decided advantage to many of us in substituting (if I may so express it) strychnia for ergot, for it goes to the fountains of life and gives a better contraction; it will carry a patient through this ordeal just as it carries a patient through the shock.

The use of strychnia is larger doses than heretofore taught is becoming evident. Dr. Hare, of Philadelphia, says in reference to large doses of strychnia: "We will find in hemorrhage that it goes to the fountains of life and gives a better tone to the vasomotor nerves, and in that way it is a better thing than ergot."

DR. WESLEY—We all believe in strychnia in surgical shock. We are taught by therapeutics that strychnia acts directly upon the spinal nerves. Now I can hardly understand how it will hasten labor by taking one-thirtieth of a grain for ten to seventeen days prior to labor. And I can hardly understand how it would prevent miscarriages and abortions. This seems paradoxical.

DR. J. MILTON DUFF—In presenting this paper I intentionally limited myself to practical illustration in a very few cases. As I distinctly stated it is for the object of securing further study. I did not make any strong statements, as

you will bear me out; this I think we ought to avoid until we have perfect knowledge, for otherwise we may do harm. I always want, and so I believe does every member of this Section, when we bring out anything that is new as a remedy, we want to be able to stand by it, and have everybody see that what we say and recommend is all right. I can not with my knowledge of the use of strychnia in obstetric practice yet say that it is what I have hopes it will be. In the limited experience of any one man there are not enough cases arise, or even in a hospital, to justify one in coming to correct and positive conclusions.

I did not want to take up the subject of ergot particularly to-day, as I had a discussion upon the subject two years ago and a year ago I was answered by Dr. Barker, of Philadelphia, in a paper in which he spoke in favor of the routine practice of administering ergot.

Now I only claim for strychnia, in answer to the last gentleman who spoke, that it produces a normal condition of the muscular tissue; produces a normal condition where a muscle is apparently paralyzed, as muscles of the abdomen will be if not used. By the term, "paralysis," I mean that they are weak, infirm, and have not contracting power. Strychnia gives them this tone. Therefore it applies in some of the cases of miscarriage we have where the uterus in expanding is irritable; the muscles are not in a normal condition and as it expands they become irritable, a clonic contraction comes on, and as a result we have miscarriages, whereas, if those same uterine muscles were kept normal by the use of strychnia the woman will go on to term.

Then again, strychnia in acting in this same way is the best remedy we have for keeping the bowels solid, just as has been indicated by its use upon the muscles of the bowels, when given after abdominal section.

But the grand point, coming back to the subject of ergot, if subsequent investigation proves that my theories are correct, it is going to be a less dangerous remedy than ergot, and gives us the good results of ergot without the dangers.

Dr. Carpenter made some excellent suggestions, but one of the suggestions he made I feel is contrary to what experience and observation would lead me to say. He said if he was giving ergot he would give 15 drops instead of a teaspoonful. I have great confidence in ergot, and I do not want to be understood as saying that it should not be given sometimes. But I do not believe in the routine administration of ergot after the third stage of labor; I think it is dangerous and unscientific, and frequently is harmful. If I were going to give ergot at all it would be a teaspoonful or a tablespoonful dose, not a 15 drop dose. Why? The action of ergot is upon the circular muscles of the cervix, and if you give a small dose not sufficient to have action upon the muscles of the uterus you close the uterus and close up the uterus *débris* inside. If you repeat it you will bring on the contraction of the whole body, and bring that clonic contraction, and thus hold in the *débris*. I do not claim at all that this would always be harmful but it might be harmful. If that theory is not correct, then all your theories with regard to giving ergot as a prevention against miscarriage must fall to the ground.

You say you give 5 or 10 drops of ergot where an abortion is threatened, under certain conditions. Why give it? Because of its action upon the cervix and muscles of the uterus; and this theory is pretty generally believed. If it is true, then my theory is correct; on the other hand, if it is not, then my theory falls to the ground.

I am thankful for the discussion this paper has received. I find a good many physicians are using strychnia. I want to say that it is very seldom that I use strychnia just by itself: I give phosphate and iron, and I combine, as the indications of the case may be. I feel that we have a wide field here for study, and I hope that at the end of another year we may have something definite.

TETANUS PUERPERARUM.

Read in the Section on Obstetrics and Diseases of Women at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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Mrs. Jas. H. D., aged 29, mother of five children, was confined at term Oct. 13, 1893. She had always been a strong healthy woman. She was attended during labor by her husband, who was a laboring man, and by a woman next door. Her husband told me he had been instructed in such matters by his physician where he lived in Illinois when the other children were born.

A healthy child was born, and she went through her confinement, her husband stated, easier and felt better afterward than she had in previous confinements. I asked him in regard to the expulsion of the placenta, and he said he had examined it carefully and it seemed to be all there. On the ninth day after confinement there was some aching and drawing about the fauces. On the tenth and eleventh days she seemed to feel better again. On the twelfth day, however, there was some dysphagia and slight opisthotonos, for which Dr. Nash, a physician near by, gave at her request, medicine for a sore throat. On the thirteenth day I saw her for the first time. She was sitting propped up in bed because dyspnea was troublesome on attempting to lie down. Dysphagia and opisthotonos were prominent and she presented the anxious countenance, and the objective and subjective symptoms of well marked tetanus. Temperature 100, pulse 140. On the fourteenth day the symptoms were intensified, while the head seemed to draw backward, there was so marked emprosthotonos that she was bent over in a sitting posture in the bed. Her pulse in the morning was 146, temperature 100.5. On the thirteenth day when I first saw her in the evening I gave her a hypodermic of morphia one-third of a grain, atropia one one-hundred-and-fiftieth of a grain, which caused her to rest fairly well until 5 o'clock the next morning, when the dose was repeated. In addition, on the fourteenth day, she was given chloral hydrate, twenty grains in milk, per rectum, every two hours. This treatment for twenty-four hours gave some temporary relief so that she could open her mouth much better. The dysphagia was not so pronounced, and she could lie down a part of the night.

On the fifteenth day the symptoms became more aggravated, pulse ran up to 160, temperature 101, and in spite of morphia hypodermically and chloral per rectum, she died from exhaustion at 11 P.M. The patient was unable to swallow from the time I first saw her, and absorbed from rectal injection only a moderate amount of nourishment.

Autopsy.—An examination of the body was made, assisted by Drs. W. S. Beck and G. W. Nash, fourteen hours after death. Post-mortem rigidity well marked; body fairly nourished: no bruises or signs of any internal injury upon the body. On opening the abdominal cavity we found the small intestines much congested in several places. The uterus was removed from the pelvic cavity. Involution had gone on normally and the uterus was entirely within the pelvis and contracted to about the size of a normal spleen. There was no laceration of the os uteri, vagina or perineum. On longitudinal section of the uterus we found the endometrium natural and smooth in every part, except near the fundus and slightly to the right side there was clinging to the mucous membrane a small portion of the placenta, elevated less than a line above the surface, and about the size of a silver quarter. There was more redness at the point than elsewhere, and this was probably a focus of irritation and infection.

Having no knowledge of puerperal tetanus, on returning to my office I began to investigate the subject, and to my surprise could not find it mentioned in Bedford, Byford, Leischman and other obstetrical works, but found a page devoted to it in Parvin's "Obstetrics." As the literature on the subject is so limited, by reporting such rare cases we may arrive at a better knowledge of the etiology, pathology and finally treatment of this very fatal disease.

Dr. H. J. Garrigues, in the *American Journal of Obstetrics*, a few years ago, gave a collection of all the cases that had been reported from the earliest period. The total number of cases he could find was

fifty-seven, twenty-five following abortion and thirty-two at full term. The first case was reported by Currie, *Memoirs Medical Society, London, 1792*. The disease made its appearance in this series of cases as early as the second day, and as late as the thirtieth.

Dr. David W. Yandell, in an article on the subject of traumatic tetanus, *American Practitioner, 1879*, showed that the earlier the disease began after an injury, the more fatal, and where it began after the tenth day, the better the prognosis. The reverse seems to prevail in puerperal tetanus. In looking over the fifty-seven cases recorded by Garrigues, seven recovered, all of which became afflicted by the eighth day, unless one, time not stated.

Etiology.—In regard to the causes of the disease, they are predisposing and exciting. While very few cases of puerperal tetanus have been recorded, all writers upon the subject agree that a hot climate is a predisposing cause, and that many cases occur in India. In Garrigues' classical article written eleven years ago it is shown that primiparæ at full term are more apt to have tetanus than multiparæ, and we can explain this from the fact that we are more apt to have lacerations of the os uteri, vagina or perineum in the former, which may be foci of infection. Other predisposing causes are cold and dampness about the house, mental worry or excitement, dirty and unhygienic surroundings and lack of proper cleanliness of the accoucheur and instruments.

Our patient may have been worried about the household duties, for three days after confinement she got out of bed and went to the kitchen and washed the supper dishes. Like cases have been cited where it has been thought that the patient by some indiscretion, as getting out of bed on the second and on the fourth day and going to the pump for a drink, was a predisposing cause.

Say what we will about predisposing causes, it is now recognized that the bacillus tetanus is the final factor in the causation of the disease. Nicolaier first established this point in 1885, and by the inoculation of rabbits and guinea-pigs, not only from cases of tetanus, but from soil and dust and filth over a wide area, proved that the bacillus tetanus was not confined to an injured member, or even to man. Later, however, it was demonstrated that the bacillus was not found in virgin soil.

Treatment.—The above fact in regard to the etiology having been firmly established, we can understand the prophylactic importance of aseptic midwifery. This poor woman's husband, being a laboring man, the probability is that in removing the placenta, or in other ways, he may have conveyed the bacillus tetanus to the vagina, and thence to the endometrium, where was a focus of irritation and absorption.

If, in spite of aseptic midwifery, tetanus develops, what shall be our course of treatment? Remove or counteract the cause if you can. If you have any doubt about the placenta being entirely removed,—by a curette or by Emmet's forceps you may ascertain, and then afterward wash out the uterus as often as may seem necessary, by an antiseptic solution. Any abrasions from which the disease may have originated should be promptly cauterized with carbolic acid. Those remedies that are valuable in general tetanus are useful in puerperal tetanus. It is not the province of this paper to speak of all the

remedies for tetanus. One prominent writer gives thirty-three remedies, ending with antitoxin.

The writer has had two cases of idiopathic tetanus recover by the use of morphia hypodermically and chloral hydrate. Also a boy 10 years old recovered from a severe attack of tetanus resulting from a crushed thumb, by the use of the same remedies, the morphia given at long intervals, once or twice daily when the chloral failed to control the convulsions.

The most recent remedy is the antitoxin of Tizzoni and Cattani. This remedy is a solid material obtained by treating blood serum with alcohol and drying in a vacuum. Finnoti reports a case in which antitoxin was prepared from the blood serum of a dog which had been rendered immune, probably by hypodermic injections of attenuated cultures. This antitoxin was used on a boy in whom tetanus resulted ten days after a surgical operation. He was given from 15 to 20 centigrams daily, dissolved in three cubic centimeters of sterilized water. The boy improved daily from the treatment and made a good recovery. The *International Medical Annual*, 1892, gives an account of the first case cured by this remedy.

Tarruffi reports six cases treated by antitoxin with one recovery, the man being 75 years old; 25 centigrams of the immune serum being injected daily.

Pacini reports a traumatic case in a man 21 years old, who was promptly relieved by the hypodermic injection of 25 centigrams of antitoxin at 10 A.M. and 4 P.M.

Up to 1894 as many as eleven cases of traumatic tetanus have been reported as cured within two years by antitoxin. In general, the remedies used most successfully in non-puerperal tetanus would act similarly upon the bacillus of tetanus puerperarum. Besides prophylactic measures and a supporting and stimulating diet, and the reliable antispasmodics, it would be well at once to use the antitoxin as soon as the first symptom appears. This is the rational and scientific treatment, and one which it is hoped will become more and more efficient in this very fatal malady.

DISCUSSION.

THE CHAIRMAN—Dr. Montgomery has a very ingenious instrument here which he may show you.

DR. MONTGOMERY—While passing through Kansas City the other day I met a Dr. Baum of that city, and I was shown an instrument by him and was given a paper, a short description of it, which I will now read. (Reads paper.)

DR. MARTIN—I hope the Section will not get sick of seeing me get up, but I wish to say just a word in regard to what I should call a sort of infernal machine. In the first place I am very sorry that the author of the instrument is not present; at the same time I am glad to have the opportunity of expressing my disapproval of a Professor of Gynecology of Jefferson College, Pennsylvania, bringing such a machine before an audience of intelligent physicians—I think that he is almost a party to the crime. Now the objection to the instrument, besides a number of minor ones, are these: First the operation is entirely in the dark. While we are afraid of this certain mortality in abdominal operations, I would prefer to have a certain mortality to a very uncertain one that we would have with this. In other words, if the uterus is to be fixed to the abdominal walls, I would prefer to open the abdomen and fix it; I would prefer to open the abdomen, scarify the uterus, scarify the peritoneum and sew the uterus to the abdominal wall in a secure manner with a certainty of its becoming fixed. That

we are not positive of with this instrument. I do not believe that this instrument would fix the uterus to the abdominal wall, in nine cases out of ten, longer than the stitches would remain. The author of the little paper or sketch read by Dr. Montgomery states that the stitches by pulling and drawing and tearing might produce enough denudation to produce a cause of adhesion. That is just the essence of poor surgery—he depends upon an accident; something that ought not to occur to make it a success. Then I would like to know how on earth Dr. Baum or any one recommending this instrument would avoid always the bladder. Dr. Montgomery and every man who has done abdominal operations has found, time after time, great sacculated bladders which it was impossible by means of a catheter to evacuate before doing the abdominal section—large sacculated bladders, which can not be entered, and in which a sound will not reach the bottom. I would like to know how a bladder of that description—and they occur very frequently—could be avoided by this instrument; and if it is not avoided, what is the result? Death, every time. Now, the physician will throw the intestines out of the way, nine times out of ten if they are not adhered, but how many times did Dr. Montgomery and everybody else who performed the abdominal section, not only find the intestines adhered to the fundus of the uterus but adhered to the inner basin of the pelvis? And I would like to know how, with an empty intestine after the patient has been prepared for laparotomy as Dr. Baum suggests, and the intestines are entirely emptied, how by what manipulation even the most expert will be able to state that the intestine is not adhering to the fundus of the uterus? Then what would happen if we ran these things through? The patient will die every time. I believe sir, that this instrument is an infernal machine, and I hope that it will find its oblivion right here before this Section. As we are here to propagate things that are good, I believe that we are here to bury the dead.

THE CHAIRMAN—I want to say that Dr. Montgomery is not responsible for bringing that here. I am responsible myself for allowing it to come here. He even approached me with fear and trembling at the thought of suggesting it, and was filled with hopes and despondency and much hesitation, struggling prayerfully toward his duty in the matter. I said: "Why, of course, present it," and the thought that came to my mind was prompted by a remark that a distinguished professor made some years ago. He brought an immense instrument before the students, took it out of a box, paraded it before them in all manner of shapes and styles, and he said: "Gentlemen, I brought this instrument here to-day for the purpose of saying to you that it cost me \$80 and isn't worth a damn." I am not quite sure, however, but what in a given case, with the patient in a proper position and a thorough exploration of the bladder, this might afford some relief. I am not disposed to say that the instrument has no merit. (A doctor asked: "Would you like to try it?") That is like the colored man who when he was asked: "Who made God," said: "If you keep on asking questions you will bust my religion."

DR. MONTGOMERY—Mr. Chairman, I feel that the Section and particularly Dr. Martin is under obligation to me for the privilege of affording him the opportunity of standing up as the sponsor of good method, and it is not but what some of us think of the injury he did to the profession in his earnest advocacy a few years ago of electricity. In the remarks I made after exhibiting this instrument, I said: "Its position must be a limited one; that if I was going to offer such an instrument I should prefer to use this one that has been introduced and has been advocated by a number of surgeons of this country for displacements of the uterus, and known as the shifting machine, and which in a

great majority of cases necessarily resulted in an injury to the child. I say that this instrument is not one which should be used in those cases in which there were pelvic adhesions or possible adhesions of the abdominal wall to the uterus, and there would be a certain amount of danger of injury to the child. That is certainly true, what Dr. Martin said, but such an instrument would be serviceable in a very limited number of cases. I can see, however, that with proper procedure with proper care, in the matter, that this instrument might in a limited number of cases serve a useful purpose.

DR. CHESNEY—Mr. Chairman, it has occurred to me that I might with some profit relate an experience that has some bearing on the paper read in regard to tetanus, although the experience was not carried out on the strictly scientific lines laid down in the paper. Dr. Maxwell relates in his paper that a post-mortem examination revealed a small portion of adherent placenta with points of irritation which he supposes may have been foci or a focus of infection. Without entering into any discussion as to the special bacillus of tetanus, it may fairly be presumed in all cases of puerperarum tetanus that the offending cause was some kind of dirt. And if the practitioner neglected the wise precaution of Dr. Garrison, of Illinois, to go into the kitchen and get the kitchen soap and scrub thoroughly, or was unfortunate in not having the opportunities of Dr. Martin, of Chicago, to use the permanganate of potash or oxalic acid, we would not be surprised if we had some such after development. But, practically what should be done in the case detailed? The Doctor did not employ the antitoxicon; he employed morphia hypodermically and chlorate hydrate by a rectal enema without success. Now in my opinion, he might have presupposed, as I say, some point of infection in the puerperarum surroundings, and have directed a local treatment to cleansing and removing such foci, or such points, or such infected material as may still have remained there. This brings me to the case in point: Several years ago I had a case in which the initial symptoms of tetanus made themselves manifest—rigidity of the muscles of the throat and some slight symptoms of opisthotonos, and without knowing it, and on those general principles that we are obliged to have recourse to, I used a solution of 1 to 3000 parts of bichlorid of mercury and washed the cavity out thoroughly; then afterward washed it out thoroughly with water that had recently been boiled, and had this procedure repeated once in eight hours for several days; the symptoms within six hours began to show some amelioration. I used a hypodermic injection of atropia alone with benefit, and with rectal injections of peptonized milk—I do not know that that had any advantage but it was used. I am inclined to believe, however, that the recovery of the case depended on the thorough washing, first with the bichlorid solution, and afterward abundantly doused with boiling water.

I suggest, as a practical suggestion in all such cases, where there is the least doubt, that the uterine cavity should be thoroughly cleansed by injections if possible, by curetting if necessary. It goes without saying, also, that I make this suggestion only in cases where no instrumental assistance has been necessary in the delivery. I take it for granted that under ordinary circumstances where the practitioner has not had, or has not employed, either facility in his delivery (where he has not had opportunity to place his patient upon the table as suggested by our Secretary, but had been obliged to use the bed as he almost always will be obliged to do) that in all cases where the instruments have been employed or where the hand has been employed in the uterine cavity that the douche could always be used. But the suggestion is that in those cases where no such procedures have been necessary and where no untoward symptoms

develop afterwards that then the first procedure should be a thorough cleansing.

In regard to the little instrument that has been designated, I am confident that all of us who know Dr. Montgomery are abundantly assured that he presented this instrument under a sense of duty to a member of the profession who could not be present. We are abundantly confident that no necessity could arise that would induce a gentleman of his judgment to use such an instrument himself. There might be some circumstance or set of circumstances where its consideration would be justifiable; but it is undoubtedly true that it would be infinitely wiser, infinitely easier and infinitely safer for the patient, to open the abdomen with the certainty of cleanliness, with no danger of carrying matter from an open uterine cavity into a concealed peritoneal cavity.

In reply to a question addressed to Dr. Montgomery as to whether this case was a recent one, or whether it occurred in 1881 when there was such a prevalence of tetanus throughout the United States, it was ascertained by reference to the paper in question that the case occurred Oct. 13, 1893.

DR. EASTMAN (Chairman of the Section)—While I would not renew the discussion of yesterday in regard to abdominal surgery, I would simply refer to one point in connection with that subject. I have been induced to do this by some comments which I see in public print made yesterday, in the Surgical Section striking at one of the most important means of securing successful results in suprapubic hysterectomy. I mean the private hospital.

The gentleman seems to impugn the motives of those who conduct private hospitals; he seems to entertain the idea that a man who conducts a private hospital might possibly get onto the hotel plan of keeping his guests a long time; that the longer he would keep them the more money he would secure. While I am not very well versed in the Holy Bible I do recollect that it says somewhere: "All things are pure to him that is pure." I would particularly refer to what I said at the beginning, yesterday, that the time had come when as I believe we should rescue abdominal surgery from the general surgeon and bring it to the gynecologists and to the Gynecologic Section. I am now convinced from the remarks of the Chairman of the Surgical Section, yesterday, that it is no longer *safe with them*; that they would strike at the very life so to speak of abdominal surgery. I would have such gentlemen to know that abdominal surgery was born in a private hospital, has been nursed in private hospitals and has grown up to fully developed manhood in private hospitals. I would have the gentleman to know that Ephraim McDowell who made the first operation on Mrs. Crawford on Dec. 13, 1809, did so in a private hospital. It was therefore in a private hospital that he, McDowell, struck out on the trackless desert of abdominal surgery which now blooms and blossoms as a most fertile field. I would have the gentleman to know that it was in a private hospital that Thomas Keith electrified the world with the publication of his great work in abdominal surgery. I would have the gentleman to know that it was at a private hospital, the Samaritan Hospital of London, where Sir Spencer Wells did his most important work in abdominal surgery (practically a private hospital). I would have him know that it was in a private hospital that Lawson Tait first woke up the world with his marvelous announcement reporting 140 cases of abdominal section without a single death. And therefore I can not allow the Chairman of the Section to make such an expression without this Section replying to it in some measure, and I hope the reply will go on record, to the end that he may inform himself by reading. He may say that I am particularly interested in a private hospital. If so, I would simply say

my private hospital began by taking a patient to my home as McDowell did, to watch over and care for her, and to have such results as only a private hospital could secure. I can not conceive of any such remark coming from anybody but a bachelor who has not the warmth of heart to make a good gynecologist; or to preside over a home in which he could do as McDowell did, take the patient there and care for her with paternal care, and secure such results as can only be secured in a private hospital presided over by the operator. I do particularly resent the imputation that a surgeon would be dishonest. I am not over and above honest, so far as comparison with other men is concerned; but while I have a private hospital and while many of my colleagues, including such men as John Homans, J. A. Emmet, T. Galiard Thomas, R. S. Sutton, E. E. Montgomery and others in America; August Martin, Keith, Tait and many others in the old world, have private hospitals, and are doing good work, I will say we are just as honorable, and would not keep a patient a moment longer to secure a dishonest dollar, than the man who would impugn our motives in running private hospitals.

RECTO-VAGINAL FISTULA; ITS ETIOLOGY AND SURGICAL TREATMENT.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY AUGUSTUS P. CLARKE, A.M., M.D.

CAMBRIDGE, MASS.

The rectal tissue appears to be often the seat of morbid processes which may extend to neighboring structures; when the vaginal wall is also involved the result may be attended with much inconvenience. An abscess may form in the lower section of the sigmoid flexure or in the cellular tissue about the rectum and the exudation may be discharged or may break through into the vagina. Ulceration may take place in the small intestine and also open into the vaginal tract. The employment of the obstetric forceps has been looked upon as productive of rectal fistula, though I have never met with a case in which I could feel certain that the lesion was so produced. Prolonged pressure of the fetal head or of some other portion of the child upon the posterior vaginal wall has not infrequently been associated with the occurrence of this mishap. When the fistula occurs from this cause the openings vary; sometimes there is only a small perforation, at other times a large portion of the posterior vaginal tissue may slough or be destroyed.

Recto-vaginal fistula may occur from violence or direct injury to the parts, as took place in a case which came under my care some few years since. The patient who was the subject of the accident was aged 30 years; she sustained a direct fall of five feet upon a sharp wooden peg, four and a half inches in length. This penetrated the anus and passed through the rectum two inches above the perineal bridge into the vaginal canal. The shock for awhile was severe; but she rallied, however, and recovered with a fistula opening into the vagina, and of size sufficient to allow the passage of a No. 27 sound, of the French scale. The opening has since been closed by an operation performed by a flap splitting method as recommended by Max Saenger, of Leipzig. Rectal fistula may result from fecal impaction and sometimes from stricture of the rectum; when associated with stricture we may entertain a suspicion that the patient is affected with syphilis.

In rare instances an abscess communicating between the rectum and vagina has been known to have its origin in the caput cecum coli; and in suppurative pelvic cellulitis, and pelvic peritonitis and in other morbid processes connected with the sexual system. Fistulous channels resulting from malignant disease, such as sarcoma and carcinoma, and from syphilitic infection are according to the consensus of authority the most unsatisfactory to treat. I have met with a few cases in which the communication between the rectum and vagina was caused by tuberculous infiltration which had extended from the abdominal cavity to the peri-vascular structures at the seat of the abdominal opening. Vestibular recto-vaginal fistula may result from attempts at plastic operations in the vicinity of the rectum and especially from flap-splitting for repair of a lacerated perineum. Such a fistula may be of the recto-perineal variety, or be a recto-laquearis when situated in a higher level in the fornix of the vagina. This would most likely occur in cases in which there had been an hyperplasia and a subsequent induration of the recto-vaginal septum. I have met with at least two such cases in which an operation for the closure of the opening was necessitated. An abnormal communication through the posterior vaginal tissue into the rectum may be established by the occurrence of pelvic peritoneal suppuration, and by suppurating dermoid and other cysts and by ectopic pregnancy; the products of the morbid processes attending these conditions may result in their escape through the vagina and rectum.

The cases in which the greatest success is expected to be achieved are those that may be denominated the traumatism of parturition. Recto-vaginal fistula arising from peri-rectal suppuration or peri-vaginal inflammation or lesions should be treated according to the several indications in each individual case. In one case in which the solution of continuity occurred from processes leading to suppuration, I succeeded in effecting a cure by a thorough curettement of the margin of the fistulous tract and by removing all the fungoid growth; then undermining at some distance and lifting away the vaginal tissue so as to expose to view the rectal portion beneath. The edges of the rectal tissue were then brought together by deep buried continuous aseptic animal sutures so adjusted as not to penetrate the rectal mucous tissue. After the rectal structure had been united, the vaginal portion was then replaced and so affixed by the sutures as to close completely the abnormal communication; the parts were then dried and covered with the compound tincture of benzoin and iodoform and protected with tampons of iodoform gauze. The wound closed by primary union. In the treatment of fistula, cauterization of the edges may sometimes be successfully resorted to. In carrying out this method the thermo-cautery or the galvano-cautery will sometimes be helpful; in some instances the hot iron, formerly more often employed than now, may occasionally be tried with advantage. The cases in which such a course is indicated are not numerous; in those cases in which there is any considerable phosphatic deposits about the edges, or in which there is indurated and thickened tissue around the fistulous margin the adoption of this method will not prove successful. It is only in cases in which there are healthy granulations springing up about the edges of a fistula with comparatively narrow opening that

the employment of cauterization in any form will be likely to yield favorable results. The method of flap-splitting as employed in perineorrhaphy comprises the best procedure as a preparatory step in a typical surgical operation for closure of such a fistulous tract. By this procedure there will be no loss of normal tissue; the openings in the rectal tissue should be closed by continuous aseptic animal sutures. The suture obtained from the kangaroo tendon is to be preferred. In no event should the suture penetrate the rectal mucous membrane; after the rectal septum has been sutured the vaginal portion should be closed from its under surface.

I can not advise the use of Lauenstein's sutures for the reason that in extensive lesions the many knots which this method necessitates to be tied in the sutures are liable to prevent speedy and complete cicatrization of the wound. In attempting to raise a flap or to undermine the vaginal tissue the line of incision should extend 1.5 centimeters above and below the fistula, as is advised by Saenger, and should be in depth in the tissue upward 1.3 centimeters. In some cases, after first undermining the vaginal tissue, the flap can be turned up by drawing merely upon the tissues, using the knife or scissors only at the point in which the parts are adherent; in other instances the subvaginal tissue may have undergone such changes by a previous hyperplasia that the recto-vaginal wall can not be separated without great difficulty. Recto-vaginal fistula may sometimes be closed by a mere denudation of tissue, but when the opening is near the perineum the vascularity of the tissue at that point may be so deficient that union will fail to take place.

The old method by transplantation of flaps from other parts as from the anterior vaginal wall, or from the rectum, and even from the cutaneous surface for certain peculiar conditions, may be occasionally tried, though operative attempts by such method have rarely been attended with success. Fistulae situated high up in the fornix are more difficult to reach; if the opening is small and the pressure through the intestinal wall is not great, division of the septum may be effected, and the recto-vaginal portion should be sutured after the manner above mentioned. If, however, the communication is of a large size the closure may be attended with greater difficulty.

Saenger,¹ of Leipzig, to whom reference has been made speaks of a method of treatment by perineotomy. The perineum is split transversely and the levator ani is partially divided; the portio vaginalis is then drawn down and the opening in the vulvovaginal canal is thus closed and the sutures are applied to the vaginal wound. The operation by splitting the recto-vaginal tissue is the one best adapted in those cases in which there is a due degree of vascularity in the vaginal structure for insuring immediate union; in the higher segments of the vulvovaginal canal the arterial supply is the most plentiful. In the lower portion the nutrition is often extremely limited. Saenger uses fine aseptic Chinese silk for buried sutures in this work; he prefers silk to catgut in effecting closure of the rent. He makes no mention of the use of tendon sutures. In his paper he calls attention to important points in methods of operating by the splitting of the recto-vaginal septum

from the perineum. His method though not complete in all respects contains principles that are capable of being utilized to the highest advantage in procedures necessary in this kind of plastic surgery.

Recto-perineal fistula though not as serious a lesion as when the rent is situated higher in the vaginal wall proves for the most part very annoying. In my practice I have met with a number of cases of this variety and have found that operative measures similar to those for fistula ani have been necessary for speedy and complete cure. As already stated, recto-vaginal fistula can not be easily cured by merely freshening and suturing the edges of the opening, nor can it be readily overcome by a triangular denudation of the vaginal layer. Such a loss of tissue by procedures of this kind does necessarily weaken the normal vascularity of the parts and so prevents closure of the communication and also entails danger of the occurrence of a greater opening.

The cure of a recto-vaginal fistula located at or near the sphincter ani may be prevented or delayed on account of frequent contractions occurring in the muscular tissue of that part. In such cases thorough division of the sphincter and sometimes of the perineum either by incision or by stretching of the parts by digital dilatation as was formerly recommended by Van Buren should be had recourse to. Recto-vaginal fistula is often more difficult to heal than a vesico-vaginal one. This is especially so when the fistula is situated on a higher level and where it can not be brought down and exposed to view. The location of a fistula situated very high up or not within easy reach may be inferred from the character of the fecal discharge which is usually much more yellow than when occurring at a lower point. The fact that the opening of a recto-vaginal fistula is much more extensive on the vaginal than on the rectal aspect necessitates a resort to the method by division or splitting of the septum; by this means the rectal portion may be more easily reached. It should then be carefully sutured in order to insure at least closure of that portion of the structure which separates the two canals from each other. If the opening in the rectal portion can be made to unite by the first intention that of the vesical side if interrupted may subsequently close by granulation. In all cases after the sutures have been inserted the parts should be irrigated again with the warm sublimate solution and should be dried, and protected by the application of iodoform or aristol or iatrol. For the first few days the bladder should be regularly emptied by the employment of the catheter. The bowels should be kept in a solvent condition, and the wound should be subsequently irrigated with the sublimate solution or with warm water, whenever any urinary or fecal excretion or other septic matter may have come in contact with its edges.

Ovariectomy Performed During the Course of a Puerperal Septicemia.—Pinard (*Bull. Acad. Med.* 20 Fevrier 1894) reports a case by Le Roy des Barres. Young multipara, four days after childbirth had symptoms of peritonitis; fifteen days later pleuritic effusion, and phlegmasia dolens. There was also a suppurating cyst of the ovary. Aspiration evacuated six litres of purulent liquid. Eight days later laparotomy was performed; there was found a unilocular cyst with a normal pedicle; a cure resulted.—*Revue des Science Médicales*, July, 1894.

¹Operative Treatment of Recto-Vaginal Fistula. Transactions of the American Association of Obstetricians and Gynecologists. Vol. 3, 1890.

VENTRO-FIXATION IN EXTREME ANTERIOR DISPLACEMENTS OF THE UTERUS.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY H. R. HOLMES, M.D.

PORTLAND, OREGON.

It is fairly understood that gynecologists are at variance in regard to their ideas of the clinical import of extreme anteversion and anteflexion of the uterus. Some there are indeed, who believe that these unnatural positions are of so little consequence as to merit little or no consideration. Some writers, however, do give these pathologic conditions some attention and cast about in a somewhat doubtful manner, hopeful of remedies for relief from the symptoms and consequences which they are supposed to sometimes produce.

Personally, I am inclined to regard anteversion and anteflexion of the uterus as being of little importance ordinarily, but when the displacement is extreme, or if certain complications are present, the aspect of the case is so changed that much suffering may be the consequence.

I am sure that retroversion of the uterus often exists for years without causing particular distress and I am much inclined to believe that, "all things being equal," retroversion, will ordinarily, rarely require attention from the gynecologist. That retroversion does often imperatively demand attention I do not desire to question, but I suspect that it is so from the coincidence of neighboring ailments in active process. To illustrate: A retroverted uterus with no complications, giving rise to irritation, congestion or inflammation, will find a convenient biding place somewhere within the sacro-cocecygeal curve, but if there be any kind of rectal trouble, particularly of inflammatory nature, by pressure the mal-posing womb may cause circulatory and nervous disturbance.

Retroversion and retroflexion are often accompanied by rectal troubles, such as hemorrhoids and anal fissure. So in such instances it is not more strange that distressing symptoms should be excited, than that functional proprieties should be offended if a square meal be taken by one who has gastritis. Assuming then, that there is indubitable evidence that extreme anterior displacements, although rarely, sometimes produce very great distress, such as pain when pressing upon an inflamed bladder, to which may be added dysmenorrhea with all that goes with it, it is natural that we should compare the remedies in use at present for the treatment of these troubles, and if they do not seem to give satisfaction it is natural, too, to court some measure that may.

In the few cases (six in number) which have come under my care within the last two years, (I would be understood as meaning that of all cases of anterior displacements that I have seen within the time named, this number imperatively demanded treatment), the cases of anteversion could not be treated with pessaries with such skill, or possibly lack of skill as I could apply them with, for the use of pessaries considerably intensified the bladder symptoms. In the anteflexion variety pessaries did, to an extent, relieve a tenesmus, but the dysmenorrhea was not favorably altered. In one case where a distorted broad ligament seemed accountable for the malposition, an intelligent practical trained nurse was em-

ployed to treat the case with massage, and at the end of the second month the position of the uterus was thought to be normal, and it was gratifying to note the absence of all symptoms referable to the uterus. Digital exploration also found everything satisfactory. It was annoying, however, to a sensitive nature, to observe during the next four months all the old symptoms, subjective and objective, gradually return. These symptoms were dysmenorrhea, pelvic tenesmus, irritability of the bladder, backache and excessive irritability of the nervous system.

It occurred to me that suspension of the uterus by ventro fixation in anterior displacements might, by taking pressure of the tender bladder afford relief, as is done in ventro-fixation for posterior displacements, by taking pressure off the rectum and other tender structures. I also hoped that in some cases the procedure might measurably relieve dysmenorrhea, as the body of the uterus being fixed, the weight of the bladder and vagina would tend to alter the direction of the uterine canal so that the menstrual flow would meet with less obstruction.

During the last eighteen months I have treated, after giving the milder means a fair trial, six cases which suggested the title of my paper, and I beg to respectfully submit a report of these as testimony in support of the plan:

Case 1.—In June, 1892, an unmarried woman, 30 years old, came to me complaining of dysmenorrhea and constant pain in the region of the bladder. Her complaint had been growing worse for ten years. A careful examination resulted in diagnosis of acute anteflexion of uterus. Dilatation and a stem pessary were tried according to the practice of Dr. Hanks. The next period was attended with less than her usual amount of suffering and the pain in the region of her bladder was for several weeks less than before, but it soon returned as did the dysmenorrhea. I persistently employed pessaries, tampons, and massage, and yet all that I tried gave no permanent relief, and I began to think of raising the uterus up and fastening it to the anterior abdominal wall. November 10, following, I was called in the night to see the patient and found her suffering from an intense pain which had attacked her as she ran to avoid a storm, and from the great shock she suffered together with the physical signs and further history she gave, I was led to diagnose a ruptured tubal pregnancy. Next day the abdomen was opened and a fetus of about ten weeks was removed, as was the ruptured tube and corresponding ovary. On account of an extensive follicular degeneration of the other ovary, and an inflammation of the tube on that side, their removal was practiced also. The uterus was raised up and the fundus was attached to the abdominal wall about an inch and a half above the pubes. Convalescence was uneventful.

Two months later she informed me that she had no pain about the bladder, and instead of having to urinate every hour or two as formerly, she was able to retain her water four or five hours without annoyance. May 11, and just eighteen months following the operation, I called to see the woman and she declared that since the operation, she has never had bladder trouble, or indeed any other trouble, excepting the flushings and such other manifestations as usually, come along with a precipitate menopause.

Case 2.—Miss C., age 26; sent by Dr. Mac H. Whitney of Portland, March, 1893. Extreme anteflexion; os closely approaching fundus uteri; had painful menstruation and frequent painful urination for eight years; the dysmenorrhea even antedated this period three years; she was now neurasthenic. Attempting to pass a uterine sound, it was found impossible until, while a Sims speculum was being used a tenaculum applied to the anterior cervical lip, gentle traction so changed the direction of the canal that the sound readily entered at about the ordinary curve. Ventro-fixation was done May 3, 1893. In a recent conversation Dr. Whitney said to me: "Miss C. is quite well and has been so ever since the operation. The uterus hangs from the point where it was fixed; the flexion seems to be overcome. She menstruates regularly and with very slight pain. Her bladder symptoms have gone, as the frost vanishes before the sun."

Case 3.—Mrs. R., age 28; consulted me June, 1893, with following history: Married eight years; 2-para; always had good health until second child was born, three years ago; cervix uteri torn, perineum was very much relaxed; leucorrhœa and irritability of the bladder were the first symptoms to show themselves and were soon followed with constant pain in region of the bladder; the vesical manifestations were considerably increased at monthly periods; the periods came on regularly as to time, but after twenty-four hours there is an intermission of the flow for twenty-four hours and then the flow continues two days more with quite severe pain; there is an extreme anteversion of the uterus; the urine passed during the night and morning when examined is found to be of alkaline reaction sp. gr. 1010 and there is an abundance of mucus contained in it.

Benzoic acid improves the quality of the urine for a time, but for a short time, for the drug deranges the digestion. For four weeks the bladder was washed out every fourth day, using first warm normal salt solution, then a solution of borax ʒi—Oj, and during the last two weeks 2 grains of nitrate of silver to the ounce were tried.

All I can honestly say of the effects of the remedies employed is that they were of marked temporary benefit. The treatment of this patient by a number of physicians, including myself, marks a range of several years and not being satisfied with results, suspension of the uterus was suggested and practiced September, 1893. Within a fortnight following the patient ceased complaining of bladder symptoms and within three months had taken on an appearance of general well being and I am permitted to report that at present writing she is enjoying good health.

Case 4.—Mrs. M., age 40; multipara; sent by Dr. Cathey, of Woodburn. Had been in bed most of the time for the last eighteen months; had lacerated cervix and perineum, as well as chronic cystitis and extreme anteversion of the uterus.

The cervix and perineum were repaired according to Emmet's method. The sutures were removed from the perineum in ten days and good union found. Six weeks later the cervical sutures were removed and the mechanical result was pronounced good, and yet there were annoying bladder disturbances, pressure symptoms. The abdomen was now opened, and uterus sutured with two No. 8 silk sutures to the anterior abdominal wall, an inch and a half above the pubes.

In a paper read before the Portland Medical Society, Jan. 3, 1894 entitled, "A Year's Work in Gynecological Surgery Without a Death or Stitch-hole Abscess," I reported this case stating that although there was yet some inflammation of the bladder all the pressure symptoms had gone. The paper being published in the *Medical Sentinel* for January, 1894, and Dr. Cathey having read it, wrote me Jan. 24, 1894, from which I copy the following: "In regard to Mrs. M., your report does not do you justice, in that her vesical trouble is comparatively gone. She has not had an attack of vesical irritation since she came home from the hospital. She is entirely free from the pressure symptoms which she had constantly for years before the operation of ventro-fixation. She is walking about and to use her husband's language, seems a different woman."

Case 5.—Mrs. S., age 29; married ten years. Never had been pregnant. Consulted January of present year. Briefly, had dysmenorrhœa vesical pain and tenesmus at menstrual periods. Examination led to diagnosis of extreme anteversion; the uterus directly pressing upon a chronically inflamed bladder. After a month's treatment with discouraging results, ventro-fixation was advised and accordingly done February 9. On May 12, Mrs. S. called at my office to express her gratitude and said she had, since leaving her bed two weeks after the operation, felt perfectly well. Had menstruated three times since operation with very slight pain and no vesical tenesmus.

Case 6.—was operated on in the last part of April and it is too early to report. It was the counterpart of Case 2, and there is every reason to hope eventually for even as good results as were had in that case.

CONCLUSION.

I am not aware that this operation was ever suggested until by me in 1892. I presume it was never practiced until November of that year. That I was deviating to an extent from popular professional sentiment regarding the significance of anterior displacements of the uterus, I was well aware, and yet,

while the staggerer who falls upon his face is just as apt to suffer, or to cause suffering to those he falls about, as he who falls upon his back, I am just as willing to lend a helping hand to one as to the other. It is not likely that this procedure would have yet been introduced had not our own Dr. Kelly proven in this country the utility of ventro-fixation in posterior displacements. I trust I may be pardoned for the remark that I have seen, I think, certainly as much relief from the procedure in a case of anterior displacement as I ever have in the posterior variety, while I am a believer in the operation in posterior displacements and practice it frequently.

My cases, true, were not uncomplicated, but will not the advocates of ventro-fixation for other conditions have observed that their cases were also complicated?

In cases of dysmenorrhœa due to anteversion, I should do the fixation with a hope of best results only when the tenaculum applied to the cervix by moderate traction, the uterine canal could be changed to the extent of permitting the ready introduction of a sound, believing in such cases that traction of the bladder and vagina would so alter the direction of the canal that the menstrual flow would meet with no considerable obstruction. I recognize that this operation has not had sufficient trial to appraise its value and yet the uniform results of the few cases reported, do seem to me, to speak no uncertain sound, and I desired that the world should hear it.

DISCUSSION.

DR. H. P. NEWMAN—In regard to Dr. Holmes' paper, I was much pleased to hear a paper upon this subject. However, the indications for treating introversions or introflexions of the uterus, as you all know, are not to be compared with retro-displacements. We have a different class of troubles to deal with, and the surrounding circumstances are in strong contrast to those of retro-displacements. The indications for operations in anterior displacements are not so marked as compared to those of retro-displacements.

It is well known that in operations for retro-displacements we have in mind this factor: The aid of abdominal pressure in sustaining the uterus. In the anterior displacement there you have the abdominal pressure probably as a factor in keeping it up, in place of aiding you in keeping up the pathologic condition.

But my experience is, if there are symptoms associated with anterior displacement of the uterus, it is usually dependent upon conditions outside of the mere position which the uterus holds, and as the previous speaker has just said, very often it lies in some broad ligament affection, and not in the uterus itself. I would have these points thoroughly weighed before we put forth any other methods for anterior displacements of the uterus. However, I commend the author of the paper for his fortitude in presenting it, and in being a pioneer in that class of work.

DR. McLAREN, St. Paul—I would like first to speak in regard to Dr. Holmes' paper. We have here a large and important subject. I am very glad that Dr. Holmes has been able to make these experiments in the direction of relief from inversion and introversion, although I believe as he does, and perhaps even more strongly, that they are given altogether too much prominence even to-day. The uterus naturally lies against the bladder. That the small weight of the body of the uterus lying against the bladder can produce chronic inflammation I don't believe; that it may produce an irritable condition of the bladder perhaps we must admit.

The Doctor takes up the position of fixation of the uterus to the anterior abdominal wall, and relates six cases. To my mind some of those cases should be included under the head of chronic endometritis. There are a number of these cases which give the exact symptoms which Dr. Holmes describes who have their leucorrheal discharge, and still can be relieved by other means.

In the third case the Doctor mentions there was a laceration of the cervix. I did not understand whether he operated on the laceration or not. I believe a longer period should be given than is often the case before laparotomy is resorted to. Laparotomy is still a serious matter. If there is only 3 per cent. of mortality, if the 3 per cent. happens to be in your own family, it presses upon you as it would in no other way; and I feel that it is only in the hands of the experts that the mortality is as low as 3 per cent.

In the fifth case the Doctor speaks of chronic inflammation of the bladder, which he may not have meant exactly in that way.

It is not proven that the fixation of the uterus for retro-displacements is everything that may be desired. I have seen several cases operated on by Dr. Howard Kelley, and by Dr. Lusk, of New York, all of which had broken away in a short time. Some of them returned to their distress, and others gaining some relief. As Dr. Holmes says, many cases of retro-displacement are not pathologic. In many cases there is a complication with either disease of the tubes or ovaries.

DR. E. R. HOLMES—Mr. President: I sanction every word said by yourself in regard to that training which is necessary to a specialist in order to fit him for the work before him. I must say, too, that I approve more fully the ideas of the first speaker than he understands from my paper. Now I may be pardoned for calling attention to the fact that I stated in the beginning of my paper that I was proposing an operation to be used only in exceptional cases. I assure you that my diagnoses in these cases have been carefully made that I have presented to you.

I am reminded of my own position by the gentleman who insists upon a certain training that one must have in order to fit him for special work. Something like seven years ago I became a specialist through force of circumstances. I engaged in the practice of medicine seventeen years ago, and the character of work I was doing was general, as I was in a remote district, and it was necessary for me to do gynecologic work, which led to my making it a specialty. I studied gynecology with Prof. S—, of Brooklyn; afterwards took a special course in the Post-Graduate School in New York; I took a special course in ovarian tumors, and a special course of gynecology with Wm. Baker; and during most of a year spent in London I was continually associated with Dr. Keith. I have habituated myself to diagnosing carefully. I have been the gynecologist of the Portland Hospital, and have had an active practice.

I have culled these six cases I presented to-day from a great number of cases, in order to emphasize the possible value of this plan which I present to you.

I want to present one more case, and then I have done. This patient for the last eight years had been suffering from the trouble I am speaking of, and had spent half of the time in bed, and the last six months all the time, still having bladder pressure symptoms. After the uterus was raised and fastened to the abdominal wall she was relieved from her trouble. This seems to indicate that it was the operation of raising the uterus and anchoring it to the abdominal wall that gave her the much desired relief.

Blank Applications for membership in the ASSOCIATION at the JOURNAL office.

A PLEA FOR MORE THOROUGH TRAINING IN GENERAL MEDICINE AND OBSTETRICS ON THE PART OF THE GYNECOLOGIST.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY HENRY P. NEWMAN, A.M., M.D.

CHICAGO, ILL.

In the pursuit of any calling or profession, as time advances and experience widens, certain conclusions force themselves upon us as the result of individual observation. These develop into positive opinions and generally strike us as original, since they are born of our knowledge of things as they are and our convictions of things as they should be. But very often we find that other workers in the same lines have been impressed with like certitudes, and have arrived at conclusions identical with our own. If, then, it happens that certain necessities or reforms are urged simultaneously by many careful and competent observers, it follows that there must be strong indications for their iteration, and if the matters be of any moment too much attention can not be given them. With this in mind it has occurred to me to offer to my colleagues in the gynecologic specialty some suggestions relative to this branch of medicine in its present aspects and its immediate outlook.

It is evident from the testimony of many good authorities that, in spite of the wonderful progress of modern medicine and the brilliant attainments in surgical and mechanical methods of healing, we have reason to fear for the unity, integrity and honor of our profession. It is useless to shut our eyes to the fact that danger threatens, or to put it aside as sensationalism *sans* foundation, for the warning comes with greatest insistence from those who have so far sustained reputations for accuracy of observation and calmness of judgment.

Many eyes are fixed with apprehension upon the little cloud, now hardly bigger than a man's hand, which is appearing in the fair skies of this successful era of gynecology and threatening to overcast the whole horizon. Its presence there may cause this generation little positive harm, but it is gathering portent for the future. So long as the substantial wisdom, clear-sighted diagnostic ability and sound practical judgment of those who control affairs in medicine to-day shall continue to prevail we have little to fear. It is the on-coming period for which we plead.

The ease with which the most delicate surgical operations can now be accomplished, and the skill which can be acquired by frequent operating, together with the comparative freedom from fatal consequences which has been secured by modern aseptic and antiseptic methods, offer a menace to the public weal whose proportions are destined to give serious trouble to the next generation.

That there is a growing tendency among graduates to enter at once upon the practice of a specialty without suitable preparation is too apparent to be gainsaid; and it is in this tendency that the greatest danger to the profession lies, more especially affecting the future of the art and science of gynecology.

The field of pelvic surgery has widened and fructified until it offers too conspicuous a temptation to that class of men who are on the lookout for

every opportunity to profit in pocket and reputation by the misfortunes of their fellow-beings.

We may see one kind of specialism in our large stock yards every day where exceedingly clever surgery is done by the man whose duty it is to make the sweeping incision, which with lightning dexterity severs this or that organ from its surrounding structures. He becomes expert almost beyond belief, and does vastly better work than many a professional man—in a purely mechanical way—but his skill is manual only, and is amply remunerated by his daily wage. And yet this man offers the most striking analogy to that specialist who fits himself to do but one thing in surgery, and that for the money there is in it, as we are forced to admit some are doing. As one member of the American Gynecological Society has said:¹ "It is a melancholy truth that tyros in the profession, so far as general medical knowledge is concerned have become expert abdominal surgeons, and have acquired proficiency in technique but without the diagnostic skill which should accompany it, and which some experience in general medicine alone furnishes. *Such men as these are not fair representatives of the best gynecologists of the present time.*"

The italics are mine, to emphasize the thought which is comforting as far as it goes, but painfully suggestive of the situation which may supervene when the present shall give place to the future, and these representative, well-balanced, well-equipped specialists have resigned the careful and conservative knife into the eager hand of rising ambition.

This is not, understand me, a plea for conservative surgery, in the sense in which the term is often used to designate cowardly hesitance or dangerous dallying with morbid processes, often denying to the sufferer the single hope of prompt and radical intervention; for often the success of the operation and the life of the patient depend upon the intelligent seizure of the golden opportunity. No! All honor to the pioneers in fearless surgery, and to the advanced and progressive leaders who have carried the art forward to the present stage of perfection, but let such honors always be vested in just such men;—men who have climbed the ladder, round by round, and carried with them the cumulative benefits of each upward step,—rather than bestowed upon those who would clear the distance by the new, aerial, rapid transit route.

Morell MacKenzie, advocating the still more elaborate subdivision of medicine into yet more restricted specialties, sees the tendency of this advice in threatening the unity of medical knowledge, and qualifies it by insisting that: "No medical specialist is to be trusted who has not received the best and widest education in medicine and surgery, and they undoubtedly make the best specialists, who either as physicians or surgeons, at general hospitals, or as family practitioners, have had the largest and most varied family experience. If under these advantageous circumstances the change be not made too late in life, all previous work can be brought to a focus on one special point."

The dangers of the popularization of specialism in medicine suggested themselves strongly to the thinking mind as long ago as 1850, before the practical working of the system had also demonstrated the counterbalancing advantages, and we find Dr. Worthington Hooker addressing the medical students in old

Yale, after this manner: "With a special attention to any one thing is naturally associated the idea of special skill. But to say nothing of the fact that this special attention does not always result in imparting skill, it often occurs in medicine that a reputation for skill in some particular department is built upon the mere show of study and research."

It may be perfectly safe for any of the old-line specialists to assert that the future of gynecology turns on an enlightened and conservative surgery, for no one questions his ability to comprehend what is enlightened and conservative surgery, and to apply it to properly selected cases, always with an eye single to the benefit of the patient; but what of some of the newer apostles of the creed, "surgery first, last and all the time," whose field of vision is covered with the glittering allurements of many and remunerative operations?

Ten years ago, W. O. Priestley, then President of the Obstetrical Society of London, said to that body: "It has occurred to me in making a general survey of our ground, and weighing our present position, that the great impetus given of late years by many admirable workers to the progress of uterine surgery has tended to throw the balance somewhat too much over to the surgical side of the scale, and that operative and mechanical methods of treatment have displaced somewhat unduly and hurtfully the medical and psychical considerations in uterine cases."

The years which have elapsed since then have only altered the situation, in so far that such a mild statement of the case is no longer adequate to express the situation.

"Psychical considerations" is Greek to the current language of gynecology, and yet it holds a meaning which should appeal to every thoughtful investigator to-day. Woman and her diseases are the professed objects of our scientific care, but is it not evident that her diseases are receiving a paramount degree of attention?

The disease first, the woman second—if at all. A glance through the exhaustive and exhausting indices of current literature in gynecology will illustrate this fact.

Reports of cases, pathologic phenomena and records of astonishing deeds of daring on the part of this or that surgeon repeat themselves *ad infinitum* and *ad nauseam*, while only here and there in the heroic list, a lonesome title appears: "Is woman degenerating physically?" or, "The importance to woman of hygienic occupations," or again, "Some errors in female education and regimen." A carefully selected list of all the feats accomplished by pelvic surgery during the last decade would prove the statement. Thousands of lives have been saved by ovariectomies and thousands more relieved of menstrual troubles and reflex neuroses by the same means, to be no idle boast.

And, since the number of sufferers applying to the specialist for relief is really only a small proportion of the whole number who ought to do so, it also proves that in addition to these thousands of women who have been rendered sterile by surgery, there are many more who are incapacitated by disease from producing healthy offspring.

To be sure, if a woman can not retain her uterine appendages and live, she is better without them: "If thine eye offend thee, pluck it out"; but the man who professes to be an authority upon the diseases

¹ Dr. Edw. W. Jenks.

peculiar to women is criminally superficial if he is content to accept such a state of things as it is, and does not inquire into the responsibility for the terrible alternative.

The outlook for posterity is getting rather bad, and something must be done in its interest very soon. The subject of woman's health touches society at its most vital point, and in this progressive age the eyes of the public will soon be turned this way. If there is to be a movement in favor of health among women let it be directed by the gynecologist, not against him.

The profession has educated the public to high views in many departments of sanitation, and taught it to cope with contagious diseases, epidemics, filth diseases, and others from the rational standpoint of prevention. Just as the prevention of smallpox is more important than its cure, so ought it to be with gynecic disease, which last is a far more dangerous foe to the community. We want to save our women from the suffering which is coming to be the passively accepted inheritance of the majority of the daughters of Eve.

A full discussion of this question would bring us into the domain of sociology, and involve us in complex considerations which are beyond the scope of the present article, but a few points must be touched upon in regard to the duty of the gynecologist to inform himself upon all subjects relating to woman in health and out of it.

The age of idealism is gone for the nonce. Perhaps a return of the ideal woman might bring back the old days of chivalry, when woman occupied a lofty pedestal and the light of romance shone about her head; one can not tell, or whether, indeed it would be a welcomed renaissance—in this material age it is so natural to picture her on nothing more exalted than Chadwick's table, in Sim's or Trendelenburg's or the genu-pectoral position, with the full glare of Edison's illuminator—alas! not on her head.

Whatever relations these matters may bear to woman's rights and wrongs, or to ethics in general, there is a physiologic certainty involved which concerns us as specialists very positively. The future of the race depends upon the manner in which woman performs her physiologic functions, and these in turn upon the success with which her constitutional health is guarded.

The causes of disease in the female being generally acknowledged to be defective development, including congenital defects and inherited tendencies, depraved muscular tone through errors in dress, diet and regimen, disturbances of the circulation, constipation and the like, from similar causes; lacerations and trauma in childbirth and septicemia following parturition; and gonorrhoea, it follows that a practical knowledge of all these etiologic conditions is necessary to the successful practice of gynecology in its broad sense, all of which makes the office of the gynecologist no sinecure and behooves him to be a man of wide observation and special intelligence. There can, then, be no short road to skill in such a specialty. Several years of conscientious work in general practice and hospital work, with particular attention to the province of obstetrics, are none too much for suitable preparation.

As I have said in speaking upon another topic: "Prophylaxis is the text of what the future has to teach us, and hygiene is the key-note of success."

This means that the point of vantage in attacking disease is "before taking," not "after taking." Especially is this true in regard to womankind; therefore a thorough understanding of all that is beneficial and all that is detrimental to her growth and development, and above all a humanitarian interest in the same, is essential to the higher science of gynecology.

Not only to cure the diseases of women but to prevent them, not only to be dexterous in the surgical arena but to be competent to judge of indications and prevent the inroads of physical evils, should be our highest aim.

"The grand difference between men in their power to serve the science or art which they cultivate, lies in the amount of the world's experience, which by the testing processes of observation they have made their own."¹

DISCUSSION.

DR. JOSEPH EASTMAN—I can not help thanking the gentlemen for these two valuable papers, and I would like to speak particularly for a moment upon Dr. Newman's paper. Several thoughts presented in his paper are essentially the same as I expressed some years ago. But they need repeating, and the valuable additions he has made thereto make the paper one of very great importance.

The fact that a large number of men as soon as they leave a medical college take up some specialty and seek to practice, is getting to be a very serious matter. They forget that women have stomachs and livers and kidneys and other organs, as well as those contained in the pelvis, and the practice is based upon the simple one idea.

I call to mind the meeting of a medical society that I recently attended, where a great big six foot two inch sort of a man, his hair parted in the middle, who had taken up the specialty of diseases of the nose and throat, read a paper on that subject. It had been about a year since he had left the medical college. I became thoroughly convinced that he was a type of the men who seek to become specialists immediately after leaving college. I also became as thoroughly convinced that there was one cause of his becoming a specialist, and none other, and that was about like the Kentuckian who had a dog to sell. He said he was a coon dog. He was asked if the dog had ever chased a coon, and he said, "No." "Why do you want to sell him for a coon dog?" "Why," he said, "he isn't worth a damn for anything else." He was simply a specialist because he was too lazy to take up the labors necessary to make him a competent specialist.

Dr. John T. Hodgen, of St. Louis, in his address as President of the AMERICAN MEDICAL ASSOCIATION, made this expression, and I shall never forget it: "The specialist should be a most accomplished physician and surgeon, and something more; too often he is something less."

It would not hurt a young man, as I believe, to have a good manual training, and it would be a means in the line of fitting him to be a competent specialist. I remember hearing a doctor say that it was a sin for a man to take up a saw for the first time to saw off a bone, when he could more profitably have used the saw, and with less damage, in sawing boards and joists.

Mrs. Eastman often twits me for telling people that I worked for three years at the blacksmith's trade when I was about 18 years of age; and some of my professional friends have asked me to quit mentioning that for nine years I was a country doctor practitioner, living in a small village. I insist that if I am a specialist at all, I am such largely by

¹ Prof. Worthington Hooker, of Yale College, 1852.

what I learned in the blacksmith shop and in general practice. The best ideas I get to-day to help me in gynecology are such as I secured in taking private lessons in diseases of the chest, and such as I obtain from general practitioners in consultation, rather than from the medical journals filled up with authorities from the youngsters who are attempting to become specialists, like some of these Democratic Senators, "a tariff for revenue only."

DR. McLAREN—In regard to the excellent paper we heard from Dr. Newman, I can most heartily and most thoroughly agree with every position he has taken. It seems to me that the division between obstetrics and gynecology, as seen in America, is wrong to a great extent, and that we would do better work if our clinic hospitals were conducted like those of the German clinics, where the professor of obstetrics is the professor of gynecology.

A man should not expect to become a specialist at the very hour of his graduation. If he expects to be a specialist in gynecology, after his three or four years course he should have service in a hospital devoted to this class of practice, because no matter how thoroughly learned we are in the theory we must learn it practically. Let a man read and write and work to a great extent on his specialty, but let him do all the general work that he possibly can.

DR. GIBBONS, Idaho—I do not belong to this Section, but there is one thing I would like to say to the specialists. I have charge of an insane asylum, and I have been connected with the treatment of the insane for a number of years. I want to say to the specialists that if you can find a way by which you can unsex the men, you will not have to unsex the women so much. (Applause).

I have observed that my patients in the insane asylum without any special treatment for the uterine organs usually get well. In the insane asylums you will find very little uterine trouble.

MRS. BROWNELL—I do not agree with Dr. Newman's pessimistic views in regard to the women of the present day. I was in Chicago last year and I noticed everywhere the business energy and life of the women of that city, and with what rapidity they moved about.

The older ones will remember that forty or fifty years ago cloth shoes were worn by the women; look at the common sense shoes they wear to-day. I think the ladies of to-day have advanced 20 per cent. within the last ten years in regard to health, and I expect to see the advance continue.

DR. HENRY PARKER NEWMAN—The subject of my paper would be favorable for prolonged discussion I am sure, but owing to the lateness of the hour I think it is best to adjourn. Some one, however, evidently misunderstood the purport of it, by crediting me with attacking the health and development of woman. I do not do so. On the other hand, as a gynecologist and a specialist I hope, and we all hope, to see womankind raised to a higher standard; that is our aim and that is our purpose.

The only idea I had in presenting this paper was to sound the alarm of some of the mischief that is being done, or will be done, if gynecology degenerates into simply surgical procedures. It is a field which covers so much and means so much, that it is certainly pitiful to read some of the gynecologic literature, and even to attend some of the special societies, in which the subject of gynecology seems to have become circumscribed and belittled until we hear nothing but surgery, plastic operations, and matters of like importance from beginning to end.

The Gynecologic Sequela of Grippe.—Ballentyne in the *Edinburgh Medical Journal* has observed among the sequela of grippe a tendency to produce metrorrhagia, menorrhagia, and hemocele. In newborn children the author has noticed the great mildness of the disease as compared with its effects in adults.

A CASE OF DIDELPHIC UTERUS WITH LATERAL HEMATOCOLPOS, HEMATOMETRA AND HEMATOSALPINX, WITH SOME REMARKS ON THE TREATMENT OF THESE CONDITIONS.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY X. O. WERDER, M.D.

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The uterus didelphys is undoubtedly one of the rarest malformations met by the gynecologist. Until recently it was thought to exist only in connection with deformity of other organs of such serious nature as to interfere with the life of the fetus; at present, however, there are on record a number of well authenticated cases in adults; in a cursory examination of the recent literature I have been able to find ten or eleven, a few of them with lateral retention of menstrual blood in vagina, uterus and tube, as in my own case.

By uterus didelphys we understand two well formed and entirely separated uteri, with no partition wall, which have either no connection with each other at all, or at least a very loose one, but with only one cornu and, therefore only one tube and ovary accompanying each organ; in other words, two complete uteri unicornes. In connection with this anomaly we may have a double vagina, one for each uterus, or there may be only one single vagina or a complete vagina with an incomplete one, as in the case to be described.

The history of the case is briefly as follows:

On January 13 of this year (1894) I saw, in consultation with my friend, Dr. Jos. H. Hoffmann, Miss Olga M., age 18, who had been confined to bed for several days with severe pains in the pelvis, especially marked on the right side. The temperature was but slightly increased and the pulse a little accelerated. The pains were constant but she had paroxysmal exacerbations which were described as cramps of an expulsive character. In addition, there was frequent and painful micturition. Abdominal palpation disclosed a tumor located in the pelvis and reaching about three or four inches above the symphysis pubis and extending over to the right inguinal region, and also to the left to a point midway between linea alba and left anterior superior spinous process of the ileum. This tumor on the right and in the median line was smooth, elastic, but not fluctuating; along its left upper surface a projection was noticeable which at the time was compared to a thumb, but was of larger size. A digital examination revealed normal external, virginal parts; about two inches from vestibule the finger encountered a round, fluctuating mass almost entirely blocking the vagina. To the left of it the finger was able to pass the tumor along a very narrow, slender canal, but no cervix could be reached. This mass was continuous with the mass felt above the pelvic brim, where it became broader and wider, filling up almost the whole pelvic cavity. On the right side it reached to the ileum; on the left, however, a small space was left between the iliac bone and the tumor. The latter was distinctly fluctuating in its lower segment, but felt harder and firmer, although elastic, in its suprapubic portion. The projection attached to the left side above described, was a firm body of the shape of a normal uterus, recognized as such, carried up out of the pelvis by the growth. The tumor was tender but not extremely sensitive though the examination proved very painful.

On further questioning it was learned that the patient began to menstruate at 15, periods recurring regularly every three and a half weeks, till the winter of 1893, when they came every two weeks for awhile; since then, every three and a half weeks again; duration, two to four days, quantity normal until recently, but much increased of late; always accompanied since first appearance with paroxysmal pains chiefly in right side and back before, during and after menstruation; has been especially marked during last year. They were principally of a bearing-down character; also

pain on walking and sitting. This pain was so severe that she was scarcely able to attend to her work and at times she was compelled to go to her bed for several days. Bowels regular until last six months, during which time they were only moved after medicine. The only diseases had were diphtheria twice and measles. Occupation, domestic since 12 years of age. She was well developed, of healthy rather robust appearance, weighing about one hundred and twenty-five pounds and of more than medium height. As it was impossible to arrive at a satisfactory diagnosis and the case seemed to demand prompt surgical interference, exploratory laparotomy was advised, to which she readily consented. It was performed at Mercy Hospital, Jan. 20, 1894. The tumor was not adherent, presented a dark purple appearance, something like a myoma, was tense, elastic, but non-fluctuating. Attached to its left upper portion was the uterus forming a projection which was recognized before; it was of normal size and appearance, though unicornis with one normal ovary and tube. The surface of the tumor was smooth and convex, with a slight roundish, dome-like projection in the center. The true nature of the tumor was only ascertained when the tube on the right side was found greatly distended and of a purplish color; right ovary normal.

There was no doubt that we had to deal with a double uterus, the right one enormously distended with retained menstrual blood. With a scalpel the tumor was punctured a little to the right of the median line and over a quart of tarry-looking, tenacious fluid escaped, which was at once followed by contraction of the uterus: The Fallopian tube was removed; it measured six inches in length and four and a half inches in circumference at the fimbriated end where it was largest; the latter was sealed and all traces of a fimbriae had disappeared. A long dressing forceps was introduced through the uterine incision and pushed down to the lower end of the sac where a counter-opening was made. Through this a long strip of iodoform gauze was drawn up to the uterine wound, but not through it, the forceps removed and the incision in the uterus closed with silk sutures. The right uterus was now of about twice the size of the left, the distance of the fundus of one from that of the other measured about three inches, the bodies were distinctly separate, there being a triangular space of at least two inches deep between the two organs. Some of the menstrual blood had escaped into the peritoneal cavity which was therefore washed out with distilled water and the abdominal wound closed without drainage. The patient reacted well and made an uninterrupted recovery. A week later she was again placed on the operating table, the strip of gauze packed into the menstrual sac removed and replaced by another. On this occasion we found that the lower end of the tumor was formed by an incomplete vagina, the vaginal canal in its upper half was double, the left vagina being complete, the right terminating in a closed sac.

February 9, she was again placed under the influence of an anesthetic, the vaginal sac freely incised and washed out, the septum between the two vaginae completely excised and its edges sutured together with catgut. Measurements showed the distance from the right cervix to the lower part of the blind vagina to be two and a quarter inches, and from this to the vulva two inches. The right cervix was fully an inch higher in the pelvis than the left one and larger in size; the right uterine cavity measured four inches in depth, the left one three inches.

She was anesthetized again March 7, a few days before her discharge from the hospital, in order to make another careful examination and to take accurate measurements. The vagina had now only one compartment from vulva to both cervixes; a slight linear cicatrix in the right vaginal wall and between the two cervixes uteri indicates the former location of the septum. The speculum exposes both cervixes very plainly to view; they are now almost at the same level, though the right one is still about a quarter of an inch higher and a little posterior to the left one; the right one is a little less accessible than the left and the slightly projecting remainder of the septum between both uterine necks conceals a portion of the right cervix. Bi-manual examination finds both uteri distinctly separate in an oblique position with their fundi pointing towards the anterior superior spinous processes of both sides. The internal surfaces of both uteri meet at an acute angle about an inch above the external os where they are connected; the connection being, however, quite a loose one, allowing distinct separate motion of each organ. The bridge connecting the two uteri is about one-third of an inch thick. When a sound is introduced into each uterine cavity at the same time they cross each other in the vagina at an angle of about 45

degrees. Both cervixes present a normal appearance and are of normal size, perhaps a little larger than usually found in a virgin; there is a scanty purulent discharge from the right os uteri.

Last examination made May 22 during menstruation, to ascertain whether the menstrual flow came simultaneously from both uteri. There was a characteristic bloody discharge from the right os uteri, but only some glairy mucus from the left.

The patient has been in good health since the operation; she has menstruated every two and a half weeks, lasting from three to five days with very little pain.

The case is interesting, not only from an anatomic and embryonal point of view, but also from a clinical one, inasmuch as it opens the question of diagnosis and especially the treatment in all cases of gynatresia with retained menstrual blood. It would be beyond the scope and intention of this paper to treat of all these points thoroughly; it is simply my purpose to refer to them briefly, hoping that the discussion will augment and complete what I can only barely allude to.

Embryology gives us a ready explanation of this very interesting and rare anomaly. As we know, the tubes, uterus and vagina are formed entirely by Müller's ducts. These may be divided into three parts; the first and upper part is destined to become the Fallopian tubes, the middle part the uterus and the lower third the vagina. They are formed parallel with those of the Wolffian body, and are in their upper extremity far apart, but in their downward course toward the uro-genital sinus they approach each other, coming close together in the lower third. After the eighth week this portion begins to fuse, the fusion always commencing at the lowest extremity and extending upwards until the lower and middle third have become firmly united, completing the vaginal and uterine canal at about the fifth month; but the upper third always remains apart. If for some reason this union at this early period of embryonal life is interrupted at any portion along the course of Müller's ducts, each duct may develop separately and independently, resulting in the formation of double organs. If fusion of the lower third of the ducts has already begun before the inhibitory influence has been brought into play, that portion will continue to grow as a single organ, while those parts whose union has been prevented will develop separately and independently as double organs. In the case reported, no doubt some such impediment to the fusion of Müller's ducts arose in the early part of the third month of fetal life, after a portion of the lower third had already become fused, which latter continued to develop into a normal vagina, while those sections of the ducts which remained separate formed double organs, a partial double vagina and two separate uteri.

The diagnosis of this malformation should not be very difficult when both vaginae are patent and both cervixes accessible to touch or vision, or where there is only one vagina containing two distinct and visible uterine necks. More difficult or impossible is the diagnosis in such cases as mine, where menstruation is going on regularly from one uterus, while the other perforate genital canal is the seat of a complete retention of menstrual blood with hematocolpos, hematometra and hematosalpinx. In such cases including all forms of gynatresia with double genital canals, a positive diagnosis will usually only be made after an exploratory puncture or laparotomy.

The treatment is naturally limited to those cases

of genital malformation accompanied by gynatresia with menstrual retention. It is essentially the same whether the retention is due to a simple imperforate hymen or a vaginal atresia with single or double canal. The indication in all these cases is to establish an outlet for the pent-up menstrual fluid. Where the retention is confined to the utero-vaginal canal this is accomplished easily, and, with ordinary precautions with comparatively little risk to the patient. But when complicated with tubes distended with blood, a hematosalpinx—and I believe this is the usual result of long continued menstrual retention—a great element of danger is added which requires our most careful attention. The tension caused by the retained blood has usually produced such a marked atrophy of the tubal walls, reducing them to a mere thin membrane, as shown by a number of autopsies that the slightest pressure is sufficient to cause rupture. In addition to the imminent danger of rupture there is that of septic infection, which not infrequently has led to a fatal termination. Fuld (*Archiv für Gynakologie*, Band 34), has collected sixty-five cases of gynatresia with hematosalpinx, of which forty-eight were fatal. He divides them into two groups: Those with a single and those with double utero-vaginal canal. In the first group, containing twenty-seven operated cases, fourteen recovered; of the second, consisting of twelve cases only, three were cured; in only four cases was laparotomy performed, all of which got well. This collection of cases can not fail to impress us with the great mortality attending this condition, and it is therefore not surprising that such great authorities as Dupuytren and Cazeaux discouraged operations for hematometra, which were nearly always followed by a prompt and certain death, preferring to leave them to nature, though the final result seems to have been equally unfavorable. With the aid of antiseptics and our greatly improved operative technique, much of the fear formerly entertained in dealing with these cases has disappeared, but it can not be denied that even at present they are not devoid of considerable danger. It is often very difficult to guard against sepsis, and the possibility of rupture of a distended tube should not be overlooked.

To prevent these two most frequent accidents it is necessary to provide for very slow but thorough drainage of the closed utero-vaginal canal. This can be best accomplished by a very small incision into the obturating membrane, and inserting a small rubber or what is better, a glass drainage tube, the projecting end of it to be well covered with iodoform gauze. Injections for the purpose of aiding the outflow of the thick tarry fluid had best be avoided. When the vagina has become completely emptied, a careful examination should be made to ascertain the condition of the uterus and tubes. If after thoroughly draining the utero-vaginal canal the tubes have failed to empty themselves into the uterine cavity, laparotomy becomes indicated and the more promptly it is performed the better it will be for the patient. In cases of complete absence of the vagina with hematometra, an attempt should be made to reach the sac through the natural channel, the closed uterus incised, and drainage provided for by inserting a small glass drainage tube.

In the cases where the uterus can not be made accessible in this way without injuring the neighboring organs, especially bladder and rectum it would

be better, in my opinion, to do a laparotomy, puncture the distended uterus, wash it out thoroughly and closing it by sutures, at the same time removing the adnexa. This would be preferable, in my judgment, to an incision either through rectum or bladder, as is usually recommended, or to a parasacral or a pararectal incision, as suggested by Pozzi.

MASSAGE IN GYNECOLOGY.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY OSCAR J. MAYER, M.D.

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No branch of medicine has made such rapid advance in a comparatively short space of time as gynecology. Though ovariectomy had been performed successfully for more than seventy years, it was not until the publication of Marion-Sims' work on "Uterine Surgery," some thirty years ago, that diseases of women forced a recognition from the medical world as a separate branch of medicine. From that time on, gynecology has, as it were, leaped full-grown into existence. New operations and methods of operations were successfully tried, improvement followed upon improvement, and operative gynecology became a source of admiration to the profession as well as to those whose lives have been relieved by the surgeon's knife, of manifold burdens.

But while there is so much light, there is much darkness. How many ovaries, how many wombs have been sacrificed, how many women have been made sterile, to satisfy this *furor operativum*. While one mutilating operation was thus succeeding another, very little thought until of late years, was given to the manner of preserving the generative organs by more conservative treatment, and of bringing about restoration without intervention of surgical procedures. The indisputable merit of having given to the medical profession a therapeutic agent to successfully combat many uterine and ovarian disorders belongs to Thure Brandt, of Stockholm. Since his publications on "Massage in Gynecology," the foremost gynecologists have tried this method of treatment, have expressed themselves as fully coinciding in all that is claimed for it, and have pronounced it valuable as rendering unnecessary, in very many cases, operative interference. The object of uterine massage is to bring about a healthier state of the circulation and to impart *tonus* to the various structures of the genital tract. It is indicated in all disorders due to chronic inflammation, as well as in such diseases as cause uterine displacements, produced by relaxation of the ligaments, or by pelvic exudations, with or without adhesions.

Before describing the technique of massage, I will mention some of the general directions to be observed. The patient should be placed in the usual position on her back with legs well drawn up, as is customary in gynecologic examination. Antiseptics should be observed as in gynecology or obstetrical work. As massage in the beginning of the treatment is somewhat painful to most patients, it should be given gently, and the force should be gradually increased; it will thus be borne even by sensitive women, especially if the physician encourages them. To reduce the pain caused by the hand (particularly in nulliparæ) on the abdominal parietes, it is well to

apply oil or some vaselin. The most important thing of all is certainly a correct diagnosis of the disease and the exclusion of all pyogenic disorders such as pyo-salpingitis, ovarian abscess, etc.

Massage in pelvic disorders is divided into the external, internal and combined methods. The latter is almost exclusively used. Four different kinds of massage may be used:

1. Effleurage (rubbing).
2. Petrissage (kneading).
3. Pressure with drawing.
4. Lifting—stretching.

1. *Effleurage* is the mildest form and alone is rarely used, as it is included in the second form of massage, viz:

2. *Kneading*.—This is a manipulation carried out as follows: The diseased parts are taken between the fingers of the inner and outer hand and are rubbed, pressed, squeezed, kneaded; to be sure this is not so easily done as said. It must be done in such a manner that the patient will not object to further treatment, and thus be deprived of its benefit. *Internally*, it is, in most cases, an easy matter to reach the diseased spot with the finger; but *externally*, unless the uterus itself, is to be masséed, it is often very difficult. By slowly and gently pushing the abdominal parietes inwardly must we try to reach the parts, constantly inducing the patient to relax the abdominal muscles. When thus the parts are distinctly felt between the fingers, the inner hand is mainly used as a point of support, while the external hand manipulates the parts. Kneading is the typical form of massage for chronic thickened exudation and hemorrhagic infiltration of the cellular tissue of the pelvis. In those cases the fingers in the vagina can reach the parts more easily and can work with more force, but unless the diseased parts are firmly held between the fingers, the external hand would be a poor counter-prop, and the result will be unsatisfactory. The amount of pressure used at first when the parts thus held are between the fingers, should not exceed that which is necessary to mash a cooked potato between the index and middle fingers of one hand and the tips of the four fingers of the other hand. Gradually the pressure may be increased in the succeeding sittings. The first few sittings should last only a few minutes, rarely exceeding five minutes. Later on, the time may be increased to ten and fifteen minutes. During the first few days it is advisable to keep the patient quiet in bed, if possible, and the temperature should be carefully observed. The kneading must be commenced from the circumference of the exudation. Often the uterus must be pushed to one side in order that the hand used externally may reach the deeper parts of the parametria. In special cases it may be necessary to displace the uterus downward by means of a volsellum forceps in the hands of a nurse or an assistant. If such a procedure is necessary, utmost care must be observed that the patient remain in bed, especially if there is any suspicion that the peritoneum is in relation with the diseased parts. Less apprehension is to be entertained in the application of

3. *Pressure with drawing*.—This form of massage is used almost exclusively in gynecology. It is a combination of pulling and pressure, and as in *kneading*, the parts are taken between the fingers of the inner and outer hand. This is more difficult, as the object is generally smaller, but at the same time it is easier

as it gives the patient less pain. The inner hand fixes the part, and the outer hand presses and draws with moderate force, not letting the part slip back, but gently allowing it to glide back under constant equal pressure. This is repeated eight or ten times at first, increasing to twenty times at subsequent treatments. After every three or four manipulations, a short intermission is allowed without releasing the pressure. This form of massage is the most effective in old adhesions, and when old inflammatory products exist in the cellular tissue of the pelvis, as well as in the parametria. The direction in which to pull is usually from the uterus toward the large vessels, or *vice versa* if the uterus is to be included in active massage. The effect of this form of massage which is a pulling with a certain amount of contra-pressure, is that stiff and fixed masses of connective tissue are thereby made elastic, and that through continued stretching, changes take place in the vascular supply tending to stimulate absorption. Most typically is this observed in retroversion and retroflexion of the uterus caused by contractions of cicatricial tissues in the parametria. These cases are seemingly cured in a very short period without the aid of a pessary; but the disorder will return if treatment be suspended at too early a period; the contraction will recur and cause uterine displacement. It is therefore necessary to continue massage until the cellular tissue has become perfectly movable and free from infiltrations for some three or four weeks after the exudations were apparently sensible to the touch. In connection with this treatment it is necessary to observe that the surrounding parts be stimulated to exert an influence toward more healthful circulation, by either extended massage, or other treatment such as hot injections, baths, tampons, medicated with glycerin or ichthyol-glycerin, etc.

4. *Lifting or Stretching*—makes the greatest possible use of the elasticity peculiar to the pelvic organs. If the ligaments be in a relaxed state, the fundus may be raised as high as the umbilicus.

Besides active massage, some authors highly recommend passive massage, especially for patients who through lack of time are able to take only two or three treatments in a week, and in cases where a beneficial result is observed under this treatment. Passive massage results from the introduction into the vagina of Bozeman's vaginal ball dilators. Just how it acts is unexplained, but its beneficial influence can be observed more especially in cases where dense cicatricial tissue is softened, and in vesico-vaginal fistulæ where the borders are hardened and infiltrated, causing sutures to break through when an operation is attempted in this state.

The factors indicating massage in gynecology are the same as those calling for massage in surgery, viz: Injury and infection, exudation and immobility of parts. Sometimes it is indicated by sequelæ of pre-existing disease as contraction of cellular tissue after parametritis, or retroflexio uteri resulting from relaxation and atony.

The following schematic table for indications of massage is not complete and is the same as used in massage in surgery. By massage treatment we wish to produce:

1. Acceleration of the absorption and retrogression of inflammatory and traumatic exudation and deposits. (Pelvic exudations and hemorrhagic infiltration.)

2. Stretching, loosening, disintegrating, cicatricial, contracted or hypertrophied connective tissue, caused by inflammatory processes. (Thickened and contracted scars, contractions in the pelvic cellular tissues, adhesions and swellings caused by chronic inflammations, as also sequelæ, resulting from those conditions, viz: Abnormal position of the pelvic organs.)

3. Stimulation of the circulation and restoration of the normal elasticity and *tonus* in: *a*, contracted, hardened and hypertrophied tissues; or *b*, relaxed tissues. (Chronic metritis, subinvolutions, prolapses impending on relaxed tissues and anomalies of position.)

The sphere of usefulness of this method of treatment in diseases of women may consequently be tabulated as follows:

1. Pelvic exudations and hemorrhagic infiltrations.
2. Chronic parametritis and perimetritis.
3. Retroversio uteri.
4. Chronic metritis.
5. Prolapsus uteri et vaginae.

1. *Pelvic Exudations and Hemorrhagic Infiltrations.*

—This category of disorders is the most difficult amenable to massage treatment and by no means devoid of danger. Authors disagree as to the time when massage should be given in these diseases. While some recommend massage from the outset, even in the acute stage, others do not commence until the febrile disturbances have subsided. I believe the latter course more proper and never give massage until one or one and one-half months have passed after the beginning of hemorrhagic infiltration. I discontinue massage and let a few weeks pass before attempting treatment again, should febrile disturbances make their appearance during massage treatment, exercising every precaution and carefully watching the temperature. Kneading is the form of massage most advantageous in this class of disorders. It is best to commence on the circumference of the exudation, gradually encroaching upon the primary center of the disease. Perfect rest in bed, careful observation of the temperature and watching of the pulse, are necessary in the beginning of treatment. Should the least suspicion arise that there are purulent processes present—rise of pulse or temperature—massage must be discontinued. The most promising results are obtained with exudations in the pelvic cellular tissue, while those in the pelvic peritoneum give much less satisfactory results. Massage should especially be avoided in perimetric exudations which can be felt as tumors as they often give rise to pelvic peritonitis. This latter disorder belongs to the domain of operative gynecology. If the perimetric exudations are desiccated and have led to adhesions and contractions, or if we find chronic perimetritis, then we may safely rely upon massage as a valuable therapeutic agent. Massage acts most quickly in cases where the disease follows labor. The sooner these cases come under treatment the more quickly we can effect a cure, especially if the organs are still in a state of subinvolution.

2. *Parametritis and Perimetritis Chronica.*—Acute inflammation of the pelvic cellular tissue, though it may not present violent symptoms and the formation of exudations, is accompanied by lymphangitis or phlebitis, causing after subsidence a change of

anatomic structure. This may sometimes be avoided by proper treatment, or even if the various changes have taken place absorption will often follow without any treatment whatever, when the organs will be restored to their normal position or function. In the majority of patients this favorable condition does not take place. Inflammatory deposits remain exacerbating at times, contracting at others, causing an abnormal position of the various pelvic organs, which in turn cause a change in the pelvic circulation. In most of these cases we are led to give an empirical diagnosis as retroflexio or anteflexio uteri, mistaking the action for the cause. During the puerperal state, as is well known, the cellular tissue shows a marked tenderness to absorb and in this way brings about subinvolution. It should therefore be our aim to produce a condition of the parts similar to the puerperal state, when we want to cause absorption of old inflammatory deposits and contractions of the parametric cellular tissue. This condition we may reach with hot douches, glycerin and iodine. But unfortunately all these agents lose their therapeutic value before restoration of the parts is achieved. We must aid this treatment by mechanical manipulation. This should be continued until all deposits have been absorbed and the parts have become perfectly movable. The same treatment holds good if the disease is located in the cellular connective tissue surrounding the vagina. We often succeed in improving and even curing this class of disease after all other treatments have failed. More tedious are the cases of para- and peri-metritis caused by gonorrhœic infiltration.

The most favorable time for massage treatment in chronic parametritis is not long after an acute exacerbation. This is especially true in cases of chronic parametritis atrophicans. The prognosis in chronic parametritis after an acute exacerbation is a most favorable one; the longer the time allowed to elapse or the further away the focus of acute disease is located from the atrophied cellular tissue, the less likelihood is there of completely eradicating the disease.

Inflammation of the pelvic peritoneum is a disease of a serous membrane, contrary to parametritis, constituting a disease of connective tissue. It is due to this anatomic difference that we derive entirely different conclusions as far as this latter class of disorders is concerned as to the advisability of massage treatment. The therapeutic measures usually adopted were either to influence this condition in a general manner by rest, baths, depletion or application of iodine; or, if these measures were not successful, operations were resorted to, to remove the primary cause of disease. To introduce massage successfully in perimetritis it became necessary to show that we could accomplish more than with the usual methods of treatment and render operative procedure unnecessary. Unfortunately we can not treat these cases with the same impunity as those spoken of above. We must select our cases and watch them most carefully lest an acute pelveo-peritonitis may arise from latent inflammatory causes remaining in the exudations and becoming active. Even with this gloomy aspect we do not fare any worse than if we had followed the principles of operative gynecology, which only too often give negative results and are certainly more questionable as to results than massage. Besides it is our duty at least to try a more conserva-

tive plan of treatment before subjecting a patient to an operation.

3. *Retroversio Uteri*.—If retroversion of the uterus is not due to neoplasms causing displacement of the uterus, this disorder is almost always dependent upon inflammatory conditions in the pelvis or upon relaxation of the uterine ligaments. Consequently retroversion of the uterus is not a disease but a cardinal symptom of some existing disease. This fact is often not recognized and we are apt to make a diagnosis without duly considering the causes, but simply perceiving the effects. To the general practitioner it almost always suffices to have recognized a retro-deviation of the uterus, and accordingly he will introduce a pessary without trying to find the exact pathologic factors producing this anomalous condition, much less will he attempt a removal of the same.

Each retro-deviation should be classified under one of the following divisions:

1. Congenital or acquired arrest of development.
2. Inflammatory processes of para- or peri-metric origin.
3. Relaxation of the ligaments or vaginal support.
4. Combinations of Nos. 2 and 3.
5. Mechanical displacement by tumors in or surrounding the uterus.

It is not to be denied that despite the recognition of all these factors, we often are obliged to be satisfied with a symptomatic cure, but this should not prevent us from trying to find a means by which an anatomic *restitutio in integrum* may be established. The reposition of the uterus should never be attempted by force, as by sound or repositor, but by bi-manual manipulations, especially when fixed by adhesion. In these cases, massage should be resorted to and when the uterus can be raised to its normal position it should be supported by a well fitting pessary. As treatment progresses the pessary may be abandoned. In some cases we may be forced to keep it in position, or resort to operative gynecology, viz: Ventreresp. vagino-fixation. Opponents of massage may claim from this statement that massage does not benefit this class of disorders, but statistics show that over 50 per cent. can get along without pessary. In the other 50 per cent. we must permanently make use of some kind of support. It would be irrational to look upon this treatment as a cure for all diseases. We must individualize and not forget our other therapeutic agents; especially must we see that the pelvic floor gives the proper support. (Remedy perineal lacerations, vaginal prolapses, cystocele, rectocele and other factors tending to displacement of the uterus.)

4. *Metritis Chronica*.—Massage, as we have already said, seeks for its third object to induce a healthier state of circulation in and around the diseased pelvic organs, be this diseased condition due to induration, contraction or relaxation. Accordingly, two classes of conditions come under this head:

1. Induration and hypertrophy—the typical example of chronic metritis.
2. Prolapsus of the uterus (depending upon changes due to inflammatory processes). Chronic metritis is almost always found in connection with some other disease arising from inflammatory changes which spread to the connective tissue of the uterus, the inflammation spreading from the mucous membrane

of the uterus or its adnexa. It is true that if we can master the primary affection, the chronic metritis will often depart of itself; but too often the chronic metritis will keep up the pathologic process, and despite all treatment and though the patient be apparently cured from the primary disease, will prevent total eradication of the morbid conditions existing. It is in these cases that massage is a therapeutic agent of high value, and under its influence we soon witness permanent relief for the sufferer. We can feel the thickened and hardened uterus gradually return to its normal state. Measurements by sound will verify its decrease in size, the discharge will change in color and quantity, and soon cease altogether. In the rare cases of primary metritis we can not expect any more of massage than of the older methods of treatment. While improvement and a symptomatic cure will take place, if massage be discontinued the condition of the patient will soon be the same as it was originally.

5. *Prolapsus of the Uterus and Vagina*.—Until a few decades ago the introduction of a pessary constituted about all that was done to remedy these disorders. The causes of prolapsus were but little understood. With a clearer understanding of the pathology of the female generative organs, operative gynecology with its numerous methods of operations tries to restore the integrity of the pelvic floor. More attention is paid to the regimen during the puerperal state, so that perfect subinvolution may take place before the woman leaves her bed, and that prolapse through relaxation of the various structures of support may be avoided. The causes of prolapsus may be classified under one or the other of the following three divisions:

1. Relaxation.
2. Pressure weight and traction.
3. Decreased support.

But the manifold therapeutic agents and operative procedures we possess are not complete without electricity and massage. Only the faradic current, however, is of any avail, in using electricity, as the galvanic current despite its action on both varieties of muscular fibers has no influence in restoring the elasticity of thickened or rigid connective tissues. In these conditions we can obtain the best results with massage. No positive explanation or proof of its action can be offered, but the presumption is, that the continued and constant stretching of the tissues, and the stimulation of the capillary circulation, thus promoting healthier nutrition of the parts, is directly responsible for the restoration of lost tonicity.

Contra-indications of Massage.—Manifestly massage is contra-indicated in all diseases of the genital tract requiring perfect rest of the whole body or of the genital tract alone. In pregnancy complicated with retroflexion of the uterus, even should that body be fixed by adhesions, it is best to adhere to the older methods of treatment, as an abortion would surely result were mechanical manipulations resorted to.

The use of massage in cases of chronic gonorrhœa should be very carefully guarded against. While at times massage beneficially affects the sequelæ of this pathologic process, it is liable to produce serious disturbances if existing latent causes of inflammation are forced into activity. Old encapsulated abscesses either of ovarian or tubal origin, as well as pelveo-peritonitis contra-indicate massage, though often they are only recognized after treatment has begun.

Therefore where there is any suspicion of their existence we should insist upon an examination under anesthesia, so as to eliminate the possibility of the presence of any such disorder. And just at this point it is proper to observe that should uterine massage fail to realize the expectations of the practitioner employing it, its use is not therefore to be decried, nor its value depreciated. No remedy or therapeutic agent exists in medicine that is infallible. And, moreover, is it not a very pertinent inquiry in this connection whether massage itself is at fault, or the practitioner employing it? If the manner of treatment be incorrect, *e. g.*, if the manipulations be too rough, massage will do more harm than good. Such results will also come from its use by persons who ignore the pathology and anatomy of the pelvic organs, and will most certainly follow where the case has been incorrectly diagnosed as one demanding massage. The apparent failure of massage in individual cases affords no argument against it, until the reason of such failure is known; and if shown to be due to any of the above causes or kindred causes, far from negating the efficacy of massage, where this treatment is properly called for, it will only add the weight of its testimony in favor of it.

CONCLUSIONS AND RESUME.

Massage is valuable in parametritis and hemorrhagic infiltrations, in that it causes quicker and more complete removal of the exudations. It is valuable in causing absorption of contracted hypertrophied pelvic connective tissue, be it the remains or sequela of acute pelvic cellulitis, or be it due to an idiopathic circumscript chronic thickening. Massage is a therapeutic agency of high potency. It is very effective in combination with other therapeutic measures, such as baths, douches, medicated tampons, etc., and we often notice that where these remedies have been resorted to with failure, by the use of massage alone a permanent cure will be obtained. The best and quickest cures are observed in chronic diseases following the puerperal state; while a longer time is required in diseases following acute inflammatory processes, also when coincident with anomalies of position of the pelvic organs, especially in retro-deviations of the uterus.

In chronic perimetritis, the results, while not so good as those observed in parametritis, are encouraging enough to warrant the use of massage, since resort to operative procedures does not accomplish more for the patient. The same may be said of anomalies of position of the pelvic organs accompanying perimetritis.

In retro-deviations of the uterus due to adhesions or relaxation, massage is a remedy not to be underestimated; the indication for its use depends on the causes of the malposition. In these cases massage is free from danger and gives more satisfactory results than all procedures requiring force. Even if we do not succeed in some cases in restoring the uterus to its exact normal position, we can obtain a symptomatic cure without recourse to surgical procedures. The time required for reposition of the uterus is usually short; on an average of a month to a month and a half. In all cases that have their origin in the remains of inflammatory products or exudations, massage is invaluable.

The combination of massage with electricity is to be recommended in relaxations of supports of the

uterus, provided the structures are intact; (perineal and vaginal lacerations, etc., have to be repaired). In senile atrophy the action of massage is very transitory. In retroversions and retroflexions, massage gives more favorable results than any of the older remedies. The time required to cure prolapsus and reposition of the uterus is sometimes quite long, depending on individual dispositions. At times, especially in bad cases, a pessary is required to support the uterus. By exercising proper circumspection, we can often achieve more by alternating massage treatment with other treatments than by long continued massage.

In conclusion, I have to say that massage does not set up for itself the claim that it constitutes an independent and sufficient form of treatment. It is only a mechanical therapeutic agent, intended to be used in combination with other tried and accepted remedies, in effecting a permanent cure, or in considerably lessening the time formerly required therefor. American gynecologists have been somewhat slow in accepting massage as a new remedial agent to be employed in diseases of women, and have been suspicious of the beneficial results that have been claimed for it. But the constant encouraging reports of European authorities, many of them erstwhile bitter opponents of massage, reports that are full of successes beyond the expectations of the most sanguine, are bound to work a change in this American sentiment. The skepticism of to-day will soon be converted into the faith of tomorrow.

In this paper I have omitted all mention of my individual cases; a history of them will furnish the matter of a subsequent paper.

801 Sutter Street.

DISCUSSION.

DR. J. H. BARBATA, San Francisco—I have had the pleasure of seeing some of the cases that have been under treatment by massage, and who had been advised to have either the ovaries or the uterus or both removed, by some of the most prominent gynecologists of the city. By means of massage treatment combined with electricity, they have been restored to almost perfect health without resort to any operative procedure. As we all know the great difficulty in restoring a retroverted and retroflex uterus to its normal position by ordinary treatment, we should certainly look forward to massage as one of the most efficient remedial agents of the present day.

DR. S. I. SHUEY, Oakland, Cal.—I make use of massage in cases of pain in menstruation of young girls, with good results. In long standing cases where a great deal of medicine had been taken, cases standing nine or ten years, I have given massage every day for three or four weeks, and always during the menstrual period, and I have found this treatment very beneficial.

DR. OSCAR J. MAYER—As I said before, my report of my cases will follow in a future paper. But for the benefit of those who think favorably of massage treatment I will mention something I found out within the last two weeks. There has been a good deal of difficulty in applying massage, in multiparæ, of the abdominal muscles when relaxed, because it causes pain to introduce the hand, and the patient is inclined to give up massage treatment. This difficulty I have tried to overcome. I have a patient of this character whom I shall probably use in a demonstration before some society in this city. She was in such a condition that she was willing to try almost anything and to stand almost any amount of pain. It was extremely difficult to get at the uterus, and especially in the ordinary position. So I made use of what is known as the extreme Trendelenburg position. This is easily arranged by using an ordinary chair and a mattress—raise the lower end of the mattress and place the chair under it in such a way as to make an incline. Upon this I placed the patient with the head in a downward position. By this means I was able to reach the fundus in four treatments, whereas before I was not able to do so in a treatment covering four weeks, and excellent results have followed.

GASTRO-HYSTERORRHAPHY WITHOUT OPENING THE ABDOMINAL CAVITY.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY FRITZ BAUM, M.D.

KANSAS CITY, KAN.

Our negative results in treatment of prolapsus uteri by pessaries and supporters have proven conclusively that we can never gain our point in supporting the prolapsed uterus from below, and that we must find some means to uplift same from above, and in this way substitute the office of the relaxed round and broad ligaments. For this purpose we have constructed the following instrument, consisting of a hollow tube, like a big uterine sound; within this there is a piston-like rod with a handle at the outside and two needles threaded to one thread at the end inside. Now our idea is the following one: Place the patient in Trendelenburg's position, insert this instrument, called uterine ventro-fixator, into the uterus, and after correcting misplacement of same bring the fundus as high up as possible in direct contact with abdominal wall; then push the rod up until the needles protrude through the skin, unthread the needles and draw the piston back, thus removing the needles and withdrawing the instrument. Pull the thread up as high and tight as feasible, then tie a strong knot after having made a little incision through the skin of the abdominal wall to imbed the stitch, in this way fixing the uterus to the abdominal wall. The place is then dusted with iodoform and sealed with collodion.

As far as we can see, the first question which would arise would be the following one: Is there danger of sepsis? We claim not, if properly managed. The patient should be prepared as if she had to undergo a laparotomy, abdomen and pubis shaved. The vagina should be first well cleansed and packed with antiseptic gauze until rendered aseptic. Then on the day of the operation the uterus should be curetted and washed out with a strong antiseptic solution and then after perfect boiling of the instrument, needles and thread, we think this danger would be eliminated.

The next question would be, Will we get adhesions by holding the uterus in contact with the abdominal wall in this way? We think we should, because by pulling the uterus up against the abdominal wall, these stitch holes must naturally give a little, perhaps they will even tear some; this will set up some local inflammatory action, which will result in adhesions, which "Report of Cases" has proven, if the uterus is brought in *firm* contact with the abdominal wall.

We may either leave this stitch in there permanently, or may remove it after two or three weeks. The only contra-indication for this operation, as far as we can see, would be adhesions of the intestines to the fundus uteri, or portions of the abdominal wall, or firm adhesions of the ovaries or tubes to the back, or presence of pus about the uterus and appendages. The interference with a large bladder can easily be avoided by keeping a sound in it during the operation.

Whoever has operated or seen the operation, will be convinced that the danger of wounding the intestines is almost eliminated, because the uterus can be so plainly felt through the abdominal wall and

manipulated in such a manner that all intervening tissues can be positively excluded.

Case 1.—Miss M. D., age 19. Retroversion with strong adhesions, after severe fall four years ago; since that time frequent painful urination, backache, difficult menstruation. I made the first operation at Bethany Hospital, Kansas City, Kan., April 21, under assistance of Drs. J. D. Griffith and S. I. Harrison, of Kansas City. Uninterrupted recovery; highest temperature recorded was 99.4. Patient had no pain or inconvenience whatever and was discharged after three weeks stay (two weeks in bed in the Hospital) with her uterus firmly adherent to abdominal wall hardly within reach of the finger in the vagina.

Case 2.—Mrs. F. O., age 37. Three children, youngest 5 years old. After last confinement, prolapsus uteri with pertaining complaints; operated April 22; highest temperature 99.7; very little pain; remained in bed thirteen days. Discharged after three weeks; uterus in proper place. Uterine supporter was fitted to be worn about one or two months.

Case 3.—Mrs. R. T., age 26. After tedious labor case and forceps delivery, patient complained of backache, headache, and frequent painful urination. Examination showed retroflexio uteri. Operated April 24; temperature remained normal; slight pains over region of stitch. Contrary to my custom I did not imbed the stitch in abdominal tissue but severed it the seventh day, in order to test adhesions, which proved strong enough to make the uterus adhere to the abdominal wall. Uterine supporter was fitted and patient was discharged seventeen days after operation completely cured.

Case 4.—Mrs. A. K., aged 43. Prolapsus uteri of nine years standing. Operated April 25; clipped stitch May 2; found uterus strongly adherent and fitted uterine supporter. Discharged May 19, completely relieved.

Case 5.—Miss F. L., age 18 years. Kicked by a horse in the abdomen about one year ago; since that time dysmenorrhea, headache, backache, fatigue feeling, etc. Diagnosis, retroflexio uteri. Operated April 26. No elevation of temperature; had a circumscribed peritonitis around the stitch as large as two silver dollars. Made uninterrupted recovery and was discharged two weeks after the operation.

Case 6.—Mrs. A. B., age 25. Gave birth to twins; forceps delivery two years ago. Diagnosis, retroflexio uteri. Was unable to do her own housework because of backache, headache, and constant desire to urinate. Operated April 29; highest temperature 99; very little pain. Did not imbed stitch but cut it twelve days after operation; uterus remained in place. Uterine supporter fitted and patient was discharged twenty days after operation completely relieved.

Case 7.—Mrs. L. M., age 36. After fall from a wagon two years ago had adhesive retroversio uteri; difficult menstruation with constant backache and headache. Operated May 1. No rise of temperature; was discharged relieved within two weeks after operation completely relieved.

Case 8.—Mrs. J. K., age 26. Had three children. According to her own report had miscarriage two years ago; after that puerperal fever. Examination shows retroverted uterus almost immovable. Operated May 4; greatest difficulty in destroying adhesions. Rise of temperature second day to 102.2, third 101. The following day 100.3, but found in changing the vaginal tampon, that the uterus had dropped back, as I expected. There were three more cases operated upon which gave complete satisfaction though they are still under treatment, therefore reports later.

CONJUNCTIVITIS MEIBOMIANÆ.

BY JAMES A. LYDSTON M.D., Ph.G.

LECTURER ON OPHTHALMOLOGY AND OTOTOLOGY IN THE CHICAGO COLLEGE OF PHYSICIANS AND SURGEONS; MEMBER OF THE AMERICAN MEDICAL ASSOCIATION, THE CHICAGO MEDICAL SOCIETY, AND FELLOW OF THE CHICAGO ACADEMY OF MEDICINE. CHICAGO.

Notwithstanding the many varieties of conjunctivitis, the above title suggests itself as being particularly descriptive of a variety of lid inflammation which has recently fallen under my observation and care. The condition in the case that I have noted was so strikingly characteristic that no other cause could possibly be defined as the source of the inflammatory reaction, but a microbic or chemical irritation induced by the extrusion of the decomposed secretion from the meibomian glands, and hence the

above name seems particularly suggestive and appropriate. To my knowledge, no one has described such a condition, and I am unable to find any reference to the subject in the ophthalmologic literature at my command. The appearance of the conjunctival tarsi was quite picturesque, there being irregular, island-shaped, roseate elevations distributed over its entire surface (with distinct and well defined interspaces of uninflamed conjunctival structure,) which were marked like the efflorescence of a vernal catarrh, with a pronounced tendency to recur. The appearance of each crop of inflamed papillary areas was coincidental with the extrusion of the condensed sebaceous-like material which had evidently accumulated in the meibomian glands to full distension, and then, with the elements of decomposition superadded was in full readiness when discharged to excite a marked inflammatory reaction in the lids, asserting itself in the form of conjunctivitis with enlarged papillæ. Some discharge of a muco-purulent character accompanied each attack, and could be seen to take its departure from each focal point of infection or irritation. The conjunctiva fornicis or retro-tarsal fold seemed perfectly free from inflammatory disintegration or ulceration, and aside from slight hyperemia did not seem to participate in the singular process.

The treatment, which consisted in pressing out the contents of each gland with the fingers, irrigating the conjunctival sac with bichlorid of mercury, 1 to 5000, and carefully cauterizing each elevated patch of inflammation with nitrate of silver, 30 grains to the ounce, soon caused the disease to abate and thoroughly disappear, only to recur again as soon as the meibomian glands refilled, and observing the same course would under treatment disappear. Then I was led to adopt the plan of cauterizing the palpebral edges with a concentrated solution of nitrate of silver, and by thus stimulating the meibomian ducts and glands obliterated the recurrent tendency of the disease; and at the present writing, about a year since the patient was treated the last time, the conjunctival surfaces are perfectly free from injection, much less inflammation, and the patient expresses himself as wholly relieved of his annoying trouble.

The points of interest relative to the affection are:

1. Its rarity.
2. Its novel recurrence and speedy relief under treatment.
3. Its apparent resemblance to trachoma or follicular conjunctivitis (so far as the papillary enlargement or hypertrophic elements were concerned.)

Conjunctivitis meibomianæ in its different phases adds but another form of conjunctivitis to the varied types of conjunctival inflammation, and appears to be strongly supportive of the fact that the conjunctiva is, by reason of its peculiar anatomic arrangement, extremely prone to acquire inflammation as a result of various irritants, and that there subsists a certain relationship between the pathologic or morbid appearance and the special type of irritant.

Suite 804, Champlain Building, Chicago.

HOW TO AVOID ADHESIONS IN ABDOMINAL SECTIONS.

BY FRITZ BAUM, M.D.
KANSAS CITY, KANSAS.

The progress in abdominal surgery during the last decade has been so astonishing, that it seems almost as if we must soon come to a standstill, and as wonderful as our success has been there are some draw-

backs, which remind us that we have still to study, fight and strive for improvements, as perfection is far distant yet.

Interfering adhesions have been one of the most important obstacles in abdominal surgery, and our efforts to avoid them have so far been in vain. The application of iodoform, aristol and other drugs to the surface of loosened adhesions have proven inadequate. The most frequent occurring adhesion is that of the retro-misplacement of the uterus, which in most cases can be broken loose during laparotomy, but they return as readily and continue after the operation more severely than they have been before, so that after ovariectomy with adhesions the uterus sometimes becomes entirely immovable, leaving the organ firmly embedded in adhesions, so that the patient often complains more after than before the operation.

Again, in intestinal operations we find that the success of intelligently performed operations is so often frustrated by forming adhesions, which are specially felt in herniotomies. I have for some time been making experiments with animal structures to prevent adhesions in abdominal sections. These structures are rendered aseptic and being placed between the surfaces of loosened adhesions are absorbed in a comparatively short time preventing reformation of adhesions. After obtaining very good success from the use of these structures in abdominal sections, I feel as if I should make a report of my investigations, in order to give the medical profession the opportunity to try this procedure.

My first experiments were made upon dogs. After opening the abdominal cavity I scratched and denuded the external coat of the intestines or the uterus, then I closed the abdomen again, giving from two to three weeks time to form strong adhesions. During the second laparotomy I tore loose these adhesions, placing my anti-adhesive structure between the two surfaces, using a few superficial stitches of fine silk to keep it in place. These stitches were used only in animals.

My anti-adhesive structure first consisted of catgut woven into a cloth, by having one layer of thread crossing another one, which procedure proved to be very tiresome and I soon abandoned this structure, using fish-bladder, which we find in drug stores as so-called gold-beater's skin. This seems to act much nicer on account of its pliability, being easily rendered aseptic. At last I have been using animal peritoneum, taking it from a young calf immediately after being butchered.

I have prepared either of these structures by keeping them in sulphuric ether for about one week and then leaving it in alcohol absolute for ten to twelve days before using it. In regard to the time which it takes to absorb the different material, I found the catgut cloth, after opening the dog's abdomen the eleventh day, fenestrated and partly absorbed; the twentieth day it had entirely disappeared. The fish bladder was almost totally absorbed in from ten to thirteen days.

The practical use of these anti-adhesive structures has been proven to me in such startling success in three laparotomies, especially with very extensive uterine adhesions, which, after being torn, never returned since placing my anti-adhesive structure between them, the uterus being as movable after the operation as it should be physiologically, that I am convinced of their practical value.

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SATURDAY, AUGUST 11, 1894.

OUTDOOR CASES OF COMA.

The diagnosis of coma on the street, is almost entirely made by policemen, young ambulance physicians, druggists and passing physicians. The next diagnosis is by police surgeons, or political doctors who attend at station houses at half a dollar a visit. Later the coroner and his "ring" finds that death was from alcoholism, exposure or heart failure. If a doubt exists a post-mortem seldom reveals more than some transient inflammation seemingly confirming the above conclusions. These are facts which every city in the country presents. Occasionally some of these haphazard diagnoses come into notice, and hemorrhage, concussion, fracture of the skull, embolism, and other serious injuries are found, that have been diagnosed as drunkenness or the coma of intoxication. There is no doubt many most serious mistakes are being constantly made in the diagnosis of these cases of coma found on the street. Because the case has an alcoholic odor, the impression prevails that spirits are the cause.

The Medical Society of the city of Brooklyn and county of Kings, New York, appointed a committee to report on the present methods of treating persons found unconscious on the street. The Secretary of this committee, DR. L. D. MASON, of Brooklyn, N. Y., has recently presented a very suggestive report which has appeared in the *Journal of Inebriety* for July. DR. MASON gives a clear review of the common blunders of throwing all cases found stupid with an odor of spirits, in the station cells, to be found dead next morning, and the folly of trusting to the diagnosis from the most causal view of cases so serious and complex. The facts of the differential diagnosis are given with the opinions of authorities, and the experience of eminent men, and the different methods of treating these cases in other countries.

The experience of surgeons in London, Berlin and Paris and their efforts to determine the cause of the coma are given with minuteness. Some very startling cases are mentioned of recent date, and the committee concludes, asking time for a more exhaustive study of these cases and promising to make another report in the near future. The following are some statements and conclusions:

"The instances given might be greatly multiplied, and indicate a deficiency in the public service in most cities which in the name of humanity demands a remedy. The frequent occurrence of mistaken diagnosis makes it necessary that special attention be given to this subject. The differential diagnosis between alcoholic coma, and cerebral conditions simulating it, is not easy; indeed, it is sometimes impossible. Fracture of the skull, concussion of the brain, cerebral hemorrhage, embolism, thrombosis, uremia, epileptic coma, narcotic poisoning, and heat apoplexy have all been mistaken for alcoholic coma. This is especially the case when an alcoholic condition has accompanied the other condition. Such mistakes have been made by well informed medical men, and it is therefore not surprising that policemen, or recent graduates, or ambulance surgeons should err in the diagnosis.

"Your committee while not prepared to make a final report feel justified in offering recommendations.

"1. That while they believe that the system which exists in Paris is, perhaps, the most perfect, by which all persons found unconscious in the streets are taken to a special hospital where they have the most enlightened treatment possible, still it is a question with them whether the distances are not so great as to make such a system impracticable in Brooklyn. They prefer, therefore, to keep this question under advisement for a longer time.

"2. That all persons found upon the street in an unconscious or semi-conscious condition, or wandering about in a state of mental aberration, shall be removed to their homes, or if they have no homes, or their residence can not be ascertained, then to the nearest hospital, and a visiting physician or surgeon shall be at once summoned.

"3. That alcoholism or suspected alcoholism should not exclude such persons from the benefit of proper medical treatment inasmuch as simple cases of alcoholic coma, partial or complete, are serious and demand treatment, and again, alcoholism often obscures and is associated with serious cerebral lesions. In any event, therefore, such cases should have proper medical treatment.

"4. If for any reason such cases can not be taken either to their homes or to the hospital, and must be taken to a station-house, they should be placed in rooms properly warmed, and a physician should be summoned to examine them. If they remain in the station-houses, they should be visited every half hour by the watchman, and if any alarming symptoms intervene, a physician should be immediately sent for. The practice of locking in a cell for hours without inspection a person unconscious from alcohol, whether the same is complicated with injury or not, is inhuman.

5. In case of doubt, as between the police and the ambulance surgeon, a police surgeon should be summoned, and the disposition of the case should be determined by him."

It will be apparent to every one that this is a very important and timely topic, especially in the heated period of summer. This is the first society that has attempted to gather the facts, and make some studies which would be authoritative in this field. We commend this effort and hope that every reader who may

have any facts bearing on this topic will give DR. MASON all possible aid. There is a wide field for original work, and the clearing up of many obscure points, that should be recognized practically in the profession.

INFECTIOUS SWINE DISEASES.

So many of the diseases which affect the lower animals are communicable to man, that pathologic investigations of infectious diseases of any of the domestic animals have a direct bearing on the infectious diseases of man, and consequently are of great interest to all engaged in pathologic study.

Scientific inquiry in no branch of our Government has been more active than in the Bureau of Animal Industry. A production of that Bureau by PROF. THEOBALD SMITH and DR. V. A. MOORE, under date of April 21, has just been made public by the Chief of the Bureau, DR. SALMON, by order of the Secretary of Agriculture.

These investigations have been continuously carried on since 1889, and have had "for their object the endeavor to find out upon what factors the great diversity in the characters of infectious swine diseases depends." PROF. SMITH says:

"Thus far we have found a well-defined bacillus associated with outbreaks of hog cholera in a considerable number of localities, both in the East and the West. The relation of this bacillus to the disease is unquestioned. Furthermore, this bacillus occurs under a number of varieties, whose chief distinguishing character lies in the varying degree of pathogenic activity. Some are more, others less virulent, and the type of disease produced in swine is correspondingly varied. The outbreak from which a few cases are reported in full (on page 27), and from which a well-defined variety was isolated, differs in important particulars from other types of uncomplicated hog cholera in the greater duration of the disease and the peculiar diphtheritic character of the inflammation of the intestines. The confusion existing even to-day in the minds of many authorities on the subject of swine diseases, expressing itself in the multitudinous names which have been given to them, evidently rests in part on the different types which hog cholera assumes as a consequence of the pathogenic variability of the bacillus.

"Our experiments have furthermore shown that the different degrees of susceptibility may produce quite a variation in the character of the disease, and that when a certain degree of immunity has been produced in rabbits it would be impossible to foretell what form the inoculation disease would assume. It might become localized in the intestines or the lungs, or even in the brain. Swine plague might appear as a peritonitis or a pleuritis with or without pneumonia, or in the form of one or more abscesses. This interesting fact is at present of most service to the investigator, because he will be better able to identify obscure diseases. It is needless to insist on the importance of this knowledge. The presence of mild, chronic hog cholera or swine plague in a herd may be fully as dangerous as the more acute disease, for mild disease is frequently caused by highly virulent bacteria. This has been fully brought out in the foregoing pages. Rabbits which, through vaccination, have lived many months after inoculation, have continued to carry disease germs in their body virulent enough to kill unvaccinated rabbits in twenty hours."

Concerning the immunity produced by vaccination, PROF. SMITH says:

"Another fact of considerable importance is the relative character of the immunity produced by vaccination. An animal which before preventive inoculation possessed a high degree of susceptibility may after treatment, no longer contract an acute rapidly fatal disease but one of a more chronic character which, dragging itself along for months and rendering the animal worthless, may form the starting point of subsequent outbreaks among newly introduced or younger animals. This state of affairs has been noticed in Europe after vaccination against rouget, or swine erysipelas, a disease of swine thus far not found in this country. While it is not of sufficient importance to militate against the use of successful vaccines, it should nevertheless not be lost sight of in a final estimate of the value of vaccination methods as a whole. Our observations on hog cholera lead me to believe that even if a fairly successful and cheap method of vaccination against hog cholera could be devised, the result would be that a number of animals would contract a chronic type of the disease after infection, and these would have all the objectionable features of worthless animals scattering infection about for months."

The results of the observations thus summarized by PROF. SMITH are conservative, and should serve to put a stop to crude uncontrolled experimentation by observers with insufficient facilities. Much injury to the cause of science has been done by vaccination of herds with virus of uncertain character. Definite and beneficial results are only to be expected from long continued and careful experimentation by trained bacteriologists, such as the Bureau is now developing.

RAILWAY TRAVEL OF CONSUMPTIVES.

Among other things which the settlement of the great strike will give railway managers opportunity to attend to is the provision of proper accommodations for the segregation of consumptive railway travelers from ordinary passengers in the obvious interest of the public health. This provision will doubtless be hastened by the publication of such observations as the following from a letter to the *Pacific Medical Journal* by DR. DOUGLASS W. MONTGOMERY, written on "a trip to the Eastern States." The writer says: "In our sleeper were three consumptives returning home to die, and that alone was depressing enough, but when, on getting up in the morning, one sees a considerable amount of dry, yellow sputum on one's *vis-a-vis* neighbor's bed linen, it is neither dainty nor reassuring. Morning cogitations, usually so pleasant, are apt to turn to the uncomfortable possibility of all the bedding in the car being subjected from time to time to the same infection, and being probably imperfectly washed, or simply rinsed. Then it is impossible to clean the upholstery and carpeting without taking them out of the car, and an infected sleeper should be dangerous as the continual vibration keeps the dust and bacteria in the air. The space is also necessarily confined. Moreover, travelers are apt to catch cold from drafts

and from sleeping close to the windows, thereby rendering the mucous membranes receptive to germ implantation."

They order these things better in Europe; on some of the Continental lines special coaches are provided for consumptives, and these are constructed with particular reference to ready cleansing and disinfection at the end of every trip—which, it should be noted, are much shorter than the "runs" in this country, and the need of precautions is, therefore, and for so much, greater here than abroad.

CORRESPONDENCE.

Status of an Eclectic.

COLUMBUS, OHIO, July 14, 1894.

To the Editor:—I hope you will answer with care the question of Dr. Q. C. Smith, on page 86 of your JOURNAL. Three Eclectics have just formally applied for membership in our local society—our Society being auxiliary to the AMERICAN MEDICAL ASSOCIATION—and some of our members are in a quandary. Two of these applicants are members of a local, eclectic medical society, and one is President of the State Eclectic Medical Society, and I understand they wish to retain membership therein. The three are all excellent gentlemen, without a personal enemy in the Society, but they are graduates of the *Eclectic Medical Institute* of Cincinnati, and some of our members hold them not eligible under the Code. They have never, by card, sign or otherwise, announced themselves other than simple "physicians," and furthermore, consultation is never refused them by their "regular" brethren. Indeed, some who bring forward the Code argument against admitting them, confess to meeting them in consultation whenever asked.

Personally, I am strongly in favor of admitting these applicants; and not only these, but all other *intelligent medical gentlemen* who will sign our Constitution and By-Laws, which include the Code of Ethics of the AMERICAN MEDICAL ASSOCIATION.

"Regular" intolerance has been the bane of our profession and the key-stone of the success of all 'pathies.

Very truly yours,

J. F. BALDWIN, M.D.

ASSOCIATION NEWS.

Notice.—Officers of Sections are requested to hand in all remaining Section papers at once, as owing to the greatly enlarged size of the JOURNAL they will be reached earlier than heretofore. There are several Sections from which no papers have been received.

Section on Ophthalmology.—The Transactions of the Section on Ophthalmology of the AMERICAN MEDICAL ASSOCIATION for 1894, will be published in separate volume, uniform with 1891 and 1892; the cost per volume being, as heretofore, \$1.00. The publishers of the JOURNAL desire to know the exact number of subscribers before commencing the volume. If you desire a copy of the Transactions please notify me, enclosing amount.

Very truly,

LEWIS H. TAYLOR, Secretary.

41 South Franklin Street, Wilkesbarre, Pa., July 2, 1894.

Blank Applications for membership in the ASSOCIATION at the JOURNAL office.

SOCIETY NEWS.

The regular monthly meeting of the York County (Pa.) Medical Society was held August 2.

The Nicollet County Medical Society will meet at the State Hospital, St. Peter, Minn., August 11, at 7:30. Dr. Baker will present two cases of Huntington's chorea.

Southern Minnesota Medical Association.—At the annual meeting of the Southern Minnesota Medical Association, held at Winona Aug. 2-3, the following officers were elected for the ensuing year: President, J. B. McGaughey; Vice-Presidents, S. W. Ransom and A. S. Adams; Secretary and Treasurer, H. H. Witherstine. The next annual meeting will be held at Rochester, Minn.

Mitchell District Medical Society.—At the meeting of the Mitchell District Medical Society held at West Baden, Ind., July 25-26, the following officers were elected: President, Dr. J. A. Eastman, Indianapolis; Vice-President, Dr. Chas. W. Murphy, Salem, Ind.; Secretary, Dr. G. W. Burton, Mitchell, Ind.; Chairman Committee on Program, Dr. Samuel Kennedy, Shelbyville, Ind.; Chairman Committee on Arrangements, Dr. J. G. M. Yost, Mitchell, Ind. The next meeting will be held at Mitchell, Ind., Dec. 27-28, 1894. Arrangements are being made for one of the largest and most successful meetings in the history of this Society.

Iowa Public Health Association.—The fourth annual session of the Iowa Public Health Association will convene at Des Moines, Iowa, Thursday, and Friday, Sept. 6 and 7, 1894, at the Capitol Building. The meeting will be one of unusual interest and a large attendance is expected. Occurring as it does during the State Fair reduced rates are assured to all who wish to attend. This Society has upon its roster the names of some of the most noted scientific men and women within the State. Bear in mind that this is *not* a medical society. While many of the subjects are clearly allied to medicine and can not be divorced from it, yet physicians are in no sense an essential, though an important and honorable part of the Association. All persons interested in the prevention of sickness and in the promotion of the highest type of physical well-being, are cordially invited to become members. Physicians, lawyers, clergymen, school teachers, newspaper men, mechanics, artisans, farmers, officers in civic and military services, are all eligible to membership; and it is especially desirable that health physicians, mayors of cities and towns, presidents of boards of township trustees and township clerks shall be present and take an active part in the proceedings. Every point of sanitary science will be touched upon by some of the most prominent sanitarians of the State. We have the honor of enlisting among our collaborators the following persons who will address the meetings: J. F. Kennedy, Des Moines; E. H. Carter, Des Moines; Henry Sabin, Des Moines; A. R. Amos, Des Moines; W. W. Harris, Sioux City; Paschal Davis, Keokuk; J. F. Kempker, New Burlington; J. S. Stevens, Cedar Falls; F. W. Weiland, Dubuque; H. L. Getz, Marshalltown; A. P. Hanchett, Council Bluffs.

All persons wishing to prepare and read papers will please send their names with title of paper to the Secretary at once.

J. F. KENNEDY, Pres.,
Des Moines, Iowa.

P. J. FULLERTON, Sec.,

Raymond, Iowa.

The American Association of Obstetricians and Gynecologists will hold its seventh annual meeting at Toronto, Ont., Wednesday, Thursday and Friday, Sept. 19, 20 and 21, 1894, to which a cordial invitation is extended to the medical profession. The following is the preliminary program, sub-

ject to amendment until September 1, namely: President's address, George H. Rohé, Catonsville, Md.; Personal Experience with Pus Tubes: When to Operate, How to Operate, and the Results of Operation, Jas. W. Ross, Toronto, Ont.; Relation of Hysteria to Structural Changes in the Uterus and Adnexa, A. P. Clarke, Cambridge, Mass.; Demonstration of a Mechanism of Intussusception (rabbits), Robert T. Morris, New York; Nephrectomy, L. H. Dunning, Indianapolis; Treatment of Distension of the Fallopian Tubes without Laparotomy and Removal, F. A. Glasgow, St. Louis; Hysteria in Pregnancy, W. P. Manton, Detroit; Relations of Renal Insufficiency to Operations, Carlton C. Frederick, Buffalo; *a*, Importance of Recognizing Septic Puerperal Endometritis Early, and its Treatment; *b*, Demonstration of a Portable Operating Table for Gynecological and Abdominal (Trendelenburg) Work, Edward J. Ill, Newark, N. J.; Suspension of Retroflexed Uterus by the Uterovarian Ligaments, with report of Cases, Reuben Peterson, Grand Rapids, Mich.; The Element of Habit in Gynecic Disease, Geo. F. Hulbert, St. Louis; Some results of Ether Anesthesia in Abdominal Operations, I. S. Stone, Washington, D. C.; Report in Abdominal Surgery, presenting cases, A. Van der Veer, Albany; Supplementary Paper on Abdominal Section in Intrapelvic Hemorrhage, M. Rosenwasser, Cleveland; Conservative Midwifery, J. M. Duff, Pittsburgh; The Cause of the Thirst following Abdominal Section, Eugene Boise, Grand Rapids, Mich.; The Care of Pregnant Women, W. B. Dewees, Salina, Kan.

Discussion: Inflammatory Disease of the Uterus and Appendages and of the Pelvic Peritoneum. *a*, Introductory Remarks, William Warren Potter, Buffalo; *b*, Historical Sketch, Edward J. Ill, Newark, N. J.; *c*, Clinical History, C. A. L. Reed, Cincinnati, Ohio; *d*, Causation and Pathology, Lewis S. McMurtry, Louisville, Ky.; *e*, Diagnosis and Prognosis, James F. W. Ross, Toronto, Can.; *f*, Treatment, M. Rosenwasser, Cleveland, O.; A. Van der Veer, Albany, N. Y.; J. H. Carstens, Detroit, Mich.; A. H. Cordier, Kansas City, Mo.; *g*, Results: *a*, When Untreated; *b*, Under Various Methods of Treatment, Joseph Price, Philadelphia, Pa.

Intercurrent Typhoid Fever in Pregnancy, Thomas E. McArdle, Washington, D. C.; Notes on a Case of Cholelithiasis, Frederick Blume, Alleghany, Pa.; Perineal Operations, Joseph Price, Philadelphia; Remarks Bearing on the Surgical Treatment of Intussusception in Infants, Based on Two Successful Cases, Henry Howitt, Guelph, Ont.; The Limitations of Surgery in the Treatment of the Uterus and its Appendages, William H. Myers, Fort Wayne, Ind.; The Incision in Abdominal Surgery: Methods and Results, J. H. Carstens, Detroit, Mich.; Abdominal Section in Ectopic Gestation, where the Fetus is Living and Viable, X. O. Werder, Pittsburg, Pa.; Subject to be announced, William E. B. Davis, Birmingham, Ala.; Hysterectomy for Cancer of the Uterus, E. W. Cushing, Boston, Mass.; Chronic Progressive Atrophy of the Vulva (Kaurosis Vulvæ); its Pathology and Radical Treatment, Charles A. L. Reed, Cincinnati, Ohio.

PUBLIC HEALTH.

The Environment of the Capital.—A valued correspondent—may his days increase—invites our attention to a lapsus calami whereby we were made to say that the environment of the District is notoriously unhealthy. This was the case many years ago, but not now, when the sanitary conditions have been improved by the reclamation of the Potomac flats, better sewerage and better surface drainage.

Dengue at Key West.—Dr. John Guiteras, Sanitary Inspector M. H. S., has investigated the reported epidemic of dengue at Key West, Fla., and confirms the views expressed in the JOURNAL of August 4. He reports that Dr. J. Y. Porter, State Health Officer of Florida, has made a careful study of some eighty cases and that his records will be of much value in establishing the differential diagnosis between dengue and yellow fever. Dr. Guiteras adds: "In my opinion it is not true that dengue fever is a premonitory sign of a yellow fever epidemic. The two diseases have nothing in common. There are no cases of yellow fever in Key West and the epidemic prevailing is, without possible doubt, one of dengue."

The disease is spreading from the military post to the city.

Parva sed Apta.—The city of Zurich in Switzerland is about the size of Toledo, Ohio, and one-seventh the size of Philadelphia; but the press of the Quaker city is holding up the little burg as a fit model to follow. In 1884 when Zurich found typhoid fever in its water supply—a discovery, it is noted, made even earlier for Philadelphia—this little Swiss town set out to improve its supply, spent \$100,000 on new filters, \$200,000 on new reservoirs, and by using the water power thus secured, set up an electric light supply at a cost of \$235,000 and furnished light, arc and incandescent, at a profit of \$13,000. The Philadelphia Press pertinently asks: "We Americans think we are enterprising, but how long will it be before Philadelphia matches the work of this slow Swiss town and reduces its typhoid cases 90 per cent?"

Spread of Cholera.—Reports from Consular officers through the Department of State and from other sources furnish totals of 5,907 cases of Asiatic cholera, with 3,064 deaths, in 115 localities in Europe between May 15 and August 1, inst. These were distributed as follows: Russia, including Poland and Finland, 3,418 cases, 1,917 deaths, in 25 governments, towns and cities; Turkey, 1,984 cases, 951 deaths, in 32 localities; Belgium, 212 cases, 85 deaths, in 9 localities; Austria-Hungary, 209 cases, 91 deaths, in 11 localities; Germany, 44 cases, 13 deaths, in 17 localities; France, 33 cases, 6 deaths, in 16 localities; Sweden, 4, cases, 1 death, in 2 localities; Holland, 2 cases in 2 localities; Italy, 1 case. That these reports are incomplete is obvious—the St. Petersburg correspondent of the *British Medical Journal*, for example, reports 1,973 cases and 770 deaths in 19 days in that city alone; but the summary gives a fairly correct impression of the cholera situation in Europe up to date. Nowhere on the Continent, except in Russia and Turkey, has the disease assumed threatening proportions or appreciably affected the death rate. And yet there has been and still continues a sufficient spread to thoroughly test the sanitary régime of the countries exposed. Late Amsterdam dispatches report one cholera death in that city; seven new cases at Maestricht on the 4th; five new cases and three deaths at the same place on the 5th and 6th; one death at Haarlem and five cases at Halfweg. A dispatch of the 7th states that between July 29 and August 4 there were 313 new cases and 240 deaths in St. Petersburg; that in the city of Warsaw during the last week in July there were 159 new cases and 83 deaths, and that in the Province of Warsaw during the same period there were 394 new cases and 213 deaths. A Vienna dispatch of the 7th says that 16 districts in Galicia are infected and that during the previous two days there had been 127 new cases and 83 deaths in these districts. A London dispatch of the same date reports the arrival from St. Petersburg at Gravesend of a steamer on which a seaman had died from cholera the previous day. These and similar occurrences serve to keep sanitary authorities on the alert and the Local Government Board (Eng.) has issued a circular upon the desirability of the notification of diarrhea in order to facilitate the early detection of sporadic cases of cholera. Sanitary officers are reminded that the localized outbreaks of cholera in England last year were usually preceded by diarrhea, generally quite excessive in amount and often choleraic in type, and that the existence of this diarrhea was only discovered, in season to be of any use in detecting early and ill-defined cases of cholera, after the disease had been made the subject of notification. It is also seriously discussed whether Asiatic cholera is not becoming endemic in Europe—especially in Russia, where in the third consecutive year of its prevalence the disease has attained a severity greater than in either of the two preceding years. This probably is also made the

occasion for renewed sanitary effort and for further emphasis of Mr. Ernest Hart's axiom that one can not "catch" cholera—"However cholera may rage, it can not spread unless man swallows it. This protection is surely within the reach of civilization, namely, that man shall not drink defiled water; and in truth this is enough."

Diphtheria.—The increasing gravity of diphtheria as a factor of the public health is causing health authorities to put forth unusual effort for the prompt bacteriologic diagnosis of suspected cases. To the list of American cities whose boards of health undertake to make the necessary cultures and furnish the results to physicians free of charge must now be added Chicago. Notwithstanding the unusual recent demands upon the *personnel* of his department and upon its limited appropriations, Health Commissioner Reynolds has made a satisfactory beginning in this direction. The work is under the immediate supervision of Dr. Adolph Gehrman, director of the laboratory of the department, who has just issued the following circular to the profession:

The ability to differentiate cases of diphtheria quickly and certainly, by means of cultures of bacteria obtained from the throat, renders it important that such a method should be used as far as possible by the profession. Certain difficulties however prevent the general practitioner from carrying out all the details of the examination himself. In view of this the Department of Health offers the method as an aid to the profession at large.

The bacteriologic diagnosis of diphtheria cases involves the following:

1. Preparation of the proper culture medium and its distribution to doctors.
2. Inoculation of tubes from patients and return when so inoculated to the Department.
3. Cultivation and examination of the tubes in the Laboratory.
4. The rendering of reports of the results of the inoculation of the cultured tubes.

The Department has prepared wooden boxes containing tubes of culture material, throat swabs and the necessary blanks. The following directions and blank form accompany each box:

CITY OF CHICAGO, DEPARTMENT OF HEALTH.

(Directions for the Use of Cultures in the Diagnosis of Diphtheria.)

The wooden cases containing culture tubes and throat swabs may be obtained at any time by a physician or upon his order from the Department Clerk, Room 4, City Hall.

The blank form is to be filled out down to the double lines, and always returned with the case.

When making an inoculation the throat should be first well gargled with plain water to remove mucus and antiseptics. Remove the sterile swab from its tube and, without contact with other objects, rub it firmly against the suspicious area in the throat. Remove the cotton plug from the other tube, and rub the swab over the surface of the culture medium. Replace the swab in its own tube, and replace the cotton plugs. Send the outfit to the Department *at once*.

Cultures from diphtheria cases should be made as early as possible, as the bacillus sometimes disappears from the throat before the membrane.

In all cases when the outfit is not used, it is to be returned to the Department.

[Blank form].

DIPHTHERIA.

| | | |
|--------------------------------|----------------|-------------|
| Date | Time | No. |
| Duration of Disease | | |
| How Contracted | | |
| Location of Membrane | | |
| Name of Patient | Age | |
| Address | | |

| |
|-----------------------------------|
| Attending Physician |
| Address |
| Inoculated by |
| Received at Laboratory |
| Incubator |
| Appearance |
| Microscopic Examination |
| Number of Slides |

The examination of cultures obtained and demonstrations as to the presence or absence of the diphtheria bacillus is a part of the work of the laboratory of the Health Department. Here the tubes will be incubated and examined when colonies appear. From here also the reports will be returned to the physicians. The culture medium used in this work is Löffler's blood-serum mixture, and also the urine-agar mixture of Schlöffler, upon which the diphtheria bacillus grows almost as readily and gives as characteristic results as upon the blood-serum. The bacillus will grow within twenty to twenty-four hours; that is, before any of the pus or other bacteria, that may be present in the throat, grow to any extent. In this way a growth of the diphtheria bacillus preceding other growths is obtained and a diagnosis is made. In general, reports may be returned by the noon of the day following delivery of the inoculated tubes.

Physicians who make these bacteriologic examinations themselves may be interested in the discovery of Dr. Klein, who has found that in diphtheritic membrane, formed while the progress of the disease is still active, the diphtheria bacilli abound, not only in the characteristic form, but also with the protoplasm segregated into spherical, cubical or cylindrical particles, with a knob-like or club-shaped enlargement of one or both ends, sometimes of great size and containing vacuoles; after from twenty-four to thirty-six hours in agar culture, when the growth is in its initial and most active phase, large numbers of the bacilli occur which are shorter or longer threads with marked segregation of the protoplasm and with terminal knobs. Dr. Klein thus finds that "though the Löffler bacillus under many conditions conforms with what corresponds to a typical bacillus, these threads, with the local accumulation of their substance, and with the terminal knob-like or club-shaped enlargement of their protoplasm, do not harmonize with the fundamental character of a bacillus, but rather suggest a close alliance with the form of a mycelial fungus."

As to the curative treatment of diphtheria by antitoxin its present status is summed up in the address of Sir Henry Roscoe at a recent meeting of the British National Health Society. The diphtheria antitoxin—produced by the immunization of goats through the injection of increasingly virulent cultures of the diphtheria bacillus—is contained in the serum in varying proportions; but Behring and Kitato have devised a method of measuring accurately the exact amount present, and have thence established an immunity unit or standard of antitoxin potency. With injections of quantities of serum containing antitoxin representing 130 to 200 immunity units, as thus ascertained, 220 children suffering from diphtheria in all its stages—as proved by bacteriologic examination—were treated in various hospitals in Berlin. Of 6 cases treated during the first twenty-four hours all recovered, and of 66 treated during the second twenty-four hours only 2 died; thus of 72 cases treated during the first forty-eight hours only 2 died. Tracheotomy was necessary in 9 of these cases and the 2 deaths were of this group. During the third twenty-four hours 29 cases were treated and of these 4 died; during the fourth, 39, of whom 9 died; and on the fifth, 23, of whom 10 died. The percentages of recovery, according to period of treatment, were therefore 100 per cent., 97 per cent., 86 per cent., 77 per cent. and 56.5 per cent. In most of these cases only one injection, representing 130 to 200 immunity units of antitoxin, was used, and it is now believed that some of those who died might have been saved had repeated injections been made. In their preliminary report the physicians, Ehrlich, Kossel and Wassermann, who conducted these

investigations, submit the following as their conclusions:

"1. The fate of patients depends on the treatment during the first three days of the disease; hence the serum should be injected as soon as possible after its commencement; 2, in mild cases the amount introduced should be at least 200 immunity units; in severe cases, and in those where tracheotomy is necessary, 400 units; 3, the injections should be repeated on the same or the following day, according to the general and local symptoms; the total amount varying according to the severity of the case, from 500 to 1,500 immunity units. In 30 cases where repeated injections were employed—some of them very severe cases, 16 of them requiring tracheotomy—only 4 died; these 4 having had tracheotomy done with little or no relief to the breathing." The *British Medical and Surgical Journal*, which editorially anticipates the antitoxin treatment of diphtheria as "a new boon to humanity," promises that full details of the methods and cases will be published as soon as possible and urges that the treatment be put to the test elsewhere—as it has been already in Paris with most satisfactory results.

NECROLOGY.

ALBERT B. MILES, M.D., of New Orleans, died August 5. Dr. Miles was born at Prattville, Ala., in 1852. At the age of 16, he entered the Gordon Institute of Southern Arkansas, where he remained two years. In 1870 he entered the academic department of the University of Virginia. In 1875 he graduated in medicine in the University of Louisiana and delivered the valedictory of his class. Two months after graduation he was elected Demonstrator of Anatomy in the medical department of the University of Louisiana. In 1876, he was elected Visiting Physician to the Charity Hospital. In March, 1881, he was appointed physician-in-charge of the Hotel Dieu, the infirmary of the Sisters of Charity. In the following year he was elected House Surgeon to the Charity Hospital, a position which he held until his death. In 1886, he was elected Professor of Materia Medica, Therapeutics and Hygiene of the Medical Department of the Tulane University. In 1893, after the death of Dr. Samuel Logan, he was selected to fill the chair of surgery, which he held with distinction up to the time of his death.

He was a member of the New Orleans Medical Association, the New Orleans Parish Medical Society, the Louisiana State Medical Society and the Southern Surgical and Gynecological Association. Dr. Miles was unmarried.

Judson B. Andrews, M.D., Superintendent of the Buffalo (N. Y.) State Hospital for the Insane, died August 3. He had been in charge of the Asylum since it was opened in 1880, and was a pioneer in instituting new methods of treatment for the insane. He was ex-President of the Erie County Medical Society, a founder member, and ex-President of the New York State Medical Association and President of the Section of Psychological Medicine and Nervous Diseases of the Ninth International Medical Congress, held in Washington in 1887. In 1892 he was elected President of the American Medico-Psychological Association. He was a frequent contributor of papers to medical societies and journals. For many years he was Assistant Superintendent of the State Insane Asylum at Utica, and for ten years working editor of the *American Journal of Insanity*. He was a captain and later a surgeon in the Connecticut Volunteer service during the rebellion. Dr. Andrews was a prominent Mason, and member of the G. A. R., and many other orders. He was 60 years old.

Francis M. Knipe, M.D., of Pottstown, Pa., Aug. 4, aged 60. He served in the Legislature in 1875, 1876 and 1878.

E. B. Dunning, M.D., of PawPaw, Mich., August 3, aged 65.

A. H. Kimball, M.D., of Battle Creek, Mich., August 6, aged 44.

James F. Fraley, M.D., of Fairbury, Ill., July 31, aged 83.

MISCELLANY.

Resignation of Pettenkofer.—The veteran sanitarian, Prof. Max von Pettenkofer, has resigned from the University of Munich, through pressure from Berlin exerted, as is alleged, on account of the Professor objecting to certain of the anti-cholera measures recommended by Dr. Koch. It is reported that a great deal of public indignation has been aroused in consequence.

A Lapsus Calami.—In the issue of June 30, we noted a gratuitous combination of items, in which the notice of a meeting of a medical society was immediately followed by a prescription for sexual debility, and erroneously attributed the same to the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*. Our esteemed contemporary very properly confines advertisements of proprietary medicines to the outside pages where they belong, and we regret having, through pure accident, done this injustice.—*Medical Record*, Aug. 4, 1894.

Canceromyces.—In a recent number of the *Centralblatt f. d. Medicinischen Wissenschaften*, Dr. van Nissen, of Wiesbaden, furnishes a brief account—which he promises to supplement shortly by a fuller description—of a microorganism which he has found in cancerous tissue and which he is led by his experiments to regard as the cause of cancer. In cultures the cell-groups bear a very close resemblance to the so-called epithelial cell nests of carcinoma. Van Nissen calls this new microbe *Claspodium cancerogenes*—or canceromyces, for short.

Kentucky Medical Practice Act.—Notice is given that the Kentucky State Board of Health will meet in Louisville some time during September, for the purpose of examining those physicians not possessing a diploma, and who have not already passed a satisfactory examination. This will be the last opportunity for non-graduates to qualify for practice in Kentucky under the new law. Thenceforth the only recognized qualification will be the diploma of a reputable college secured by regular attendance upon the prescribed course of lectures and compliance with the other requirements for graduation.

Use of Death Certificate Does not Waive Privilege.—The plaintiff in an action on a life insurance policy does not, by the introduction in evidence of a physician's certificate of death, waive the protection which he or she might claim under the provisions of such a statute as section 834 of the New York Code of Civil Procedure, which prohibits a physician testifying as to information received in the course of professional employment. So holds the General Term of the Supreme Court of New York in the case of *Redmond v. Industrial Benefit Association*, decided May 8, 1894. Nor does such certificate, it further declares, absolve the physician making it from all the duties and obligations imposed upon him by that return.

Medical Practice in France.—Under the new French medical law the government no longer has the power to authorize medical men having only foreign diplomas to practice in France. No physician is now allowed to practice in that country unless he possesses a French diploma of doctor of medicine; and this is to be obtained only by passing such an examination as may be prescribed by one of the recog-

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No. 7.

ADDRESS.

CHAIRMAN'S ADDRESS.

Read before the Section on State Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY GEORGE W. STONER, M.D.

BALTIMORE, MD.

SURGEON UNITED STATES MARINE-HOSPITAL SERVICE.

It affords me pleasure, ladies and gentlemen of the Section on State Medicine, to congratulate you on this, the forty-seventh anniversary of the birth of the AMERICAN MEDICAL ASSOCIATION.

In 1847 great discoveries¹ were made in California, and that year marked the beginning of gigantic strides in the development of a great State. But great as that discovery was and rich as have been its results, who will say that the advent of your ASSOCIATION was not even of greater moment to the people of the whole country?

It is not within the chairman's province, nor would it be possible in the few moments at my disposal, to recite even the faintest outline of the work of the ASSOCIATION during the forty-seven years of its existence. Suffice it to say that the volumes of Transactions and the JOURNAL are in themselves a library of such monumental proportions that comparatively few practitioners have the time or opportunity to peruse their contents. Fortunately, for us, this is not necessary, for the very fountain-head of the ASSOCIATION is still with us, and no reference to the history or active work of the AMERICAN MEDICAL ASSOCIATION or the Section of State Medicine would be complete without mentioning the name of Prof. N. S. Davis, M.D., L.L.D., of Chicago, Ill.

It is only necessary to refer to his paper on "The AMERICAN MEDICAL ASSOCIATION and its Relations to Public Health," read in this Section at the annual meeting in June, 1889, to learn that "although the primary and potent influences that prompted the movement that resulted in the assembling of the convention of delegates in the City of New York, May, 1846, to effect a permanent National organization of the profession of the United States of America, was the desire to elevate the standard of professional education and thereby increase the usefulness and honor of the profession; yet even that preliminary convention did not pass without initiating important measures having a direct bearing on the interests of public health." A committee of five was appointed "to urge" and it did urge "upon the several State Governments the adoption of measures for the registration of the births, marriages and deaths of their several populations." The next year when the convention assembled in Philadelphia a standing committee was appointed with the same object in view, and when the whole organization was

completed—or rather after it was commenced and had been christened the AMERICAN MEDICAL ASSOCIATION, the work of the said committee was so persistently and effectually prosecuted that one State after another fell into line until, at the time of his writing in 1889, "but few States in the Union were without laws of more or less efficiency on the important subject of vital statistics."

It would be impossible to over-estimate the importance of this early movement in the direction of the proper registration of vital statistics, for it is only after the attention of the people of any community is called to the mortality reports that any active or substantial support can be obtained in efforts at sanitary improvement; and as a matter of fact it is only by this means that health officers and sanitarians themselves can arrive at a proper understanding of the healthfulness and relative salubrity of different localities or, on the other hand, can see the necessity for ways and means for the discovery and, if possible, for the eradication of disease and death producing agencies.

At the next meeting, the second of the ASSOCIATION proper, in Baltimore, 1848, a "Committee on Hygiene" consisting of twelve members was appointed; and at the fourth meeting of the ASSOCIATION, in Boston, 1849, general reports were presented on the subject of street cleaning, water supply, drainage, ventilation, disinfectants, etc., and special papers on the sanitary condition of different cities. These reports and papers are masterpieces of the time in which they were written, and without them the sanitary history of a number of cities and towns and of States in the East and South would be incomplete.

Two years later, in 1851, the standing committees were abolished and the work was divided among a large number of special or district committees, covering the several States of the Union.

In the course of a few years the reports of these committees became so voluminous that notwithstanding their value concerning public hygiene, practical medicine and epidemic disease, many of them were of necessity read by title only and referred for publication.

At the annual meeting of 1859, on motion of Dr. J. B. Lindsley, of Tennessee, supported by Dr. Daniel Brainard, "a committee of three was appointed by the chair to inquire into and report upon the propriety of dividing the ASSOCIATION into Sections, for the purpose of performing such parts of its scientific labor as may relate to particular branches of medicine and surgery."

The committee recommended five divisions, and after a strong speech in its favor by Dr. N. S. Davis, the report of the committee was adopted and an amendment to the By-laws was authorized, limiting the general sessions to the forenoon of each day, and providing for the division of the ASSOCIATION into

¹ Gold.

five Sections: 1, Anatomy and Physiology; 2, Chemistry and *Materia Medica*; 3, Practical Medicine and Obstetrics; 4, Surgery; 5, Meteorology, Medical Topography, Epidemic Diseases, Medical Jurisprudence and Hygiene.

The Section plan was brought into active operation the year following and, with some changes and more additions has been in existence ever since that time. The short and somewhat comprehensive title of this Section, State Medicine, being the legitimate outcome of Section 5 already referred to.

What this Section, as part of the General Association, has accomplished in all these years of its usefulness is a matter of history. Previous to the organization of the AMERICAN MEDICAL ASSOCIATION there were comparatively few medical societies in existence and there was no *medical code* of National scope. State and county and city societies are now numbered by the thousands; and boards of health are no longer the exception but the rule in nearly all the States and municipalities, and in some instances have extended to the smallest divisions and subdivisions of the counties; as for example the law recently enacted in the State of Pennsylvania, providing for the establishment of boards of health in every borough and township in the State.

But if the ASSOCIATION has done so much in directing the thought and action of physicians collectively in the management of disease and in the line of preventive medicine or State medicine, if you please, how much more has its influence accomplished in the making of the physician himself? A mere comparison of the curriculums and the methods of teaching the science of medicine to-day with the method, or lack of method, that prevailed only a comparatively few years ago will answer the question satisfactorily to all who have eyes to see and ears to hear.

In these reform movements, however, and in our gratulation we must not forget the younger sister associations. Too much credit can not be given to the American Public Health Association now just coming of age,² and to the Medical College Association, and especially to our friend and associate and former chairman, the late Dr. John H. Rauch. To him, more perhaps than to any other individual, must be ascribed the credit for the rapid advancement towards the higher plane of medical education and sanitary science in this country. Dr. Rauch was, as you all know, for many years Secretary of the Illinois State Board of Health, and what that Board has accomplished need not be recited at this time. Its annual reports are entitled to a high place in medical literature. Ten years ago the *Boston Medical and Surgical Journal* in commenting on the report of that year said: "It represents a stupendous amount of labor, reflecting infinite credit upon its author, Dr. John H. Rauch, the Secretary of the Board, who deserves the thanks of every physician, student and patient in North America, for his unwearied efforts to obtain and present in available form the valuable information it supplies."

This encomium for the Illinois State Board of Health may also be applied to other State boards. All are doing good work, and some of them are said "to rival the boards of health in the general governments of the most enlightened countries in the world, especially in the immediate practical results of their work."³

The principle seems to be firmly established that it is the duty of the State to pass laws for the restriction or prevention of contagious or infectious disease, and it is through the proper enactment and execution of such laws that the most powerful argument can be brought to bear upon the general government for additional, supplemental, or controlling legislation in everything pertaining to public health or State Medicine.

One of the very first quarantines in the United States was established by the State (then the Province) of Pennsylvania in the year 1700. The title of the act was "An Act to prevent sickly vessels coming into this Government." The following is the text:

"WHEREAS, It hath been found by sad experience, that the coming and arriving of unhealthy vessels at the Ports and Towns of this Province and Territories, and the Landing of their Passengers and Goods before they have lain some time to be purified, hath proved very detrimental to the Health of the Inhabitants of this Province.

"Be it therefore Enacted by the Proprietary and Governor, by and with the Advice and Consent of the Freemen of this Province and Territories in General Assembly met and by the Authority of the same, That from and after the Publication hereof no unhealthy or sickly Vessels coming from any unhealthy or sickly Place whatsoever, shall come nearer than one mile to any of the Towns or Ports of this Province or Territories, without Bills of Health; nor shall presume to bring to shore such Vessels nor to land such passengers or their Goods at any of the said Ports or Places until such time as they shall obtain a License for their Landing at Philadelphia from the Governor and Council or from any two Justices of the Peace of any other Port or County of this Province or Territories under the Penalty of *One Hundred Pounds* for every such unhealthy Vessel so Landing as aforesaid, to the use of the Proprietary and Governor, and that suitable Provision be ordered by the Governor and Council for their Reception if they shall be permitted to Land or come on Shore."

The next year, in 1701, Massachusetts passed a similar act: "An Act providing in case of sickness, That for the better preventing the spreading of Infection, etc.," and in 1723 an additional act was passed "requiring Vessels to anchor near the House (quarantine hospital) on Spectacle Island provided at the Charge of the Province." The penalty for violating the law in this Province was in case of master of vessel fifty pounds; sailors and passengers were fined only ten pounds. This act was in the nature of an experiment and was limited to the end of the session of the court in which it was enacted. It was revived, however, by a later Act, and continued in force until the end of the session of the General Court in May, 1728.

The first National law was passed by the United States Congress in 1799. (R. S. 4792):

"The quarantines and other restraints established by the health laws of any State respecting any Vessels arriving in, or bound to, any port or district thereof, shall be duly observed by the officers of the Customs revenue of the United States, by the Masters and crews in any port or station upon the seacoast; and all such officers of the United States shall faithfully aid in the execution of such quarantine and health laws according to their respective powers and within their respective precincts and as they shall be directed from time to time by the Secretary of the Treasury."

Other Sections of this Act provide: *a*, for the discharge of cargo of vessel in quarantine; *b*, for the erection of quarantine warehouses; *c*, for extending time for entry of vessels, subject to quarantine; *d*, for removal of revenue officers from port when contagious or epidemic disease prevails; *e*, for removal

² Organized in 1873.

³ Dr. Baker, Secretary State Board of Health of Michigan, President's Address, American Public Health Association, 1890.

of public offices from the capital; *f*, for the adjournment of United States courts when contagious or epidemic sickness shall render it hazardous to hold the next stated session of the Court at the seat of Government; *g*, for the removal of prisoners to the next adjacent prison where contagious or epidemic disease does not prevail.

It was under this law nearly one hundred years later, in 1875, that the first circular letter of instructions was issued to United States officers, defining their duties with reference to quarantine and public health. The medical officers of the Marine-Hospital Service were especially directed to inform themselves fully as to the local health laws and regulations based thereon and in force at their respective ports and stations; and strict compliance with such laws and prompt assistance in the enforcement of the same, when requested by competent authority were enjoined.

In 1878 a law was passed establishing a National quarantine. It was entitled, "An Act to prevent the introduction of contagious or infectious diseases into the United States," and it charged the Supervising Surgeon-General of the Marine-Hospital Service, under the direction of the Secretary of the Treasury, "with the execution of the provisions of the Act," and empowered him "to frame all needful rules and regulations," subject to the approval of the President, but "not to conflict with or impair any sanitary or quarantine laws or regulations of any State or municipal authorities."

This was a good law so far as it went, but was incomplete in that no appropriation was made to carry it into effect. Under its provisions, however, medical officers of the Marine-Hospital Service and Customs officers were required to "aid in the enforcement of the National quarantine rules and regulations," and in this manner considerable aid was furnished to municipal and State health officers; and the *Weekly Bulletin of Public Health* was issued from the office of the Supervising Surgeon-General. During this same year (1878) the terrible yellow fever epidemic occurred in the Mississippi Valley and in February following, Congress passed another law (Act approved Feb. 3, 1879) establishing the National Board of Health. The latter act embodied all the essential provisions of the former, but changed the executive authority and carried with it a large appropriation which enabled the several members of the Board and the experts they employed to accomplish a great amount of good work.

But the large appropriation for the support of this Act was limited to a period of four years, and at the expiration of that time the active operations of the Board virtually came to an end. The law of 1878 was then revived and became operative by means of the contingent fund appropriated by Congress to be expended by the President of the United States in his discretion, in preventing the spread of epidemic disease and in maintaining quarantines at points of danger.

The work contemplated by the appropriation act was then continued through the agency of the Marine-Hospital Service in aid of State and local boards of health, and in accordance with the Act of April 29, 1878.

The precedent thus established of requiring the medical officers of the Marine-Hospital Service to perform the active work of quarantine has been fol-

lowed up to this time; and by the recent Act of Congress (approved Feb. 15, 1893) additional quarantine powers have been granted and additional duties imposed on the Service, making it in reality and in addition to its ordinary functions a general maritime quarantine and public health service.

Under the laws of 1878 and 1879, quarantine stations were established at several points on the Atlantic coast, and inspection stations at various times were maintained at points of danger on the frontier. Sanitary inspectors were also stationed at Havana and Vera Cruz to give prompt notification relative to the sailing of vessels bound for the United States so as to aid in the prevention of the introduction of yellow fever. At London and Liverpool, inspectors were appointed to give timely information of the shipment of Egyptian rags or any other articles sent through those ports from infected localities. Inspectors were also appointed at the principal European ports to inspect vessels and emigrants bound for the United States. In 1885 a section for the government of National quarantine was added to the regulations of the Marine-Hospital Service, and the whole was approved by the Secretary of the Treasury and by the President of the United States. In January, 1886, the publication of the *Weekly Abstract of Sanitary Reports*, as required by the Act of 1878 was resumed. In 1888 a law was passed (approved August 1) making the National quarantines⁴ on the Atlantic and Gulf coasts permanent institutions and providing for the establishment of three stations on the Pacific coast. An appropriation of \$500,000 was made to carry out the purpose of this Act. In 1890 an act was passed to prevent the introduction of contagious diseases from one State to another and for the punishment of certain offenses.

The latest and most comprehensive legislation affecting the maritime quarantine, and the nearest approach to legislation contemplating a complete National quarantine service, is contained in the Act (approved Feb. 15, 1893) already referred to, granting additional quarantine powers and imposing additional duties upon the Marine-Hospital Service. The following is the text:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That it shall be unlawful for any merchant ship or other vessel from any foreign port or place to enter any port of the United States except in accordance with the provisions of this act and with such rules and regulations of State and municipal health authorities as may be made in pursuance of, or consistent with, this act; and any such vessel which shall enter, or attempt to enter, a port of the United States in violation thereof shall forfeit to the United States a sum, to be awarded in the discretion of the court, not exceeding five thousand dollars, which shall be a lien upon said vessel, to be recovered by proceedings in the proper district court of the United States. In all such proceedings the United States district attorney for such district shall appear on behalf of the United States; and all such proceedings shall be conducted in accordance with the rules and laws governing cases of seizure of vessels for violation of the revenue laws of the United States.

SEC. 2.—That any vessel at any foreign port clearing for any port or place in the United States shall be required to obtain from the consul, vice-consul, or other consular officer of the United States at the port of departure, or from the medical officer where such officer has been detailed by the President for that purpose, a bill of health, in duplicate, in

⁴ National Maritime Quarantines are located at Tortugas Islands, Fla.; Blackbeard's Island, Ga.; Cape Charles, Va.; Delaware Breakwater, Del.; Reedy Island, Delaware River; Port Townsend, Washington; San Francisco and San Diego, Cal.

The quarantine station at Chandeleur Island in the Gulf was destroyed last season by a hurricane, and in this terrible disaster the steward and several employes lost their lives.

the form prescribed by the Secretary of the Treasury, setting forth the sanitary history and condition of said vessel, and that it has in all respects complied with the rules and regulations in such cases prescribed for securing the best sanitary condition of the said vessel, its cargo, passengers, and crew; and said consular or medical officer is required, before granting such duplicate bill of health, to be satisfied that the matters and things therein stated are true; and for his services in that behalf he shall be entitled to demand and receive such fees as shall by lawful regulation be allowed, to be accounted for as is required in other cases.

The President, in his discretion, is authorized to detail any medical officer of the Government to serve in the office of the consul at any foreign port for the purpose of furnishing information and making the inspection and giving the bills of health hereinbefore mentioned. Any vessel clearing and sailing from any such port without such bill of health, and entering any port of the United States, shall forfeit to the United States not more than five thousand dollars, the amount to be determined by the court, which shall be a lien on the same, to be recovered by proceedings in the proper district court of the United States. In all such proceedings the United States district attorney for such district shall appear on behalf of the United States; and all such proceedings shall be conducted in accordance with the rules and laws governing cases of seizure of vessels for violation of the revenue laws of the United States.

Sec. 3.—That the Supervising Surgeon-General of the Marine-Hospital Service shall, immediately after this act takes effect, examine the quarantine regulations of all State and municipal boards of health, and shall, under the direction of the Secretary of the Treasury, cooperate with and aid State and municipal boards of health in the execution and enforcement of the rules and regulations of such boards and in the execution and enforcement of the rules and regulations made by the Secretary of the Treasury to prevent the introduction of contagious or infectious diseases into the United States from foreign countries, and into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia; and all rules and regulations made by the Secretary of the Treasury shall operate uniformly and in no manner discriminate against any port or place; and at such ports and places within the United States as have no quarantine regulations under State or municipal authority, where such regulations are, in the opinion of the Secretary of the Treasury, necessary to prevent the introduction of contagious or infectious diseases into the United States from foreign countries, or into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia, and at such ports and places within the United States where quarantine regulations exist under the authority of the State or municipality which in the opinion of the Secretary of the Treasury, are not sufficient to prevent the introduction of such diseases into the United States, or into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia, the Secretary of the Treasury shall, if in his judgment it is necessary and proper, make such additional rules and regulations as are necessary to prevent the introduction of such diseases into the United States from foreign countries, or into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia, and when said rules and regulations have been made they shall be promulgated by the Secretary of the Treasury and enforced by the sanitary authorities of the States and municipalities, where the State or municipal health authorities will undertake to execute and enforce them; but if the State or municipal authorities shall fail or refuse to enforce said rules and regulations the President shall execute and enforce the same and adopt such measures as in his judgment shall be necessary to prevent the introduction or spread of such diseases, and may detail or appoint officers for that purpose. The Secretary of the Treasury shall make such rules and regulations as are necessary to be observed by vessels at the port of departure and on the voyage, where such vessels sail from any foreign port or place to any port or place in the United States, to secure the best sanitary condition of such vessel, her cargo, passengers, and crew; which shall be published and communicated to and enforced by the consular officers of the United States. None of the penalties herein imposed shall attach to any vessel or owner or officer thereof until a copy of this act, with the rules and regulations made in pursuance thereof, has been posted up in the office of the consul or other consular officer of the United States for ten days, in the port from which said vessel sailed; and the certificate

of such consul or consular officer over his official signature shall be competent evidence of such posting in any court of the United States.

Sec. 4.—That it shall be the duty of the Supervising Surgeon-General of the Marine-Hospital Service, under the direction of the Secretary of the Treasury, to perform all the duties in respect to quarantine and quarantine regulations which are provided for by this act, and to obtain information of the sanitary condition of foreign ports and places from which contagious and infectious diseases are or may be imported into the United States, and to this end the consular officer of the United States at such ports and places as shall be designated by the Secretary of the Treasury shall make to the Secretary of the Treasury weekly reports of the sanitary condition of the ports and places at which they are respectively stationed, according to such forms as the Secretary of the Treasury shall prescribe; and the Secretary of the Treasury shall also obtain, through all sources accessible, including State and municipal sanitary authorities throughout the United States, weekly reports of the sanitary condition of ports and places within the United States, and shall prepare, publish, and transmit to collectors of customs and municipal health officers and other sanitarians, weekly abstracts of the consular sanitary reports and other pertinent information received by him, and shall also, as far as he may be able, by means of the voluntary cooperation of State and municipal authorities, of public associations and private persons, procure information relating to the climatic and other conditions affecting the public health, and shall make an annual report of his operations to Congress, with such recommendations as he may deem important to the public interest.

Sec. 5.—That the Secretary of the Treasury shall from time to time issue to the consular officers of the United States and to the medical officers serving at any foreign port, and otherwise make publicly known, the rules and regulations made by him, to be used and complied with by vessels in foreign ports, for securing the best sanitary condition of such vessels, their cargoes, passengers, and crew, before their departure for any port in the United States, and in the course of the voyage; and all such other rules and regulations as shall be observed in the inspection of the same on the arrival thereof at any quarantine station at the port of destination and for the disinfection and isolation of the same, and the treatment of cargo and persons on board, so as to prevent the introduction of cholera, yellow fever, or other contagious or infectious diseases; and it shall not be lawful for any vessel to enter said port to discharge its cargo, or land its passengers, except upon a certificate of the health officer at such quarantine station certifying that said rules and regulations have in all respects been observed and complied with, as well on his part as on the part of the said vessel and its master, in respect to the same and to its cargo, passengers and crew; and the master of every such vessel shall produce and deliver to the collector of customs at said port of entry, together with the other papers of the vessel, the said bills of health required to be obtained at the port of departure and the certificate herein required to be obtained from the health officer at the port of entry; and that the bills of health herein prescribed shall be considered as part of the ship's papers, and when duly certified to by the proper consular or other officer of the United States, over his official signature and seal, shall be accepted as evidence of the statements therein contained in any court of the United States.

Sec. 6.—That on the arrival of an infected vessel at any port not provided with proper facilities for treatment of the same, the Secretary of the Treasury may remand said vessel, at its own expense, to the nearest National or other quarantine station, where accommodations and appliances are provided for the necessary disinfection and treatment of the vessel, passengers and cargo; and after treatment of any infected vessel at a National quarantine station, and after certificate shall have been given by the United States quarantine officer at said station that the vessel, cargo, and passengers are each and all free from infectious disease, or danger of conveying the same, said vessel shall be admitted to entry to any port of the United States named within the certificate. But at any ports where sufficient quarantine provision has been made by State or local authorities the Secretary of the Treasury may direct vessels bound for said ports to undergo quarantine at said State or local station.

Sec. 7.—That whenever it shall be shown to the satisfaction of the President that by reason of the existence of cholera or other infectious or contagious diseases in a foreign country there is serious danger of the introduction of

the same into the United States, and that notwithstanding the quarantine defense this danger is so increased by the introduction of persons or property from such country, that a suspension of the right to introduce the same is demanded in the interest of the public health, the President shall have power to prohibit, in whole or in part, the introduction of persons and property from such countries or places as he shall designate and for such period of time as he may deem necessary.

SEC. 8.—That whenever the proper authorities of a State shall surrender to the United States the use of the buildings and disinfecting apparatus at a State quarantine station, the Secretary of the Treasury shall be authorized to receive them and to pay a reasonable compensation to the State for their use, if in his opinion they are necessary to the United States.

SEC. 9.—That the Act entitled, "An Act to prevent the introduction of infectious or contagious diseases into the United States, and to establish a National Board of Health," approved March 3, 1879, be, and the same is hereby, repealed. And the Secretary of the Treasury is directed to obtain possession of any property, furniture, books, papers, or records belonging to the United States which are not in the possession of an officer of the United States under the Treasury Department which were formerly in the use of the National Board of Health or any officer or employé thereof.

New quarantine regulations were framed by a board⁵ of surgeons under the direction of the Supervising Surgeon-General immediately after the law was passed, and the said regulations were promulgated by the Secretary of the Treasury. Under the provisions of the law, medical officers of the Marine-Hospital Service were, last year when cholera threatened, detailed by the President to serve in the office of and in association with the United States consular officers at various foreign ports, and from them all necessary information was received relative to the sanitary condition of vessels, cargo, crew and passengers about to depart for the United States. By this means the consular bill of health was made to be a certificate of actual observation by a responsible medical officer whose sole duty was to prevent, if possible, the introduction of contagious and infectious diseases into the United States.

Under the laws of March 3, 1891 and March 3, 1893, all immigrants arriving in this country are examined and passed upon by medical officers of the Marine-Hospital Service, the object being to detect, and to recommend to the commissioner of immigration for deportation, persons of the excluded class, such as idiotic, insane persons, persons likely to become a public charge and persons suffering from a loathsome or a dangerous contagious disease. The proper performance of this duty must also of necessity result in valuable aid to public health.

These examinations may now be regarded not only as supplementary to the examination and work of the quarantine officer in his efforts to prevent the introduction of the diseases quarantinable at the maritime quarantine, as for example cholera, yellow fever and smallpox, but also such diseases of municipal quarantine as diphtheria, scarlet fever, measles and in some instances tuberculosis, and of what ought to be but unfortunately is not included in the ordinary category of quarantinable diseases, *syphilis*.

If, as a great master has said: "State Medicine does everything necessary to protect the health of communities and States—investigates the air we breathe, the water we drink, the food we eat, the clothes we wear, the fuel we burn, the houses we live in, the soil we cultivate, the habits and industries of life, the origin and nature of endemics and epidemics,

the method of their transmission, and the means of their prevention and of their suppression wherever found." If "its object is to discover the causes, and to prevent the origination of disease, to prevent its spread, to circumvent it, to extinguish it, whether it be zymotic, contagious or specific. In short," if "it is the function of State Medicine to protect the public health, which is the life of the nation," why is it that one of the most contagious (when brought in personal contact) and the most widely distributed and destructive diseases, in its remote effects, of the human race, is not officially and legally placed in the category where it properly belongs? Echo answers why?

Can it be that the seed sown or rather the great tree planted in this ASSOCIATION twenty years ago by the "Nestor of American Surgery,"⁶ and which was so bountifully nourished two years later by the President⁷ of the ASSOCIATION is not to bear any fruit? In looking back along the course of eighteen or twenty years one can see that here and there a vigorous graft was placed upon it, but yet it bears no fruit.

With reference to the destructive character of the disease Dr. Gross said:⁸ "When a pestilence, as for example, that of cholera or smallpox, breaks out in a country and threatens to decimate its population every man's fears are at once aroused, and steps taken to counteract its progress; every citizen is upon the alert, and every newspaper is urgent in its appeals for help; but here is a disease a thousand times worse than the most deadly epidemic, doing its work slowly and, as it were in disguise and darkness, ruining entire families, destroying many of our best men and women, and laying the foundation of untold misery, wretchedness and woe, not unfrequently extending through several generations and literally poisoning the very fountains of life."

Dr. Sims remarked:⁹ "The subject of syphilis is rarely mentioned in polite circles, even by medical men, and then only in whispers. It is our duty to enlighten the public upon all questions of public health, and particularly upon this one. . . . So far as the well-being of the human race is concerned I look upon the subject of syphilis as the great question of the day. . . . A greater scourge than yellow fever and cholera and smallpox combined is quietly installed in our midst, sapping the foundations of society, poisoning the sources of life, rendering existence miserable, and deteriorating the whole human family."

Dr. Ricord, the highest authority in all matters pertaining to specific disease said: "Syphilis is the greatest plague that menaces civilization."

Dr. Albert H. Gibon in his address as chairman of this Section on State Medicine, twelve years ago, said: "It is premature to expect the public to believe that they are in danger, or legislators who spring from the ranks of that public to frame protective laws, until they see demonstrated in figures that the venomous brood of smallpox, diphtheria, scarlet fever and yellow fever has a dread sister in venereal disease whose victims are not, like those of diphtheria, quickly carried to the graveyard but linger on earth, suffering living death."

During the same year, 1882, a committee of the American Public Health Association of which Dr.

⁶ The late Dr. Samuel D. Gross.

⁷ The late Dr. J. Marlon-Sims.

⁸ Address in Surgery, American Medical Association, 1874.

⁹ President's Address, American Medical Association, 1876.

Gihon was chairman submitted the draft of a bill having for its object the restriction of syphilis. The bill was carefully prepared and did not differ materially from the laws and municipal regulations governing in the management of other contagious diseases dangerous to the public health. The committee proposed that the bill be referred to the different State and Territorial Legislatures for adoption, but upon this proposition the ASSOCIATION refused to take any action whatever, notwithstanding the fact that only two years before, in 1880, the same ASSOCIATION by a large majority passed a resolution "recommending municipal and State boards of health to urge upon the legislative bodies of this country the enactment of a law for the prevention of venereal diseases."

I do not know how to account for such apparently diametrically opposite action on the part of a great association within so short a period, unless it be on the ground described by Dr. Lomax¹⁰ as "the apathy which at the present day stupefies the mind and conscience of a community in regard to legal interposition as a remedy for this curse, is so unpromising of early beneficial results as almost to preclude it from the prophylactic program of sanitarians. And yet the popular will is so spasmodic in its evolutions and tergiversations, and so plastic in its capabilities, as possibly to bring the benign opportunity within the range of practical accomplishments in an unexpectedly brief period of time. At all events the subject should be constantly paraded before the public gaze, and its importance pressed upon the attention of the people until it receives due consideration at their hands."

It is not my purpose to recite the various methods or avenues through which syphilis may be and is acquired, *innocently* or *otherwise*, nor to discuss that worst of all forms of the disease, *inherited syphilis*. Suffice it to say that according to a late estimate there are now in the United States 6,000,000 of people infected with the disease, and a considerable proportion of this number is made up of persons who have not only acquired the disease innocently, but who are in absolute ignorance as regards the character or cause of the malady from which they are suffering.

An admirable paper on "Syphilis Insontium; A Plea for the Restriction of Syphilis and a Suggestion for the Prevention of its Spread," by Dr. L. Duncan Bulkley, of New York, was read by title in this Section at the last annual meeting at Milwaukee, and published in the JOURNAL under date of Nov. 11, 1893. I trust this paper has been read by every member of the ASSOCIATION. It ought to be read by every physician, sanitarian, philanthropist and legislator in the land. It is brief and to the point on "Syphilis of Innocents"—marital syphilis, syphilis in females, in public and private practice, hereditary syphilis and infant mortality, and lastly but by no means least, the *extra-genital* communication of the disease.

"This," as he says, "is a vast subject, which has been greatly developed of late years, and one which will occupy the serious attention of every physician and sanitarian. . . . The individual with syphilis is not only in danger of communicating the disease in marital relations, and almost sure to do so, and is also most likely to transmit more or less of

the taint to the offspring, if they survive, but is also himself or herself a constant menace to society by virtue of the contagious character of the disease, in some of its manifestations, even for a long period of time."

In referring to the title of his paper, "Syphilis of the Innocents," the author said: "We approach the subject of the restriction of the spread of syphilis solely from this aspect, and argue for the control of the disease by health authorities wholly on behalf of the vast army of innocent sufferers from a disease which is absolutely preventable, provided the absolutely proper measures could be and were absolutely carried out. The proper measures for its restraint will never be instituted until the public is thoroughly alive to the relative frequency and importance of syphilis as a non-venereal disease, and the rights and claims of those who may be innocently infected thereby."

The present widespread discussion and the adoption of measures by different organizations and municipalities for the restriction of tuberculosis, notably the recent action of the health department of the city of New York, ought to, and doubtless will, tend to encourage similar discussion and action with regard to syphilis, not because of any possible or special relationship between these two diseases, but rather on the ground that they are equally widespread and baneful in their effects on mankind; and the measures with few exceptions already recommended for adoption and actually adopted by health authorities for the prevention of the spread of tuberculosis, will be equally effectual, if properly applied, for the restriction of syphilis.

Some encouragement for the workers in the line of progress may also be derived from the decision of the courts in at least two of the States, where it has been decided that syphilis pleaded in answer to an action to recover damages for breach of promise of marriage is a *complete defense*.

But I have reached the limits of the time at my disposal. Thanking you for your kind attention and especially for the high honor you have conferred upon me by calling me to preside over your deliberations, and begging your indulgence and kindly cooperation in the discharge of the duties pertaining to the chair, I now declare the Section of State Medicine open and ready for the transaction of business, and for the reading and discussion of papers as laid down in the program.

NOTE.—Since writing this paper Dr. Bulkley has published a volume of over 300 pages on "Syphilis of the Innocents."

MINUTES OF THE SECTION ON STATE MEDICINE.

FIRST DAY—JUNE 5.

The Section convened in Friendship Hall, Odd Fellows Building, Corner Seventh and Market Streets, Dr. GEORGE W. STONER, U. S. Marine-Hospital Service, in the chair. In the absence of the Secretary, Dr. Charles H. Shepard of Brooklyn, Dr. Liston H. Montgomery, of Chicago, was unanimously elected Secretary *pro tem*. The first session was held at 3 P.M. Tuesday, June 5, and in addition to the above named gentlemen were, among others, the following: Dr. H. S. Orme, Los Angeles, Cal., Ex-President California State Board of Health; Dr. C. A. Ruggles, Stockton, Cal., President California State Board of Health; Dr. W. F. Wiard, Sacramento, Cal., member California State Board of Health; Dr. J. R. Laine, Sacramento, Cal., Secretary California State Board of Health; Dr. Jerome Cochran, Mobile, Ala., President

¹⁰Syphilis; its Prophylaxis. In Annual Report State Board of Health of Indiana, 1883.

Alabama State Board of Health; Dr. H. D. Thomason, Albion, Mich., member Michigan State Board of Health; Dr. John Godfrey, U. S. M. H. S., San Francisco; Dr. J. H. Stallard, M. B., London, Eng.; Dr. Charles E. Winslow, Albuquerque, N. M.; Dr. S. S. Herrick, San Francisco; Dr. J. H. Davisson, Los Angeles, member California State Board of Health; Dr. John W. O'Neill, Chicago; Dr. A. J. Erwin, Mansfield, Ohio; Dr. Gerard Geo. Tyrrell, Sacramento, Cal.; Dr. Thomas Ross, Sacramento, Cal.; Dr. M. M. Chipman, San Jose, Cal.; Dr. M. F. Price, Los Angeles, Cal.; Dr. C. E. Stone, Marysville, Cal.; Dr. Charles N. Cooper, Campbell, Cal.; Dr. Joseph A. Oliver, San Francisco, Cal.; Dr. W. R. Clunoss, San Francisco, Cal.; Dr. Benjamin T. Kierulf, Los Angeles, Cal.

Dr. STONER read his annual address.

The first paper of the session was

ON THE PRINCIPLES OF SANITARY SCIENCE, THE CHIEF OBSTACLES TO THEIR PRACTICAL APPLICATION AND THE MOST EFFICIENT MEANS FOR THE REMOVAL OF SUCH OBSTACLES

by PROF. N. S. DAVIS, of Chicago. As the venerable teacher was unavoidably absent he furnished the Section with an outline of an elaborate paper of which he was preparing the synopsis. This was read by the Chairman and was briefly discussed.

1. The principles of sanitary science or preventive medicine are based on correct knowledge concerning the causes of disease, both specific and predisposing, and the conditions or circumstances that favor or hinder the production or propagation of such causes. The question is discussed whether at the present time the attention of sanitarians is not given too exclusively to the specific causes, more especially of a bacteriologic character and their ptomaines; while much more might be accomplished by giving more attention to the predisposing influences both as regards those pertaining to the individual and to his surroundings. Are not many, if not all, of the pathogenic germs really morphologic deviations from various non-pathogenic germs under morbid conditions either within the body or adversely affecting its surroundings, always present, but harmless, until thus acted upon by unfavorable influences? And would not much greater benefit result by giving more attention directly to personal hygiene and domiciliary conditions than has been given heretofore?

2. It is claimed that the chief obstacles to the practical application of sound principles of sanitation are the deficiency of knowledge on the part of the great majority of the people; their tenacious adherence to established customs, fashions, and modes of living; and the difficulty of procuring the enactment of needed sanitary laws, and the still greater difficulty of securing their honest, persistent and efficient execution.

3. It is stated that the most efficient means for the removal of the foregoing obstacles are, better education of the people on sanitary topics by frequent public meetings under direction of the State and local boards of health; by judicious articles in the daily secular press; by more quiet, though efficient instruction in family circles by practicing physicians during their ordinary professional intercourse, and especially by persistent efforts to impart to the people more correct knowledge concerning the laws governing the production and diffusion of contagion and infection, and the readiness with which they are destroyed by free contact with pure air, good water, and bright sunlight, that their exaggerated fears and prejudices may be removed.

The question how far the present methods of arresting the spread of contagious and infectious diseases by isolation and disinfection are successful is discussed—and continued in an elaborate paper.

Upon motion of Dr. Jerome Cochran, the Secretary was authorized to request DR. DAVIS to furnish a copy of his paper in its entirety for publication in the JOURNAL.

At this juncture a notice was received from Dr. L. Duncan Bulkley, Secretary, requesting the Chairman to appoint three substitutes on the Business Committee for this session, in place of Drs. C. A. Lindsley, Benjamin Lee and R. Harvey Reed, all of whom were absent, resulting in the appointment *pro tem.* of Drs. Jerome Cochran, C. A. Ruggles and W. F. Wiard.

Dr. COCHRAN moved, duly seconded, that we discuss the suggestions or topics in the Chairman's address. Also, those embodied in Dr. Davis' paper. Carried. A protracted and interesting discussion then ensued which was participated in by Drs. Cochran, S. S. Herrick, J. H. Stallard, J. R. Laine, H. D. Thomason, the Chairman and others.

The Secretary then read a biographical sketch of the late Dr. John H. Rauch. A committee was appointed to prepare a suitable preamble and resolution regarding the deceased to be read first before this Section and then submitted to the ASSOCIATION. The following gentlemen constituted the committee: Drs. C. A. Ruggles, H. D. Thomason and Liston H. Montgomery.

The Chairman appointed the following Nominating Committee: Drs. C. A. Ruggles, J. R. Laine and John Godfrey, and at 4:45 P.M. the session adjourned.

SECOND DAY—JUNE 6.

The second day's session convened at 2:30 P.M., with Dr. STONER in the chair. The first business transacted was the report of the Committee on Nominations for officers of the Section for the ensuing year, which was unanimously adopted, resulting in the election of Liston H. Montgomery, Chicago, Chairman; Charles H. Shepard, Brooklyn, N. Y., Secretary.

Executive Committee: John Godfrey, U. S. M. H. S., San Francisco; C. A. Lindsley, New Haven, Conn.; Benjamin Lee, Philadelphia, Pa.

The first paper read was entitled

THE PHYSICIAN AND STATE,

by DR. CHARLES E. WINSLOW, Albuquerque, N. M. The paper was heartily approved. One of the many interesting portions which is quoted at this time is the following: "It is a fact that healthy nations are wealthy nations, proving that public health is of great commercial value. This being true, is it not worthy a place in the Cabinet? If the improvement and preservation of plant and animal life are important enough to need a representative in the Cabinet, vastly more important is that which prevents sickness, prolongs life, protects homes, uplifts humanity, adds wealth to the State and is the life blood of the Nation." Discussion was participated in by Drs. Orme, Ruggles, Godfrey, Stallard and Thomason.

A FEW REMARKS ON LEPROSY

is the title of a short valuable paper read by Dr. HENRY S. ORME, of Los Angeles, Cal. The author thinks there are more cases of leprosy in California than is known. The most important conclusions reached were that leprosy is not kindred to syphilis or tuberculosis; that it is contagious and that it is not diffused by hereditary transmission. There is abundant proof that the plan of segregation will in time cause leprosy to disappear, providing it be rigorously enforced. In Dr. Orme's judgment all lepers should be legally registered and kept under surveillance by the sanitary authorities, so that they may be isolated whenever necessity occurs. The law might provide for periodical inspection, and certificates of the same to those allowed to be at large. The discussion was continued by Drs. Ruggles, Stallard, J. H. Davisson, Ross, Cochran, S. S. Herrick, W. F. Wiard and the author

The next paper for consideration was

RESTRICTION OF TUBERCULOSIS,

by DR. J. H. DAVISSON, of Los Angeles, member of California State Board of Health. The paper was discussed by Drs. Ruggles, Cooper, Stallard, Cochran and Godfrey.

A very carefully prepared paper,

A STUDY OF THE EFFECTS OF POISONED AIR IN THE CAUSATION OF INEBRIETY,

was read by DR. T. D. CROTHERS, Superintendent Walnut Lodge Hospital, Hartford, Conn. Said the author, in part, in his conclusions: A society of aerationists, who would seek to show how disease could be prevented and life lengthened by always breathing pure air, would do some real work for the elevation of humanity. Specific hunters and reformers will find an open field and unlimited scope for research in the air we breathe, and its influence in increasing or diminishing disease. That inebriety is caused by bad air in some cases, and is largely influenced by both good and bad air in all cases is a fact unquestioned. Rational medicine demands a study of all conditions of living and surroundings in the questions of diagnosis; it demands that disease and diseased conditions should be regarded as physical entities. Discussion by Dr. Stallard, of London, who maintained that in that metropolis squalor and poor surroundings increased inebriety, and by Drs. Godfrey, Herrick and Anderson.

The committee appointed to take notice and prepare resolutions of respect upon the death of their late fellow, Dr. J. H. Rauch, submitted the resolutions published in the JOURNAL, page 954, June 23, 1894, which were upon motion unanimously adopted and referred to the ASSOCIATION.

The Section then adjourned.

THIRD DAY—JUNE 7.

Section convened at 2:35 P.M. with DR. GEO. W. STONER in the chair and twenty-two members present. The first paper was presented by DR. S. S. HERRICK, of San Francisco, entitled

COMMON CARRIERS AS DISSEMINATORS OF CONTAGION.

The writer dwelt more particularly on the disposal of the excretions of travelers on inland waters and on railway coaches; that certain communicable diseases whose contagious property is discharged from the alimentary canal is liable to reach the alimentary or respiratory tract of other persons if not intercepted or destroyed, and cholera, typhoid fever, dysentery, intestinal tuberculosis and other filth diseases were named as notable examples in this respect. Companies who provide meager accommodations for passengers were properly censured, and should be held justly responsible if inadequate remedies were provided for their patrons. In Dr. Herrick's judgment the time had arrived for sanitarians to speak plainly and forcibly on the subject, and to demand of legislators a specific remedy which courts will be bound to apply to this class of offenders against health. Discussion by Drs. Ruggles and Cochran, Davison and Stoner, all of whom were in accord with the opinions advanced by Dr. Herrick.

The second paper presented to the Section this afternoon was

STATE MEDICINE; ITS RELATION TO PATENT MEDICINE,

by DR. SAMUEL P. DUFFIELD, of Detroit, Mich. In the absence of the author the paper was read by Dr. Stoner. Cases were cited where patients were beguiled into the belief that they could be benefited (even though it be at \$10) to start with, by advertising itinerants, printed circulars, etc., using the United States mail for these deceptions. Various patent remedies advertised to quiet certain "nervous conditions," to restore "lost vitality," etc., were scored. The attention of the Attorney-General, Postmaster-General and Congress should be called to this matter and have such ma-

terial excluded by the postal authorities. The Patent Office came in for its share of censure, wherein it issues the right to any person or to a firm to manufacture and sell medicines so powerful that they work death to an innocent citizen. Accompanying the paper were various exhibits of advertisements for the members of the Section to read and act upon—not to be reproduced in print, however.

The paper was discussed by Drs. Ross, Stallard, Ruggles, Davison and Price, and upon motion of Dr. Ross as was suggested by the author, a committee of three was appointed by the chair to try and agree upon some method of procedure of investigating the composition of various proprietary medicines that are advertised in medical journals and elsewhere, and to do what else was deemed best in the judgment of the committee, even to bringing the matter before Congress. Dr. Thomas Ross, Dr. J. H. Stallard, and Dr. Liston H. Montgomery were named as the committee. The latter gentleman being appointed instead of Dr. W. F. Wiard, who was unable to serve.

It may be well to state that a committee for a similar purpose was appointed at the annual meeting of the American Pharmaceutical Association last year to report at their annual meeting to be held during the first week of September, 1894, at Asheville, N. C.

The next paper,

CLEANLINESS THE CHIEF ANTISEPTIC,

was read by the acting Secretary, on account of the absence of the author, DR. C. F. ULRICH, of Wheeling, W. Va. Dr. Ulrich thinks preventing bacilli from entering the human body when it can be done, far preferable than bacteriologic investigations afterward; and that the former is more apt to be accomplished by thorough and perfect cleanliness than by the use of so-called antiseptics.

VACCINATION AND RE-VACCINATION

is the title of a carefully prepared essay by DR. EZRA M. HUNT, Secretary of the State Board of Health of New Jersey. This paper had been forwarded by the author to the Section, and as he was unavoidably absent on account of ill health it was read by the chairman. Never was so much loose vaccination done as now. We sound not too soon this note of warning, for we believe that if the present loose methods are permitted to continue, vaccination will become less and less a preventive of smallpox and so its enormous value will be greatly impaired. There must be more thorough work and more exact discipline as to this whole matter of vaccination. Among the tentative answers as indicating lines of direction for inquiry, Dr. Hunt said: *a*, there should be a National vaccine and distributing establishment for bovine vaccine at Washington; *b*, arm to arm vaccination should not be wholly abandoned. In our larger cities, at least, physicians should arrange to have at hand certified humanized lymph of which the sources are local and fully known; *c*, vaccination direct from a charged ivory point used for scratching, or from a needle used but for one case, should be relied on; *d*, re-vaccination should be advised for all who have not been vaccinated within ten years, and oftener where there has been special exposure, or there is any doubt as to marks, or time of first vaccination; *e*, children should not be admitted to public schools until vaccinated. Provision should be made to encourage general vaccination of infants and youth; *f*, a vaccination card or certificate should be given, stating time and place of vaccination or of re-vaccination, whether there was subsequent examination and at how many points the lymph had taken; *g*, while time of quarantine must vary somewhat according to circumstances, persons who have been fully exposed if not quarantined at once should be under quarantine or watch from the ninth to the fifteenth day after exposure.

The discussion was participated in by Drs. Orme, Ruggles, Herrick, Ross, Stone, Chipman, Price, Stoner and Montgomery.

The last paper was read by title as the author was obliged to be absent during a portion of the afternoon session: "Tuberculosis and its Prevention," by Dr. WINSLOW ANDERSON, of the University of California, which was upon motion referred for publication in the JOURNAL.

CHAIRMAN STONER announced that this would close the reading of papers. He closed his official duties by eloquently thanking the members for their attendance at the meetings, which offers good argument for the continuation of this Section.

DRS. RUGGLES and ORME were appointed to escort the chairman-elect to the chair. Upon being inducted into office, Dr. MONTGOMERY said in substance:

It is a well-known fact or maxim that accidents sometimes occur to the best regulated families. When I left my Chicago home two weeks ago, the thought was remote from my mind of being selected either as Secretary *pro tem.* of the Section of State Medicine for this meeting, or chosen chairman of the Section for the ensuing year. Since you have seen fit to confer upon me these double honors, which I am cognizant rightfully belong to others as well, it is but just for me to express to you my heartfelt thanks for this mark of appreciation on your part.

As you are all aware, the officers of the Section have endeavored to secure the names and addresses of all who have attended the Section at this meeting. I trust, therefore, that you will consider yourselves individually or collectively as being personally invited to prepare papers and essays for the annual meeting to be held next year. Again renewing my thanks for the honor of selecting me as chairman of the Section for the coming year, and if by so doing the Section of State Medicine will prove as interesting then as the present meeting has been under the able guidance of my predecessor, your selection of officers for 1895 will not have been a mistake.

A vote of thanks was upon motion of Dr. H. S. ORME tendered to Dr. STONER for his able and dignified parliamentary rulings throughout the sessions of the Section. No further business was presented. The chairman at 5:40 P.M. then declared the Section adjourned, *sine die.*

LISTON H. MONTGOMERY,
Acting Secretary.

ORIGINAL ARTICLES

MEDICO-LEGAL SUPERSTITIONS CONCERNING CRIMINAL INEBRIATES.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY T. D. CROTHERS, M.D.

SUPERINTENDENT WALNUT LODGE HOSPITAL, HARTFORD, CONN.

During the past few months I have examined the facts and circumstances of six different homicides. In all these cases the prisoners were convicted and sentenced to suffer the extreme penalty of the law. In every instance the prisoner was an inebriate, and had been using spirits to excess before and at the time of committing the crime.

The defense in all these cases was insanity, intoxication and incapacity to reason of the nature and consequences of the act, with inability of control. The prosecution denied this, and sought to prove a state of sanity and mental capacity that in no way lessened responsibility. The jury in each in-

stance considered this established and returned a verdict of guilty.

In four cases the judge expressed great approbation of the courage of the jury in their verdicts, and sentenced the prisoner in terms of severity and harshness.

In one instance the judge expressed great confidence in the wisdom of the law and predicted less crime when the punishment was clear and prompt.

In another case the judge urged the prisoner to throw off all disguise and be honest with himself before he died.

In one case the judge gave no opinion, in another he became lachrymose and fell into a religious strain.

I shall refrain from the use of names and dates, because these cases are not unusual or in any way different from many others occurring daily in all the large cities of the country.

The question I propose to examine is: For what reasons and upon what evidence can medical men in the court room swear to the sanity and capacity to reason rationally of men who are under the influence of spirits? The superstitions of the law and the delusions of judges and jurors on matters on which they can not possibly form sound judgment, because they are not acquainted with the facts, are familiar to all.

Why should medical men accept these delusions and act upon them as if they were absolute facts? As an illustration, take any case where the question of insanity comes into the court room, and a certain number of physicians will give testimony in accord with legal conceptions of what should constitute insanity. Medical views of authorities are twisted and turned to suit some legal diction, or ignored altogether. Scientific facts and conclusions are strained down to the level of the law, and previous decisions of the courts, as if they were absolute authority.

Many physicians exhibit scientific demoralization in the court room, and are unable to state clearly or defend the authoritative teachings of those who are in a position to know. Hence the sneers at expert testimony and its supposed unreliability.

The physician should go into the court room as a scientific man, to give facts and opinions irrespective of all conclusions or possible antagonisms to prevailing views.

In Case 1 of these homicides mentioned, the physicians for the prosecution each acknowledged that they knew the law declared that drunkenness was no excuse for crime. Each one seemed to give very careful testimony that should not conflict with this dictum. In this case the prisoner came from a degenerate family, in which insanity, inebriety, pauperism and idiocy had appeared in many members. He had been an inebriate tramp from early life, drinking to excess at all times and places, and had suffered from delirium tremens, sunstroke and typhoid fever. He had been a gambler, barkeeper and hotel runner, and he had lived very irregularly all his lifetime.

He was confined in jail some months suspected of burglary, but was finally released for want of definite evidence. He drank daily to excess from this time, and after an altercation over some trivial matter he threatened to kill a man; the next day he renewed the threats while intoxicated; the third day he met the man and killed him in a personal encounter. He had drunk to excess all day, and while not stupid was clearly intoxicated. These facts were not dis-

puted. On the trial three physicians swore that he had full power of forming conceptions as to his acts and their consequences. That as he had driven a hack and had acted rationally on these days in his business he must have been able to reason on the nature and quality of his acts. Also he could not have been insane or unconscious of what he was doing. On cross-examination, alcohol was called a stimulant, and never a paralyzant except in excessive doses, also persons who used spirits were not in any way affected mentally unless intoxicated.

In Case 2 the prisoner killed his brother under unknown circumstances. He affirmed no recollection of the act. He was a periodical inebriate and had been drinking for two weeks every night to excess. He had begged money on the night of the crime and when refused declared he would have money if he had to kill some one. The next morning he had money and his brother was found murdered. He had drunk at intervals from the time he was in the army in 1864, gradually becoming worse. His father was an inebriate and his mother died insane, and he had lived an irregular life as a pedler. He had been in jail for intoxication and was weak-minded when not drinking.

On the trial two physicians testified that they had examined him and found him of sound mind, and that he was fully capable of knowing what he did even when under the influence of spirits. They also swore that unless stupid or delirious he would be sane and conscious, and act with premeditation. They also believed that alcohol did not destroy normal consciousness, without giving evidence in conduct and appearance.

Case 3 was a man who had previously occupied a prominent position, and was considered to have more than average ability. He came from a consumptive and neurotic family. At 30 he was injured in a railroad accident and his wife was killed. From this time he drank and lived with low society, was a low barkeeper, pawnbroker, and drank steadily, seldom becoming stupid or delirious.

Finally he killed a low woman companion and ran away. The evidence showed his condition before and after the act to be in no way different from that at other times, although he was evidently under the influence of spirits. Two expert physicians swore to his measure of sanity and his ability to have restrained himself, also that he gave no evidence of ever having been insane and unable to reason on the nature of his acts.

Case 4 was a low Italian laborer without any history, except that of spending all his week's earnings drinking Saturday night and Sunday. He never seemed stupid or hilarious, but was rather thoughtful and sedate when drinking. He killed the barkeeper who refused to sell him more spirits. About the same testimony was brought on by the medical witnesses for the prosecution. The prisoner was considered sound and in possession of all his faculties at the time of the homicide.

Case 5 was a wife murder by an inebriate who was possessed when under the influence of spirits, of delusions of his wife's infidelity. When sober he was silent and seemed not to consider this, but after drinking he became morbidly suspicious of every act and word. In all other relations he was unchanged and appeared rational. These drink periods would culminate in attacks of acute gastritis and long free

intervals of sobriety. On the trial the medical testimony denied all possibility of his being unable to realize the nature of his acts, but assumed that his natural jealous disposition was increased by spirits, and he could at any time have checked it.

Case 6 was a farmer who had drunk cider brandy for many years, and in a rage at his brother-in-law, who tried to arrange for the removal of the spirits, shot him. There was no history other than that of excessive drinking for many years and gradual decline of health. He appeared and acted rational to all general observation. The medical testimony on this trial was very emphatic in denying the irresponsibility of the prisoner, and assuming that he was fully competent to understand his acts and know right from wrong. Alcohol was declared to be non-poisonous taken every day.

Such is an outline of the medical testimony on which conviction was secured in each case. Three of the cases were defended by elaborate medical evidence, and the impression created was that it was simply paid testimony.

In two cases medical witnesses offered voluntary testimony in rebuttal to the evidence of the prosecution concerning the sanity of the prisoner. In one case no medical evidence in defense was presented. I assume that the evidence offered to show the mental integrity and responsibility of the prisoner by physicians in these cases is a fair example and is a common experience in all criminal courts of the country. I propose to show that such evidence is theoretical and entirely unverifiable.

The supposition that insanity must always be marked with delirium, idiocy or dementia, and that no insanity is present unless such symptoms are clear, is not true in reality. Many of the most dangerous lunatics and thoroughly insane men exhibit a degree of mental acuteness and vigor not seen among the sane.

The old theories of right and wrong test, and of capacity to do otherwise, and free will to judge and decide of the act, are misleading and unsupported by facts. The same facts obtain in the study of inebriates; intoxication marked by delirium and stupor, are not the only conditions of irresponsibility. Facts within the experience of every one point out states of trances, of delusions, of morbid impulses and imperative ideas, which are veritable insanities, that give no evidence of their presence except in certain lines of conduct, that are not understood.

The assumption of capacity with knowledge and control and the fact that the person was not stupidly and wildly intoxicated is wrong and unverifiable.

To assume sanity in any person who persists in using spirits to excess, a habit destructive to all his personal and pecuniary interests is contrary to facts, and is simply the tenacity of an old delusion of the value of alcohol. The person who uses spirits to excess at intervals or continuously must have a defective mentality, either before spirits were used, and certainly after its use he is more degenerate. Statistics are clear on this point, that in at least one-third of all cases of inebriates the use of alcohol is a symptom and not a cause. A symptom of some brain defect, either congenital or acquired, or some latent tendency to exhaustion which is exploded and made to take on acute conditions which are masked by spirits.

The theory that alcohol is purely a stimulant, and always the sole cause in inebriety is untrue. The theory that excess in the use of spirits is only temporary derangement, of the same class as indigestions, exhaustions from muscular overwork, is also untrue and dangerously misleading.

Recent experiments on healthy men show that in varying doses of from 1 to 2 ounces of spirits after the first hour the temperature and pulse fall, the senses are diminished, the muscular strength is lessened, the memory is more imperfect and all the brain functions are slower and below the normal in acuteness. These are facts which can be measured and seen, and are not observations or theories, and they show that alcohol is a depressant and paralyzant in all cases. That the temporary increase of the heart's action, and circulation of the blood is deceptive and is followed by reaction and depression. The weary horse whipped to greater efforts is not given new strength, but is made weaker and more incapacitated. This depressant action of spirits in the second state is a fact that can be proved in every instance beyond all question by instruments of precision.

It will be obviously impossible to continuously depress all the vital functions of the mental and physical organism and retain health. The man who is intoxicated, stupid or delirious, is in the extreme stage of this depression. The man who at intervals for years becomes intoxicated, or who is obviously under the influence of spirits, can not be in possession, or have full control of his faculties.

In any of these cases of homicide, the history of continuous and excessive use of spirits, or excess at intervals, is almost absolute testimony of incapacity. No appearance of sane acts and reasoning are proof of sanity. Some of the most insane men both think and act rationally on matters outside of their delusions.

The inebriate in most cases acts automatically, following lines of previous thought and action. When forced into new fields of activity his weakness appears. In Case 6 no one suspected the real condition of his brain. Although his general health had greatly declined, yet when his brother sought to remove the spirits which were injuring him, he became delirious and killed him. His insanity had been the growth of years and was not the transient impulse of anger.

In Case 5 the presence of delusions had been recognized when suffering from the drink paroxysm. This, with the fact of having drunk for years, was clear proof of incapacity to reason or to control his acts.

The drinking history of Case 4, spending his wages weekly in spirit excesses was also clear evidence of mental degeneration and unsoundness.

Case 3 was clearly one of marked disease of the brain in which the use of alcohol was not only a symptom but an additional cause of irresponsibility.

Case 2 was evidently a trance state with a history of neurotic inheritance, which in itself would have caused doubts of capacity to reason rationally.

In Case 1 a similar bad inheritance and injury from sunstroke pointed to brain incapacity.

Irrespective of all this history, the fact of using alcohol to excess is evidence of a degree of brain failure that should be unquestioned. From clinical facts and teachings I affirm with confidence that no

one who uses spirits to excess for any length of time has a normal sound brain. That it is rational to assume insanity in any case where the history indicates alcoholic excess for long periods before the commission of the crime. No appearances or sane acts should prove the sanity of a man who has been for years destroying himself with alcohol.

The question of how far he was unconscious of his acts, or unable to control himself, or comprehend right from wrong, opens up another field of inquiry, which can not be determined clearly, but the general question of his mental impairment should be considered established.

A further study of this question will show that the use of alcohol always paralyzes the higher functions of the brain, and is followed by heart feebleness and depression. The senses are disturbed and are less and less capable of transmitting accurate impressions. The higher brain is less able to comprehend the nature of acts and their relation to surroundings. Delusions of strength are common, and events and their consequences, and motives and purposes are exaggerated, misconceived, misinterpreted, and the brain is unable to correct them.

All inebriates have defective brain and nerve power, and every toxic state from alcohol more or less permanently impresses and increases brain degeneration. All such persons have lowered pride of character, less ambition, less fear of consequences. The brain is anesthetized and crippled and unable to realize the nature of acts. Crime committed by inebriates must be under abnormal states. The more prominent the inebriety the more incompetent the brain is to act rationally and soundly.

The effort to find a point or dividing line where sanity and insanity join, or where the person could or could not have controlled his acts or realized their nature, is an impossibility which every advance of science demonstrates. Capital crime by inebriates is always the result of some circumstances or some sudden strains on an enfeebled brain; some morbid delusions or illusions that suddenly dominate the mind, or epileptic explosions masked and concealed in some way. Alcoholic somnambulism or trance conditions may be present in many cases. The mind during these periods is always dulled and largely unconscious of all external or internal considerations, and is subject to strange unknown impulses that may vary suddenly. There are present either states of insanity of inebriety, or the inebriety of insanity or both. Such cases are masked to all superficial observation, and are not subject to the ordinary influences and motives which control the normal mind.

The teachings of modern psychology fail to confirm the commonly accepted theory that states of delirium and dementia from alcohol are harmless, and that recovery from these conditions is complete. Sanity and clear healthy brain consciousness do not alternate with the delirium and stupor of intoxication. The moderate and continuous drinker suffers in the same way only in a lesser degree. The person who from continuous use of spirits develops an attack of acute mania and insanity, with all the classical symptoms, and after a few weeks restraint in an insane asylum is discharged as cured and sane, is a good illustration of the theoretic delusion that all injuries from alcohol are transient. When such persons relapse and commit capital crime the ques-

tion of their former treatment in an asylum is only admitted in court as a general fact bearing on their possible mental state. This is an error and opposed by all teachings of facts. The subsidence of the acute symptoms due to alcoholic excess and the removal of spirits is not the cure or restoration of the disordered cell and nerve tissues.

The apparent sanity of the epileptic in his free intervals is no evidence that the attacks will not return, or that the man has recovered, or that he is fully sane and capable of exercising sound judgment. The periodical and continuous drinker is always unsound and unreliable; like the epileptic he can not be trusted to act normally under all circumstances. Crime by such persons is the natural consequence of a brain that is degenerating. It is unreasonable and unnatural to expect such persons to act rationally as other men who do not, or have not, suffered in this way. The court-room superstitions that overlook this fact, and attempt to measure the degree of consciousness of right and wrong, and the power of discrimination of facts and their relation to each other, is deplorable in this age of scientific inquiry.

The physician who is called to give evidence as to probable states of sanity in the case of an inebriate criminal, where the history of alcoholic excess is associated with the crime, is lending himself to encourage superstition that should rapidly disappear. The effort to formulate certain assumed facts into a position to support a theory that is unverifiable always ends in confusion and injustice. In three of these six cases the testimony of the physicians who swore to the sanity of the prisoner was a sad mixture of confused, disjointed statements, which were open to so many exceptions as to be literally worthless. In all these cases the inquiry should have turned to the drink history of the criminal, its heredity and growth up to the commission of the crime. From these facts some idea of the capacity or incapacity of the mind to act rationally could be found. The exact condition of the criminal at the time the crime was committed, separated from events before and after, gives no clear conception of the man or act.

It is absolutely farcical for a medical man on the witness stand to be drawn into an explanation of metaphysical theories of inebriety. He should refuse to give an opinion on presumptuous cases, which involve half fact, with moral, legal and sentimental theories, that are false. He should refuse to attempt any explanation of motives or capacity to will or otherwise in a person who was under the influence of alcohol at the time of the commission of the act. He should testify clearly to the incompetency of any one drinking spirits to will or to do, at the time, and insist on only giving general conclusions from established facts. The questions should be: 1, was the prisoner an inebriate? Did he drink spirits before, at the time and after the commission of the act? If these questions are answered in the affirmative and on facts, the mental capacity may be doubted, reasonably and naturally; 2, what was the nature of the act, and the conditions under which it was perpetrated? Do they strengthen or disprove the inference of mental unsoundness; 3, what conclusions do the facts point to? If the preponderance of evidence indicates a defective consciousness of conduct and the relation and consequences of acts, the probability of disease of the brain in its broadest sense is almost a certainty.

No scientific study will sustain theories of the degrees of health and disease, or boundary lines of responsibility and irresponsibility. If the prisoner has poisoned himself with alcohol before and at the time of the act, he can not be considered as sound, sane and in possession of normal faculties. Evidently there is here a very wide field for new and exact studies, which will revolutionize and clear up much of the superstition and odium which has grown up about expert medical testimony.

A summary of the facts may be grouped as follows:

The questions of inebriety are becoming more prominent in the legal treatment of crime, and yet to a large extent the theories of centuries ago prevail, and form the working basis from which to judge such cases.

Physicians as expert witnesses make the fatal mistake of attempting to harmonize facts and legal theories of interpretations, with some vague notions of insanity and inebriety.

It is a legal fiction and delusion to suppose that crime committed while under the influence of alcohol is the voluntary act of a conscious brain.

It is a delusion to interpret acts that indicate premeditation by inebriates as evidence of sanity and consciousness of their import.

It is a delusion to consider inebriety a normal condition, and that the victim has full power to poison himself for years, even up to and over into the region of full insanity, but should he commit crime punish him as sane and accountable.

It is a delusion to consider that all inebriates have the power to drink and abstain at will; that intoxication implies a voluntary state *which is under control* of the mind.

It is a *fact* sustained by unmistakable evidence that an inebriate who commits crime is not of a sound mind. That no criminal act by persons who are under the influence of spirits at the time of the commission of the act comes from a sane, healthy brain.

The delusions of the law insist on fixing boundaries of responsibility, and urge medical men to go into this penumbra region of sanity and insanity, and draw lines between vice and disease, and indicate where human justice should punish and where excuse.

The medical man on the witness stand and at the bedside must go beyond the theories of yesterday or the facts on which yesterday's views were based. A clearer, wider range of facts point to broader conclusions to-day and still clearer facts to-morrow.

DISCUSSION.

THE CHAIRMAN—The paper of Dr. Crothers is now before the Section. I for one feel that I owe, and I think the Section generally owes Dr. Crothers a debt of gratitude for the earnestness with which he is presenting to the people the results of this condition of the nervous system and I will be very glad to hear from any person present, whether in the Section or not.

DR. GIVENS, Idaho—Mr. Chairman, I feel and completely agree with the Doctor in all of his propositions, but as he read his paper I thought "that is true, but what are you going to do about it?" Now to the man who has daily experience with the alcoholic insane and with all forms of the disease, there is no question in his mind about the truth of the proposition that the Doctor has laid down. But how are we to get the judges and the courts to believe as the Doctor does? Nay, how are we to get the medical profession to

believe it either? How are we to get them into the attitude of mind the Doctor is in? I don't think we can argue the courts into it; we can not argue the juries into it. I have no hope we can argue the medical profession into it. The only way I know that a man can be convinced of the truth that is in this paper, is to put him among the insane; his daily experience and contact with the insane will convince him of the truth of these things. How are we to do that? By the care of the insane. The tendency has been to take the insane and lock them up in asylums away from the world. We have a few specialists in charge of the insane asylums. We have a few young men who go there for varying periods of from two to ten or fifteen years, and they acquire accurate information in regard to all the facts that are known in regard to insanity, but they are very few, and all the clinical resources and advantages that would accrue to the medical practitioner by contact with the asylums are lost by the present arrangement. I have thought for many years that it would be better if we could have our insane treated more nearly as the sick are treated in hospitals, and that when the young men graduate they should be expected to be received as internes, to treat insane men for a period of two or three years. That kind of a system would very soon cause these facts to permeate the medical profession. That is a practical point that I hope will be reached some time in some kind of a practical way. There is no question but the law, and the conception of the lawyers is wrong in regard to the matter, but it seems to me a herculean task to convince them of their delusion, and impress them with the real facts, as the Doctor has given them to us to-day. Society itself, civilization itself, is halting over this question—is stumbling over it. A great deal of wrong is done, but how are we going to right it?

DR. HEISHOLT—Mr. Chairman, I have been very much impressed with the paper that has been read and entertain the same views on the subject. But perhaps it would be fitting to make some few remarks as to what influence these views might have upon the exercise of justice, as justice is being exercised. Every one of us knows how it is being exercised every day; the principle seems to be rather let many guilty men escape punishment than to let one innocent man be punished. However, I doubt whether the result of having these views believed in by medical men at large, by judges and by juries—I doubt whether the result would be as good as perhaps those who entertain these views think they would be. If courts are managed as they are to-day, or law is exercised as it is to-day, and the methods in court go on as they do to-day, with the hypothetical question that is brought up as the basis for medical witnesses to judge by, there would be more loopholes for guilty men to escape through. However, I must say I believe in alcohol having its effect—this paralyzing effect—often where no marked delusions or other symptoms of insanity are present.

Another point is, the way such people are taken care of after they have committed a crime apparently under the influence of spirits or alcohol. They are sent to asylums and they are there kept for a certain length of time. Then as I know in a number of cases there is no law that enables the superintendent of such an asylum to keep these people; he must let them go again, and as it is well known the inebriate has no control over himself for any length of time—he falls into the same old habit and his crime is generally repeated. Now the question with me then is, if such views should be believed in throughout the land, not only the medical men should hold these views but the judges and juries should know of them and believe in them, that the laws first of all must be changed.

DR. WRIGHT, California—Mr. Chairman, I do not rise to discuss the paper because I am heartily in accord with the

statement made. I only rise to say that sometimes it will take a good deal of courage—a good deal of moral and intellectual courage, if you please—for a physician to go upon the witness stand and present views that have been presented here by the doctor in this paper, knowing the popular feeling, and that the court, that is to say the judge and jury and the attorneys, will all laugh at you for making what they will call, a fool of yourself. This matter has been brought to me in a forcible way. I was asked to state upon the witness stand my opinion—where an individual for a life long had most grossly abused himself by the use of alcoholic substances, and after he had practiced this habit for some thirty years, without any apparent sufficient provocation, and when not directly under the influence of liquor he killed his daughter; and his attorneys while admitting that he was guilty of the murder of the daughter yet hoped to secure for him a lighter sentence than that which would attend a conviction along the line of the prosecution, namely, that he was guilty of murder in the first degree; I went upon the stand and said that this man's excessive use of alcoholic liquor had put him in such a condition that he was not as fully alive to the enormity of his crime as if he had lived a sober life. Well, some of the gray-headed veterans of our profession held a diametrically opposite view, and said that such a view as mine was wrong, and that the man knew what he was doing when he committed the crime and that therefore he was responsible.

DR. CROTHERS—Mr. Chairman, I should like to hear your views in regard to that matter. You have had a long experience which must have brought you into possession of a great many facts for or against the ideas here presented. I should like to hear what you have to say and I could then add a word in closing.

THE CHAIRMAN—I thought when I asked you to discuss the question, that I put myself on record in a few words as fully indorsing the sentiments of the paper, and when I expressed my thanks to Dr. Crothers for the earnestness with which he has to my knowledge for years been endeavoring to bring the effects of alcohol properly before the profession, because as Dr. Crothers says, even to-day some of the gray-haired veterans that Dr. Wright speaks of, speak of alcohol as a stimulant simply, whereas to-day I presume every person in this Section knows that alcohol by a most careful physiologic investigation has been declared to be not a stimulant at all, but an anesthetic, a paralyzing agent; and if a paralyzing agent, and anesthetic, then it certainly must, even if the quantity used would not be regarded as excessive, if it has a paralyzing if it has anesthetic properties, it must to a certain extent diminish the powers of reason and judgment. I agree with the Doctor when he refers to the bit of moral courage necessary to express views that are a little in advance of the people, but it is none the less the duty of the doctor to do it. And the people are being enlightened upon these questions. In my own State, the State of Illinois, we have endeavored to correct the abuse of this medical expert testimony, and I propose tomorrow to present to this Section the resolutions of the bill that has been prepared to be introduced in the Legislature governing it. I am sorry to say we have too many doctors who are willing to go on the stand and declare testimony upon questions about which they know nothing, or questions in which they have not kept pace with the progress of scientific investigation. Certain it is that alcohol is a paralyzing agent, and if it does produce anesthetic effects upon the brain, it certainly must diminish, to a greater or less extent, as I said a moment ago, the power of reason and judgment. I do not care to detain the Society any longer, but I must again express my entire approbation of the proposition the Doctor has made about the necessity

of our being bold in our declaration, let the consequences be what they may. The people who know nothing about it may make such declaration as they please, but it is the doctrine that fifty years hence will be the universal doctrine among scientific people.

DR. CROTHERS—Mr. Chairman, I will just say one word with great thanks to the Chairman for his complimentary words to me, and his thorough recognition of the principles of my paper.

We are on the verge of a great reformation. In the courts all over the United States, we are all making the eternal blunder of sentencing diseased men, the same as they sentence the half insane and the witches and the possessed of the devil—we are doing the same thing in this country with the crazy inebriate. So the same blunder is repeated and we go on. Now regarding a man as insane or incompetent does not take away responsibility at all. Some people fear a great deal that to say because he is an insane man you should let him go loose. Not at all; it only takes away the severity of the punishment. And I can only say that this is the view that is going to obtain in the coming century, and be put into practice; and the physician who adopts it as part of his life and his thought and in his practical application will first become the recognized man.

REPORT OF TWO CASES OF INTRACRANIAL TUMOR.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY ANNE BURNET, M.D.

WAUSAU, WIS.

The following cases of intracranial tumor occurred in patients in the Illinois Eastern Hospital for the Insane.

The clinical history and post-mortem findings are given, not because of any marked peculiarity, so much as because of the growing interest in the subject—an interest which can but be stimulated and widened by reports of the careful observation of such cases.

It is a matter of regret that an accurate diagnosis was not made before the patients reached the post-mortem table, and there is a sort of selfish vindication in the thought that those of wide experience and having at their command the most approved means and methods of diagnosis sometimes fail to arrive at correct conclusions.

As knowledge of the brain and its functions increases improvements in methods of diagnosis may be looked for, until a tumor may be as accurately located in the skull as in the abdominal cavity.

Case 1.—Mary C., American, about 35 years of age. No history accompanied the patient when she was admitted to the hospital, and very little that could be relied upon was obtainable from her. She had lived a life of licentiousness, and the commitment papers gave alcohol as the cause of her mental disease. She was only fairly nourished. The pupillary reflex was normal; the tendon reflex absent. She walked with difficulty, her lower extremities seeming to be paretic. Her mouth was very foul—the gums swollen, spongy and exuding pus—presenting a good illustration of too much mercury. There was a profuse purulent discharge from the vagina and the patient said she had specific disease. Sensation seemed quite good at first but was soon evidently deranged. The patient's mental condition was such, however, that her statements in this regard as indeed in the matter of subjective symptoms in general could not be wholly relied upon. There was a slight hesitation in her speech and her memory was slow. She had hallucinations of sight and hearing accompanied by delusions of grandeur. These mental defects were not pronounced at first, but it is quite possible that change of surroundings may have thrown them into the background for a time as is often the case. Later,

however, these mental symptoms were very marked and she became quite irritable.

She appeared to be weak and unable to get about and seemed to suffer so much from pain in all parts of her body that she was sent to the infirmary and permitted to remain in bed or to sit up as she preferred. She complained of very intense headache, claiming that she could not sleep on account of pain in her head and other parts of her body. The head pains were the only ones definitely located. The others seemed general and were suggestive of multiple neuritis. In a short time she became quite helpless and very untidy. She failed rapidly. Her stomach refused food and she suffered from an obstinate diarrhea. A few days before she died she developed a persistently high temperature and rapid pulse accompanied by copious perspiration. She was in the hospital less than six weeks. Before death for several hours the muscles of the neck became markedly rigid. She was quite deaf and there appeared to be a failure of sight also. The autopsy was made five and one-half hours after death. The head was small and the skull unusually thick. The diploe were nearly obliterated. Exostoses were found on the inner surface of the frontal bone and in the temporal fossa on the left side. The brain weighed forty-one ounces. The dura was somewhat adherent to the skull and was thickened. The pia was thick, tough and unusually vascular. At a point corresponding to the exostosis in the left temporal fossa, the pia was roughened and granular to the touch. This was over the third temporal convolution and a point of red softening was found in this area. Signs of recent inflammation and a spot of red softening three millimeters in diameter were found in the left frontal lobe. A large number of syphilomata were found in different parts of the brain as follows: A gummatous patch in the dura over the paracentral lobule on the left side; two tumors apparently developed from the pia over the occipital lobes causing corresponding depressions in those lobes; another at the top of the second frontal convolution extending into its substance at the expense of the gray matter; a large one at the upper border of the angular gyrus; one in the interparietal sulcus involving the gray matter on both sides of that fissure in the right hemisphere; one in the fissure of Rolando on the left side at about the middle of its extent; another at the tip of the cuneus in each hemisphere; one large and several small ones about the middle of the corpus callosum; one in first frontal sulcus on the right side anteriorly; one large one in the substance of the optic thalamus; several small ones buried in the surface of the cerebellum with others in the substance of its lobes; a large one in the pons showing as a projection in the floor of the fourth ventricle; a second in the pons extending to the crura.

These tumors varied in size from a small pea to a good-sized hazel-nut and in most instances seemed to exist at the expense of the gray matter—appearing to rest directly upon the white substance of the brain. The white matter was in all parts unusually tenacious.

Some of the growths found in the sulci were rolled out on passing the finger tips between the convolutions. No similar growths were found in the lungs, liver, heart nor kidneys—but the spleen seemed to be literally filled with them. The kidneys showed advanced fatty degeneration.

Considering the large number and wide distribution of these tumors it seems strange that there should have been so few marked symptoms. It is probable that the true physical condition was masked by her mental deterioration. The cerebral cortex was seriously pressed upon at several points, but there was nothing in the patient's condition until a few days before death to indicate such pressure. At no time after her admission did she have a convulsion. The persistent vomiting and reeling gait might have suggested cerebellar disease of some sort; and these symptoms together with the severe headache complained of did suggest such a diagnosis. The patient's history, too, left little occasion to question the probable cause of the disease, although there had been no improvement under treatment.

The patient had evidently received a thorough course of mercury at least before she was sent to the hospital, judging from the condition of her mouth. The irritable condition of the stomach and bowels made all internal medication as well as the matter of nutrition very difficult.

It is stated in the books that while gamma occurs more frequently than any other form of intracranial tumor (except perhaps tubercular) it very rarely occurs in the cerebellum. In this case several tumors were found in the cerebellum, although much the larger number were in the cerebrum.

Case 2.—Mrs. O., Swede, 67 years of age, widow, mother of several children. No history pointing to organic brain dis-

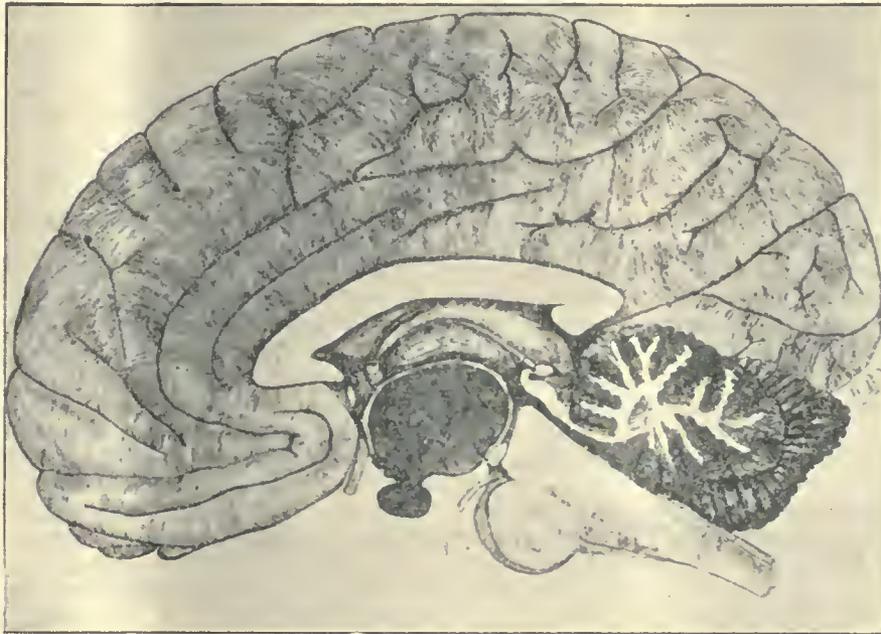
ease. The case appeared to be one of senile dementia. She had been well cared for, but a tendency to wander and very untidy habits made it necessary for her friends to place her in the hospital. On examination she was very well nourished; the reflexes were found to be fairly good, and no disturbance of sensation was noted. Her sight and hearing seemed fair for her time of life. Her weakened mental condition made accurate information impossible. Her gait was her most noticeable defect. She walked very unsteadily with a rolling movement such as a sailor adopts in rough weather at sea. She was weak-minded, childish and affectionate—usually very cheerful, humming softly as she walked about or sat in the ward. She talked very little but seemed to think she expressed her sentiments in pleasant little sounds like a happy child.

One morning not long after her admission Mrs. O. was reported as having fainted at the breakfast table. On going to the ward she was found in bed where her attendant had placed her, looking very pale and as though she might be extremely nauseated. Her pulse was weak and slow, but steady, and she was inclined to sleep. She remained quietly in bed the greater part of that day and next morning was up and about as usual.

These attacks recurred a number of times, the patient seeming to be more helpless after each one. Her gait became more unsteady until she could not walk without assist-

loss of sight and post-mortem findings confirmed that impression.

She died ten and one-half months after admission. The post-mortem was made thirteen hours after death. The body was well nourished. There was nothing unusual in the shape nor dimensions of the skull. The brain weighed forty-three ounces, and there was between five and six ounces of cerebro-spinal fluid. On the internal table of the calvarium in the frontal region were some fungosities. The caliber of the internal carotids at the point of entrance into the skull was greatly enlarged and the arteries at the base of the brain were also enlarged and atheromatous. The dura was very hyperemic and the walls of the longitudinal sinus were thickened. A bony nodule as large as a bean was found in the dura at a point corresponding to the upper end of the fissure of Rolando. On raising the frontal lobe to begin the removal of the brain a large tumor was discovered connected with and seeming to include the pituitary body—resting below on the sella turcica and pressing upward spreading apart all the basilar structures, carrying before it the infundibulum, the walls of which seemed to form a capsule for the growth. The tumor pressed against the anterior commissure anteriorly and greatly widened the optic commissure, against the pons and crura cerebri posteriorly and the anterior portion of the caudate nuclei laterally. On removing the growth (which was nearly spherical



ance. Her mental faculties and powers of perception also failed. It was observed that she never seemed to notice a person unless directly in front of her, then when her attention was called she would smile pleasantly. This suggested the idea that the field of vision was limited but a satisfactory test was not made.

On account of her helpless condition and to prevent her from being injured by falling or by other patients, she was taken to the infirmary and put to bed. For a time she was very noisy and hard to care for. She was extremely untidy and required constant attention. The right leg soon began to contract at the knee and her general helplessness increased. When attempting to sit up in bed the muscles of the back seemed incapable of supporting the body, the tendency being for the body always to fall toward the left. She slept most of the time day and night. It was often necessary to arouse her to give her nourishment, etc. These changes were developed during about ten months. Her deafness increased until it was apparently complete and all other faculties seemed to fail in proportion. A short time before death she developed a temperature of 105 degrees on which baths and antipyretics failed to make any impression. At this time she began to keep her eyes closed continually, even when she took her food and medicine, which she did very well to the last. Her mental condition was such that it was not possible to discover the reason for keeping her eyes thus closed, but it was thought possibly to be due to

and about twenty-eight millimeters in diameter) and its false capsule, large openings into the lateral ventricles were exposed. The third ventricle was greatly enlarged and mostly occupied by the neoplasm. The brain tissue in contact with the tumor, *i. e.*, the anterior half of the third temporal convolution, anterior portion of the caudate nuclei, the optic thalami and crura cerebri were softened from pressure necrosis. The island of Reil was apparently normal. The neoplasm was dark in color and its surface was irregular, almost bilateral. It was freely supplied with blood vessels by branches from the internal carotids.

The pia in all parts was intensely congested, especially at the bottom of the sulci and fissures. The line of demarcation between the white and gray matter was not clear in the portions of the brain near the tumor. The vessels in the floor of the lateral ventricles were enlarged; the choroid plexus was apparently normal. Nothing unusual was noted in the fourth ventricle, and the cerebellum was apparently all right. On section the tumor was grayish in its interior and rather soft. By an oversight there was no microscopic examination made.

Dr. Valin made a drawing of the tumor *in situ* from which the accompanying photograph was taken. It is quite correct except that the pituitary body was not so distinctly separated from the neoplasm as the photograph would indicate.

In another case presenting symptoms similar to

the one described, it was thought that the pituitary body might perhaps be abnormal. This patient died several months after the first, and on post-mortem examination the pituitary body was found to be noticeably enlarged and unusually firm. It could not be said to resemble the first, however.

There was a point of interest in this latter case which you will pardon my mentioning. Along the entire margin of the fold of pia which dipped down into the fissure of Rolando, on the left side, there was a succession of sago-like bodies of various sizes. This patient had several convulsions such as are not unusual in cases of paretic dementia, each attack leaving her more paretic until she was entirely helpless and bed-ridden.

I have found very little literature on tumors of the pituitary body. Gowers, in his latest edition, dismisses the subject in a short paragraph, while others merely mention the fact that tumors of that gland sometimes occur.

The tumor in the case described must have been of slow growth. No symptoms diagnostic of a new growth were noticeable until after the patient became bed-ridden. She never had a convulsion unless the attacks resembling a fainting spell could be so considered. Gowers speaks of a brief loss of consciousness resembling *petit mal* as occurring in some cases, and it is possible such may have been the nature of the attacks this patient had.

Headache and head pains are the most common symptoms of brain tumor, yet this patient never complained of either and never manifested any sign of suffering. She had attacks of vertigo and occasionally of vomiting, but her digestion was good and so was her appetite during her entire illness.

What the character of the growth was, I am sorry not to be able to state definitely. There was no history and no evidence of specific disease and no tubercular tendency. The tumor had not the appearance of a cancerous growth and there was no such growth elsewhere in the body.

Judging from its consistency, color and abundant blood supply and from the frequency of glioma, may it not have been a circumscribed glioma?

ON THE NATURE OF LOCOMOTOR ATAXIA.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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The intelligent treatment of a disease can only follow a thorough comprehension of its true nature. The management of locomotor ataxia has undergone many modifications until now it is beginning to be recognized that the very best results are obtained from a general constitutional treatment. Cauterizations, stretchings, and suspensions have all been tried and found wanting. Various specifics have been vaunted and quickly forgotten. Antisyphilitics continue still to benefit strictly syphilitic cases. At the present time, however, we rely chiefly on good food, change of scene, tonics, baths and properly regulated exercise. All this to me is very suggestive, and for the past few years I have been suspecting that the disease we call locomotor ataxia is but a manifestation of a general affection or cachexia. This cachexia

is something more than a predisposing cause, and its cure means the cure of the nervous lesions and symptoms.

The etiology and pathology of locomotor ataxia, spastic paraplegia, ataxic paraplegia, amyotrophic lateral sclerosis, the disseminated, diffuse and even secondary scleroses are so similar while their differences are so insignificant that the grouping of them together, as some writers are doing, is entirely rational. When the same morbid process occurs in different parts of the brain, giving rise respectively to motor, sensory or special sense symptoms, we do not speak of them as different diseases. Neuralgia is the same disease in one nerve as it is in another, and the various special nerve palsies when dependent upon the same cause, are only distinguished by their differences of location. This is even more forcibly illustrated by considering together the three affections known as locomotor ataxia, hereditary ataxia and ataxic paraplegia, all of which bear a marvelously close relationship and are but different manifestations, as it were, of the same trouble. In regard to the lesion, Friedreich's disease stands as the connecting link between the other two. Its more limited extent in locomotor ataxia naturally defines more sharply the symptomatology of this disease; while in the more extensive form of the trouble, that known as ataxic paraplegia, the motor paralysis due to implication of the lateral tracts quite alters the ataxia dependent upon disease of the posterior columns. Every one knows that in hereditary ataxia there is more of an equality between the ataxia and paretic symptoms with a slight tendency, however, for the ataxia to predominate.

In all three diseases the congenital predisposition is more or less marked. It is probable that the hereditary influence is the same in all, but that sometimes, as in Friedreich's disease, it is so overwhelming as to institute a degeneration, or, perhaps more properly speaking, a prevention of development from the very beginning of embryonic life, while in the other two affections it remains milder or latent until awakened into activity by some special cause.

In accordance with the most recent physiology of the cord, we must materially alter our conceptions of the limitations of the lesion and the nature of the anesthesia that give rise to the ataxia of *tabes dorsalis*. The spinal tracts are far more complicated than we have hitherto been led to suppose. The posterior parts of the cord are not entirely sensory in function, nor are the anterior motor. Indeed, the most important centrifugal tract lies wholly behind a line drawn transversely through its center, while according to Gowers the chief centripetal fibers are to be found in front of this same line. Such able investigators as Lücke, Flechsig, and Bouchard have demonstrated the fact that in the posterior columns are systems of fibers endowed with most elaborate and complex functions. And as a realization almost of Reynolds' prophetic words, Charcot, Schultze and Strumpell have shown that the lesion of locomotor ataxia is not uniformly extended, but is most marked in particular sites and areas and that these same areas are affected with remarkable constancy and regularity. Westphal's discovery of the so-called pre-ataxic symptoms, most of which are to be attributed to the involvement of the reflex centers and functions of the cord, long ago intimated a wider extent and profounder state of disease than that of

a mere centripetal system of nerve fibers. This was still more forcibly shown by the various trophic symptoms, arthropathies, etc., which reveal a concomitant involvement of the vasomotor and trophic centers. The association of a peripheral degenerative neuritis added still further to a broader conception of the nature of the disease. The tendency in all forms of spinal degeneration is for the morbid process to extend to other tracts and areas than those in which it originated. This, as Gowers admits, "can not always be explained by contiguity." In advanced stages and in severe cases the extension almost invariably and ultimately involves the motor and trophic centers so as to cause a true paralysis with muscular atrophy. Paralysis of the external ocular muscles is not an uncommon feature of the disease in any of its stages. This paralysis may be transient or permanent, complete or incomplete, of the whole or part of the nerve. In his well-known paper on "Ophthalmoplegia Externa," Hutchinson declares that "there can be no doubt that ophthalmoplegia externa is sometimes a part of the general malady known as progressive locomotor ataxia."¹ Both Gowers and Buzzard also recognize that "external ophthalmoplegia" occasionally accompanies locomotor ataxia. Baedeker,² Fridenburg,³ Peterson⁴ and Seguin have reported confirmatory cases. As these ocular symptoms are sometimes the earliest to appear, it can not be said that they are always due to an extension of the morbid process in the cord.

Dr. Shaw,⁵ of Brooklyn, has reported some cases with cerebral complications and cited others from literature, many of them exhibiting the typical symptoms of locomotor ataxia while at the same time denying syphilis, which inclined him to regard the disease as a diffuse lesion of the cerebro-spinal axis rather than of the posterior columns. Grasset's well-known view therefore seems not entirely without foundation, namely, that tabes instead of being a disease of the spinal cord solely, may prove to have a much more extensive lesion, involving, in fact, the entire cerebro-spinal system.

Many of the so-called complications appear with sufficient constancy and prominence to be regarded as symptoms. Of these paralytic dementia can not at times be differentiated as a complication or additional symptom. Jendrassik⁶ has put upon record two cases of locomotor ataxia with typical symptoms, in which an examination of the cords and brains led him to believe in the cerebral origin of the disease. The autopsy revealed certain alterations in the cortex which resembled in character but not in location those usually found in the general paralysis of the insane. He regarded the sclerosis of the posterior columns as secondary to that of the cortex. One of my private cases, which I may report in full in the near future, is one of mild paralytic dementia which is beginning to show some of the typical symptoms of locomotor ataxia. As Gowers remarks, "dementia paralytica and tabes are so closely related that the name is given to the disease merely in accordance with the preponderance of the one or the other special set of symptoms."

The etiologic relationship of syphilis to locomotor ataxia is still a matter of dispute. Many of the

arguments opposed to the view that the disease is dependent upon syphilis in the majority of cases are rapidly being overwhelmed by accumulating facts. Erb goes even so far as to say that "tabes dorsalis is probably a syphilitic disease whose outbreak is determined by certain accessory provocations." Strumpell⁷ is almost as dogmatic in the same belief. He assumes that the degenerative changes of tabes which he insists are no longer regarded as limited exclusively to the posterior column, must be the result of a poisonous product of syphilitic origin. He maintains that mercury may modify the syphilitic lesions so as to render the tabetic trouble milder and therefore it should always be tried, but we can not expect it to affect the tabetic degenerations already in existence. In connection with this statement it is suggestive to recall that Charcot⁸ declared that a long experience had convinced him of the inutility of antisiphilitic treatment for tabes.

Gowers calculates that in the consideration of all cases we are safe in attributing about two-thirds of them to syphilis. It is not intended by this that the degeneration of the nervous elements is strictly a syphilitic lesion, but rather as this author expressed it in 1881, that the "effect of constitutional syphilis may be to induce a neuropathic state in which certain degenerative diseases of the nervous system readily occur." In the light of all this it is difficult to understand how one of so large an experience as Benedikt,⁹ of Vienna "maintains that the majority of patients afflicted with locomotor ataxia and progressive general paralysis have never been the subjects of syphilis." Tabes, I am convinced, is a frequent accompaniment of syphilis and may be ameliorated by treatment directed against the specific infection which is a secondary, not a primary treatment of the tabetic disease.

Other disease poisons seem to show a similar selective action as syphilis and probably operate in the same way. Pernicious anemia according to Lightheim¹⁰ led in a number of cases observed by him to a rapid degeneration of the spinal cord, especially of the posterior columns. Fürstner records that centrifugal rotation produced such an abnormal condition of the blood as to induce a degeneration of the lateral columns and pyramidal tracts. Tizzoni noted the same results from extirpation of the supra-renal capsules and cases have been reported in which the posterior columns were degenerated in association with Addison's disease. Minnich found spinal changes in cases of chronic jaundice. It was long supposed that ergot caused locomotor ataxia in some special way, but posterior spinal sclerosis could not be obtained by Grünfeld¹¹ as a result of the administration of the drug experimentally. Brunton, therefore, suggested that the bad hygienic surroundings of the ergot-eating peasantry must have been the etiologic factor in the production of the disease.

Dr. Morton Prince¹² has carefully analyzed six cases of locomotor ataxia occurring in persons suffering from malaria. The relationship of the two affections is of such a character as to be highly suggestive of something more than a mere coincidence.

⁶ Deutsch. Arch. f. klin. Med. 1888, Band 43, 543.

⁷ Münchener med. Wochenschrift. München, September, 1890.

⁸ La Semaine Médicale. Paris, June, 1890.

⁹ Vienna Correspondence, La Sem. Med., JOURNAL AMERICAN MEDICAL ASSOCIATION, Jan. 4, 1890.

¹⁰ Centralblatt f. Allg. Path. u. Path. Anat. January, 1890. Quoted by Putnam.

¹¹ Arch. f. Psych., etc., xxj.

¹² Jour. of Nervous and Mental Disease, New York. October, 1889.

¹ Paper read before the Medico-Chirurgical Society in 1879.

² Centralblatt für Nervenheilkunde, etc. Coblenz, June, 1891.

³ Brooklyn Medical Journal. Brooklyn, January, 1891.

⁴ Journal of Nervous and Mental Disease. New York, July, 1890.

⁵ New York Medical Journal. July, 1888.

The etiologic importance of malarial poisoning can not be positively asserted from so small a number of observations. Gowers, Ross, Charcot, Hamilton, Spitzka and Strumpell fail entirely to mention it as a cause of tabes or disseminated sclerosis. "It is difficult," says Dr. Prince, "to show that these chronic spinal diseases develop immediately after a malarial attack. The secondary changes which are known to occur in other organs as sequelæ of malaria are not limited to the primary attack. On the contrary they are more apt to be found where malaria is chronic in the system. The connection between tabes dorsalis and syphilis is well recognized. Now it is a noteworthy fact that syphilis and malaria resemble each other in one particular, namely, they are constitutional diseases in so far as the poison or germs may remain in the system for a long period of time and only show signs of its presence by volcanic like outbreaks from time to time. Our knowledge of the effect of poisons upon the nervous system is very fragmentary and we may find that more diseases than we now imagine are due to unsuspected poisoning, zymotic or chemical, of one kind or another. Tabes has been attributed to absinthe, illuminating gas and other chemical poisons. As to malaria, it is known that intermittent paralysis such as hemiplegia, anesthesia, neuralgia resembling the crises of tabes, tremor, choreiform spasms, aphonia, insanity, amblyopia, and other disturbances of the nervous system occur in persons afflicted with the poison, showing that the latter does have a direct effect upon the nervous system."

It is generally believed that the nervous centers are the first to experience the deleterious action of these constitutional poisons by reason of their more delicate organization. The question as to how they are affected is still an open one. The lowered vitality of the entire organism together with a faulty action in the processes of nutrition is being adopted as the true explanation. This coupled with an inherited neuropathic state of the general constitution will quite suffice to explain the particular forms of nervous degeneration caused by these diathetic conditions.

In regard to the action of even the chemic poisons upon the spinal marrow, Spitzka says: "It is supposed that most of the poisons acting on the cord in this or a similar way, such as arsenic, cyanogen, barium and chloral do not produce a spinal lesion directly, but through the medium of a secondary cachexia." On the other hand, malnutrition may be present and to an extreme degree, without the spinal cord undergoing any changes. We can not call the disease, therefore, one of simple exhaustion; nor are we to ascribe the process always to a general or local malnutrition, as both conditions do not invariably obtain. It must be regarded as the expression of a constitutional taint, possibly not always of the same nature, but nevertheless always the same in its deadly action upon the nervous elements.

Some pertinent suggestions tending to demonstrate the constitutional nature of locomotor ataxia are to be found in a report by Dr. James J. Putnam,¹³ of Boston, of a group of cases of system sclerosis of the spinal cord, associated with diffuse collateral degeneration occurring in enfeebled persons past middle life and especially in women. Four of the cases

were subjected to a rigid post-mortem microscopic examination. The entire eight were studied with particular reference to the etiology. "In most of the cases," the writer says, "the pathologic and clinical signs indicated a greater disease of the posterior than of the lateral columns. Yet neither their cause nor the symptoms were characteristic of locomotor ataxia." In this negative evidence there is a manifest hint that locomotor ataxia is not solely a disease of the posterior columns. While some of its more pronounced symptoms may depend upon implication of these tracts, others are caused by minute—almost undiscoverable—lesions in other parts of the cord and general nervous system. How are we to explain the cases of so-called pseudo-tabes, such as reported by Prof. Pitres, of Bordeaux, in the *Arch. de Neurologie*, in which all the classical symptoms of posterior spinal sclerosis were exhibited, but in which an autopsy revealed no discoverable lesion whatever in the cord, medulla, spinal nerve-roots, or peripheral nerves? They are as unaccountable and yet quite as suggestive as that opposite class, of which the famous case of Schultze¹⁴ is a typical example, in which there was a complete disappearance of all symptoms with a persistent lesion of the spinal cord as shown at the autopsy. Dr. Putnam aptly suggests that "one can not fail to be struck with the fact that the causes which play the most important part are a strain of constitutional weakness, such as is preëminently seen in Friedreich's disease, both family and sporadic forms and specific toxic influences of which syphilis is the chief."

The degenerations of the spinal cord, then, are apparently the expression of a general cachexia. But, why, it may be asked, does this latent constitutional force exert itself as it does in locomotor ataxia, upon certain special parts of the spinal cord and nervous apparatus? That will remain a difficult question to answer until we have learned more of the physiology and histology of the nervous elements, the nature of the diathesis which gives rise to these degenerations and the particular action of the constitutional poison, zymotic or chemical, upon the various tissues of the body. Can any one satisfactorily explain why tuberculosis manifests a predisposition to attack the lungs, alcoholism the cerebral cortex, cancer the uterus and breast, and scrofulosis the lymphatic system?

The most ingenious and plausible theories offered to account for the prominence of the lesion in the posterior columns have had for their basis a disturbance of the vascular system. In one of the cases of general sclerosis reported by Putnam "the remarkably large size of the vessels, not only the finer arteries of the sclerotic area but to an even greater degree the larger vessels of the gray matter," was especially noteworthy. The walls of these vessels were thickened and hyaline and were surrounded by numerous leucocytes.

Buzzard has put upon record a case of locomotor ataxia in which similar vascular dilatations were found. Bevan Lewis attributes the spinal sclerosis which accompanies many cases of parietic dementia to dilatations dependent upon a disordered vasomotor action of cerebral origin. This condition of the blood vessels disturbs the nutrition of the parts with which they lie in contact. A hyperplasia of the neuroglia takes place followed by a compression-

¹³ Journal of Nervous and Mental Disease. New York, February, 1891.

¹⁴ Arch. of Psychiat. 1882.

atrophy of the nerve cells and fibers. Dejerine and Letulle¹⁵ hold that Friedreich's disease is a congenital neuroglial sclerosis while all other medullary scleroses, including tabes are acquired forms of mixed sclerosis and belong to the vascular connective tissue variety. Achard,¹⁶ on the other hand maintains that all varieties of medullary sclerosis are of the neuroglial type. It must be admitted that in some cases the process apparently begins in the nerve elements (parenchymatous degeneration) and that the hyperplasia of the neuroglia (interstitial degeneration) is purely secondary. Spitzka believes that the process is interstitial in the syphilitic cases, parenchymatous in the non-syphilitic thus making, it seems to me, two distinct diseases of it. Not a few hold that the lesion is parenchymatous in the peripheral nerves and interstitial in the cord. Whatever be the correct solution, the influence of the vascular disturbance is doubtless the same in all, and this disturbance is primarily the result of a constitutional defect.

Without stopping to discuss the question whether the process is one of degeneration or inflammation, let me ask you to note that it is not limited solely to the spinal cord. It extends into the medulla, the pons, the corpora quadrigemina and in some cases the cerebral cortex. In one case the sympathetic was affected. Involvement of the cranial nerves and of special centers of the brain, such as of sight and hearing, are occasionally indicated by some of the earliest pre-ataxic symptoms. In the cord itself other columns than those of Burdach and Goll undergo the degenerative process, as, for instance, the cerebellar tracts and the vesicular columns of Clarke. Many regard the degeneration of the columns of Goll as merely the result of contiguity, while others consider it as purely secondary to that of Burdach's column. Both views, however, dispense with the necessity of supposing that the disease of Goll's column begins in the same way as that of Burdach's, which, as we have seen, is a nutritional trouble.

The peripheral nerves are found to be affected almost constantly from the very beginning of the disease. The bilateral character of this feature of the disease is difficult to explain except upon the basis of an underlying diathetic condition. Dejerine¹⁷ is radical enough to believe that tabes presents more and more the appearance not of a spinal cord disease, but of a peripheral disease of the sensory and motor nerves and the nerves of special sensation. The parenchymatous character of the peripheral nerve-degeneration as opposed to the interstitial degeneration of the cord, added to the fact that the portion of the nerve trunks lying between the cord and their diseased extremities is usually healthy; and furthermore, that there is no proportionate relationship either in regard to severity or extent, between the cord and nerve lesions, renders still more pressing the necessity for supposing an underlying constitutional diathetic cause. Simple contiguity or trophic influence will not answer as an explanation for such dissimilar and widely separated tissue changes. It is true that Mayer found always some degenerated fibers in the nerves of healthy mammals and man; but Oppenheim and Siemerling¹⁸ have carefully examined the peripheral nerve lesions in fourteen cases

of progressive locomotor ataxia and found more degenerated fibers than was allowed by Mayer to be normal. Yet, in many of these same cases, there were no symptoms indicative of the condition during life. In a case of "typical locomotor ataxia," Dr. Shaw,¹⁹ of Brooklyn, found the changes in the peripheral nerves, sciatic, popliteal and plantar, to be different from those of the Wallerian degeneration, but resembling those accompanying chronic lead poisoning as described by Mayer, and diphtheritic paralysis as described by Pitres and Vaillard.

As yet there is no satisfactory explanation of the optic nerve atrophy. There is no direct continuity between the optic and spinal sclerosis. Of the two theories advanced, the one attributing it to a deleterious influence exercised upon the nerve by the diseased cord is far more difficult to comprehend, and less in harmony with similar observations in regard to other nerve trunks, than is the other theory, which makes both the cord and nerve lesions to depend upon the same general morbid influences. In a number of cases with laryngeal crises, Oppenheim, Eisenlohr and others found a lesion in the floor of the fourth ventricle with atrophy of the pneumogastric and disease of its nucleus. One of Spitzka's cases with gastric crises revealed sclerotic changes of the arteries in the *ala cinerea*. There is no uniform and regular succession through which these widely scattered lesions follow one another. Sometimes one, sometimes another will be the first to appear. Tabes is visibly a degenerative disease of the sensory system, peripheral, spinal and cerebral. It can not be a disease of any one of these parts alone, with that of the others merely secondary to it, since all these parts are often affected at the same time. The operative cause must be the same for all, as there is no evidence of a direct extension of the morbid process from one part to another. The parts are not directly united either by neural or vasomotor connection. Indeed, the sensory distribution of the lesion is not so rigid in its central localization, as many of the cranial nerves involved are entirely motor.

Spitzka, in opposition to Strumpell, asserts that the granular degeneration is like that of ergotin poisoning, is due simply to a vasomotor disturbance and should be compared more to that of a continued disseminated sclerosis than to a Wallerian degeneration. Likewise Babinski²⁰ with most modern pathologists finds that locomotor ataxia resembles disseminated sclerosis more closely than it does any of the systemic scleroses with which Strumpell and Westphal were inclined to classify it. Hence he does not consider the disease in any phase of its pathology as a secondary process. Zacher²¹ agrees with Babinski in not regarding tabes dorsalis as a systemic disease. The whole morbid process is secondary only to a constitutional cachexia and is not the result of any mere extension from diseased structures of like nature. This distinction is of immense importance for the maintenance of my thesis.

It seems to me, therefore, that when we consider the wide distribution of these pathologic changes, the confusion among observers as to whether the process is one of inflammation or degeneration, the peculiar state of the membranes, and the associated vascular condition, we are justified in looking upon

¹⁵ La Semaine Medicale. Paris, March, 1890.

¹⁶ Bulletin de la Soc. Anat. Paris, No. 8.

¹⁷ La Medecine Moderne, Paris, March, 1890.

¹⁸ Annual of the Medical Sciences, 1888, Vol. I, p. 93.

¹⁹ Journal of Nervous and Mental Disease, N. Y., July, 1888.

²⁰ Neurologisches Centralblatt, 1885, p. 824. Quoted by Spitzka.

²¹ Arch. für Psychiatrie, xv, p. 340.

locomotor ataxia as the expression of a general disease. It is an affection of the spinal cord in about the same way and to about the same extent that consumption is a disease of the lungs, scrofula of the lymphatics, and scorbutus of the skin and mucous membranes. The pathologic findings are far from being commensurate with the number and diversity of the symptoms. It is not unreasonable to suppose that a disease of so slow, insidious and varied a character should at times be the result of pathologic changes quite beyond the powers of chemistry and microscopy to explore. In fact, it is admitted by some of the most authoritative observers that the lesions of locomotor ataxia must in every case be very gross before they can be recognized histologically.

In conclusion, then, let me repeat that the history, etiology, pathology, symptoms, complications and treatment of locomotor ataxia point to it as a constitutional malady, with its most prominent manifestations in certain vulnerable parts of the whole nervous apparatus. Our knowledge of the disease is not yet complete enough for us to affirm or deny this positively, but from what we already know of it, I am inclined to regard favorably this constitutional hypothesis and to continue the study of the disease still more closely from this particular standpoint.

Columbus Memorial Building.

THE INTERRELATION OF SOME OF THE LOCAL SPASMS OF EARLY LIFE.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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The reciprocal anatomico-physiologic bases, etiological factors and clinical data of idiopathic torticollis, spasmus nutans and laryngismus stridulus are conspicuously interwoven. The convulsions are local, and whether or not their origin be central, peripheral or reflex, the neuro-muscular territories implicated have an important bearing upon this subject.

The nerves that control the mechanism of these regions are the vagus, the spinal accessory, the cervical spinal and the cervical sympathetic. Not alone are their nervous centers contiguous and correlated, but their conduction paths and terminations inosculate and communicate with branches to distant organs. Thus the exhibition of sympathetic interchangeability and reflex phenomena is interpreted.

Another common factor in the determination of these pathologic states is the immaturity of youthful tissues and organs. The muscles are undeveloped and untrained; the larynx is small and narrow; the nervous system is unstable; consequently, responds forcibly to the slightest stimulus. Let there be a morbid irritation, there results an overflow of nerve force along accustomed channels: For instance, compare the long drawn-out inspiratory sound when the babe begins to cry, to the aspiratory sound at the commencement of an attack of laryngismus. Or contrast the incoördinated infantile head motions to the nodding and turning of spasmus nutans.

The laryngo-spasmodic explosions upon crying, swallowing, etc., can be further accounted for, granted that an abnormal activity of the laryngeal center renders them more susceptible to the normal blood stimulus.

The localization, by Semon and Horsley, of the expiratory centers at the base of the third frontal convolution is also significant in this connection; for intellection and inhibition are not attributes of infancy and childhood.

Deducting from the above, the kindredship of wry-neck, nodding spasm and laryngo-spasm seems to be established. It is begging the question to call them functional neuroses. It were better to acknowledge ignorance of their pathology, as does the nomenclature, a cognizant expression of symptoms. Some exception may be taken to the recognition of wry-neck as a neurosis. Its manifestations are distinctly neurotic and confined to a disturbance of one or more affiliated nerves.

In chronic torticollis, either disease of the centers exists, or there is such impairment of the nerves that resection and extirpation proves salutary. From the very nature and course of the acute disorder, no lesion can be demonstrated, but the occurrence of the same morbid change is not an unreasonable inference. Nodding spasm is, as compared to torticollis, a more intense and greater neurographic derangement. Its conjunction with nystagmus indicates a central lesion.

The etiology of these maladies is ascribed to season, heredity, age, emotional disturbances, gastro-intestinal irritation, acute infectious diseases and last, but not least, rickets. These are unquestionably, predisposing causes, and rickets probably bears the same relation to laryngismus that scrofula does to the tubercular infection. But it is not fairer to accept the absolute etiologic relation of rickets to laryngismus, than it is to proclaim pneumonia an unconditionally pneumococcus infection, debarring a streptococcus or tubercular pneumonia.

Dunkin, in speaking of torticollis says: "I question whether the affection is ever directly caused by rheumatism properly so called."

Recently, in some of my own cases, I have noted the co-existence of influenza and wry-neck. Drs. Watson and Curtin describe "stiffness and pain in the back of the neck" accompanying a number of cases of influenza. Lyman reports a case of post-influenzal torticollis and head jerking. The literature occasionally refers to this alliance of such supposedly different disease processes. W. B. Hadden mentions a patient suffering from head-nodding in whom no sign of rickets nor neurotic history was obtainable.

The same is true of an 11 months old nursingling who came to my clinic a month ago. The fontanelle was about closed and dentition regular, and all other signs of rickets were wanting. There was no history of previous illness and with the exception of the head-nodding, the babe appeared perfectly healthy. The movements were intermittent and rotatory and ensued upon a fall from the child's chair. An intercurrent attack of measles aggravated the initial trouble. Nodding motions are now added to the original ones and are continuous except during sleep.

This patient, and the only case of laryngismus stridulus that I have seen in a five years dispensary experience came from a practically foreign (Hebrew-Russian), unhygienic settlement.

Comprehensive statistics by able native and foreign pediatricians disclose similar environment; a fact pointing to a possible infectious origin of the disease. In America, where better living obtains, spasmus

nutans and laryngismus are so rare that my previous admission will be pardoned. Likewise the words of Drs. Adams and Blackraeder are not irrelevant. The former says: "There may be a few, like myself, that have never seen laryngismus stridulus complicating rickets." The latter says: "In Montreal I may say that the cases of laryngismus complicating rickets are comparatively few in English hospitals, and a very infrequent symptom in this country."

In Europe, this disease associated with tetany occurs isolatedly and in epidemics and epidemics. Gangenhofer, Escherich and Loos, call tetany an infectious disease; possibly the other local spasms under discussion belong to the same category. Clinical facts indicate protean etiologic derivatives, rather than any one or few causative agencies for torticollis, spasmus nutans and laryngismus stridulus.

The dissentient views of able teachers is in part responsible for this confusion and uncertainty. Escherich, Loos, Kassowitz, Gangenhofer, Gay and Soltman are a few of those giving earnest attention to the relation of season, age, heredity, unhygienic surroundings, infection, etc., to laryngismus and tetany. The two first named pronounce laryngismus but a symptom of tetany that does not stand in any causal relation to rachitis. This brings a storm of protest from Kassowitz who is the declared exponent of the rachitic genesis of laryngismus.

The craniotabic theory of Elässer does not seem tenable. Nor are Kassowitz's pathologic findings in the skull-cap, membranes and cerebral lesions in rickets, proof positive of their kinship to the dangerous respiratory symptoms of laryngismus.

"The latter," says Gay, "does not necessarily fall upon those who have the most marked signs of rickets." Again, laryngismus is present where rickets can not be demonstrated.

On the other hand, laryngismus is wanting in cases of most marked rachitic deformity where excessive weight and size of the head, and muscular weakness, or irregular and diminished thoracic capacity might lead to sudden serious respiratory disturbance.

Thus, we see, the question is yet an open one. Escherich and Loos, in their study of the relationship of tetany to laryngismus, are clearing the field for a broader and more impartial view of the entire subject. Their work is supported by the clinical investigations of Gangenhofer, Hoffman, Neusser and Jasch, Gay, Abercrombie, and Smith, who describe cases of tetany either associated with laryngismus, or of laryngismus alone in which contractures of the extremities are present, but which is marked by the three cardinal signs of tetany, viz.: Trousseau's phenomenon, the facial phenomenon, and general neuromuscular hyperkinesis.

Gay, in dwelling upon the importance of the facial irritability says: "It is not limited to the seventh nerve, but is significant of an increased excitability, probably of all the motor nerves of the body." "It seems to bridge over and connect laryngismus with tetany as it occurs in children."

To sum up:

1. Torticollis, spasmus nutans, laryngismus stridulus, and possibly tetany are closely allied neuroses, consequent upon their common anatomico-physiologic characteristics.

2. Their relation to commonly accepted causes, such as heredity, environment, rickets, etc., is admitted.

3. Their etiology is undetermined.

4. They may be of an infectious origin and, as it were, the common, the comparative and superlative degrees of one and the same affection.

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CAUSATION AND EARLY TREATMENT OF MENTAL DISEASE IN CHILDREN.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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When I state that this paper is intended to deal with the physical causes which underlie the mental defects of the young, it may appear to you that it could be more fittingly read before specialists in their care and treatment. I hope to demonstrate to you, however, that a very large responsibility antedates their admission into institutions for the feeble-minded, and rests on no one as heavily as on the family physician. It has long been held that mental enfeeblement in children, in the vast majority of cases, was purely non-development of the nervous centers; and this view has been quietly accepted by the general profession and the public at large. Many a family with a clean history of mental health, when a bright child has suddenly changed and mental growth has ceased, perhaps after some slight illness, or perhaps after no noticeable physical dis-

turbance, can not view the misfortune in the same way as they would look on an injury to a limb or any bodily organ; but feel it as a reproach.

Year by year, as opportunities for studying the clinic and pathologic history of these unfortunates increase, it is more apparent how largely their infirmity results, as the residual effect of acute disease. It is to such cases; the diseases which most frequently leave such lasting and serious effects, and the brain changes they induce—with some suggestions regarding their early treatment, that I ask your attention for a few minutes.

The various forms of agenesis, though interesting, we may pass without comment. The laws of heredity are entirely beyond our control; and the marriage of the unfit, with offspring certainly destined to become a burden, is scarcely less so under our present social conditions. The census of 1890 showed over 95,000 feeble-minded in our country, and their number at present will approximate and probably pass the 100,000 mark. This great number may be roughly divided into cases of primary imperfect development, and into what may be looked upon as a juvenile dementia, the result of destructive change in the brain tissue. The development of the brain may be retarded by disease in early years. The growth of the organ in the first years of life is exceedingly rapid. Tuzcek, basing his statements on investigations by Huschke and Bischoff, estimates the daily increase in the size of the brain, during the first year of life, as more than one cubic centimeter. Dr. Robert Boyd estimates the brain weight at birth, ten ounces to eleven and one-half ounces. In thirty-four children between one year and two years, it averaged thirty-two and twenty-five one-hundredths ounces. Between two years and four years thirty-eight and seventy-one one-hundredths ounces. It will be readily understood that any interference with nutrition in this period, if continued for some weeks, as it might be by any disease, would be apt to leave its permanent mark on the growth and full development of the organ. This theory is borne out in fact. In seventy-five brains taken from all classes of feeble-minded children, I found the average weight only thirty-eight and three-tenths ounces. It is rare to find their brain above forty-five ounces in weight, and when it is so found it is generally in cases where the mental defect developed in the later years of childhood; in children when the mental trouble is very slight, or in low grade cases with cerebral hypertrophy. In only eight of my cases was the patient under 10 years old. Such cases are not to be classed with cases of congenital non-development, which, being an inherent fault in the brain, can not be combated as can the condition just described. With congenital or prenatal arrested development, we may class victims of convulsive attacks, which appear before the beginning of dentition. Also cases of injury from prolonged labor or forceps pressure; and they are by no means few. No intelligent physician would apply injudicious pressure on the thin skull and soft brain of the infant except to avoid still greater danger; on the careless or unscrupulous operator all warnings are wasted. It would be unwise to pass over all forms of imperfect development as beyond the reach of medical skill, without some allusion to craniectomy for the relief of microcephalus from premature ossification of the bones of the skull. This operation has, of late, been performed several

times; and from a surgical point of view, successfully. From my own observations, I am strongly of the opinion that the small skull is the result of the small brain rather than the cause. Evidence of pressure I have never seen except in one case. The true value of the operation can only be determined when a sufficient number of operations have been performed to make an intelligent comparison with cases who owe their improvement to school training alone, which is often very successful in such cases, unless sclerosis accompanies, (or perhaps causes) the retarded growth.

With all these omissions, the number of cases where brain lesion and consequent mental enfeeblement appear and originate in easily recognizable disease, at an age when medical treatment may be intelligently pursued, will be found to be very large.

Through the courtesy of authorities at the Elwyn School for the Feeble-Minded, I have been able to examine 1,000 histories from their records, choosing those series of cases which contained the most cases under my own care during my eight years residence in that institution; which, by knowledge of the children and their friends, I had excellent opportunity for verifying.

I have omitted all cases where direct heredity could be traced, when the infirmity appeared to be congenital or the result of accident at birth, or where spasms occurred or lack of ordinary intelligence was noticed before the age of 6 months, and when the patient was too young to decide as to his intelligence at the onset of the alleged causative disease; regarding such cases as possibly congenital. I have declined to count any case said to be due to traumatism, unless spasms, paralysis, or other symptoms of nervous shock directly followed the accident.

Notwithstanding this careful pruning, no less than 322 cases out of the 1,000, appear to have been the direct result of disease which would ordinarily need and receive the physician's care. Quoting figures like these at the International Conference of Charities at Chicago last summer, a foreign representative asked: "What are the doctors doing in these cases?" A question I did not attempt to answer.

The following table will show the relative frequency of the diseases in which the cerebral mischief appears to originate, and the age of onset:

| | 6 months. | 6 to 12 months. | 12 to 18 months. | 18 to 24 months. | 2 to 5 years. | 5 to 10 years. | 10 to 15 years. | Unknown. | Total. |
|--|-----------|-----------------|------------------|------------------|---------------|----------------|-----------------|----------|--------|
| Spasms of dentition | 2 | 29 | 25 | 19 | | | | | 75 |
| Traumatism | 3 | 10 | 2 | 4 | 20 | 6 | | 3 | 51 |
| Cerebral inflammations | 3 | 3 | 3 | 3 | 14 | 2 | 4 | 3 | 42 |
| Scarlet fever | 2 | 2 | 3 | 3 | 15 | 9 | 1 | 7 | 42 |
| Epilepsy of unknown origin | | | | | 10 | 3 | 5 | 2 | 20 |
| Mental shock (fright) | 1 | 1 | 1 | 1 | 5 | 1 | 2 | 1 | 11 |
| Gastric and typhoid fever | | 1 | 1 | 1 | 4 | 1 | 1 | | 9 |
| Whooping cough | 1 | 1 | 1 | 1 | 2 | 1 | | 1 | 9 |
| Measles | | 2 | 2 | 1 | 2 | 1 | 1 | 1 | 7 |
| Exposure to heat (sunstroke) | | | 1 | | 3 | 3 | | | 7 |
| "Fever" (form unknown) | 1 | | | 1 | 5 | | | | 7 |
| Cholera infantum | | 1 | 4 | | | | | 1 | 6 |
| Smallpox | | 1 | 1 | | | 2 | | 1 | 5 |
| Malarial fever | | 2 | 1 | | | 1 | | | 4 |
| Infantile paralysis | 1 | 1 | 1 | | | | | | 3 |
| Diphtheria | 1 | 1 | 1 | 1 | | | | | 3 |
| Vaccinia | 1 | 1 | | 1 | 1 | | | | 3 |
| Narasmus | 1 | | | | | | | | 2 |
| Catarrhal fever | | 2 | | | | | | | 2 |
| Abscesses | | | 1 | | | | | | 1 |
| Exposure | | | | | 1 | | | | 1 |
| Erysipelas | | | | | 1 | | | | 1 |
| Poison (Wild Lilac) | | | | | 1 | | | | 1 |
| Self abuse | | | | | | | | 1 | 1 |

1 While the age is not given, in these cases, the history shows that the child was beyond early infancy.

It will be seen that convulsions, occurring within the period of dentition, heads the list. Then comes traumatism, which includes all injuries from blows or falls on the head. Among the specific fevers, scarlet fever takes the lead for its destructive effects on the nervous system; although the cerebral inflammations claim an equal number. Fright occasions an unexpectedly high number, but in each case counted, the history seemed completely to substantiate this as the active cause.

Let us compare with this table the result of 300 autopsies collected from many sources:

| Hemisphere diseased. | Right. | Left. | Both. | Not stated. | Totals. |
|---|--------|-------|-------|-------------|---------|
| Atrophic sclerosis | 21 | 14 | 38 | 23 | 96 |
| Porencephalus | 14 | 9 | 15 | 9 | 47 |
| Porencephalus and atrophy | 3 | 6 | 4 | 1 | 14 |
| Ageneals | 1 | 6 | 9 | 6 | 22 |
| Tuberous sclerosis | 1 | 1 | 11 | 0 | 13 |
| Atrophy with internal hydrocephalus | 0 | 0 | 2 | 0 | 2 |
| Atrophy with cyst | 1 | 0 | 1 | 0 | 2 |
| Atrophy with hypertrophic skull | 0 | 1 | 2 | 0 | 3 |
| Hydrocephalus | 0 | 0 | 17 | 0 | 17 |
| Thickened membranes | 0 | 0 | 14 | 0 | 14 |
| Thickened membranes and vessels | 0 | 0 | 2 | 0 | 2 |
| Defective corpus callosum | 0 | 0 | 29 | 0 | 29 |
| Microcephalus | 0 | 0 | 10 | 0 | 10 |
| Hypertrophy | 0 | 0 | 15 | 0 | 15 |
| Hypertrophy with sclerosis | 0 | 0 | 1 | 0 | 1 |
| Cyst | 3 | 0 | 0 | 2 | 5 |
| Primary disease in cells, fibers, or both | 2 | 0 | 3 | 3 | 8 |

It will be seen at a glance how relatively few are the cases, when conditions of non-development alone are the dominant defect in this table. It may be justly said that in such a large number, collected from every possible source, many of them intended to illustrate the cause of *physical* defect rather than *mental*, that the true proportion may not be here represented. I beg leave therefore to quote from 100 consecutive autopsies made at the Elwyn institution, in which in 54 per cent. conditions were found constituting the residual effects of former disease or traumatism. The initial stage of some of these, no doubt, occurred so early in life that their nature, and possibly even their existence, might not be determined. Many others probably occurred at an age when there was good opportunity for careful study and perhaps helpful treatment.

Glancing at the table, the large number of cases of sclerosis and porencephalus will be at once noticed. These are both terminal conditions; and when fully established, it is doubtful if they can be relieved by any means within our present knowledge. Closely allied to these changes, we find the thickened and adherent membranes which follow meningeal inflammation, and which must necessarily interfere with the large blood supply so essential to the perfect functional life of the cerebral cortex. Of their early medical treatment we will speak a little later.

An interesting disease, fortunately quite rare, is tuberous sclerosis (*sciérose tubéreuse* of the French writers). From a study of the histories of these cases, which I have been able to verify by autopsy, I should describe its clinical history as follows: Its onset is sudden, and demonstrates itself by spasms of only moderate severity, but nearly continuous. They last always several hours, and sometimes for days, and are generally localized in certain groups of muscles, rather than extending to general spasm. The rise in temperature is moderate. Stupor is continuous but may not be profound. The spasms are intractable under every form of treatment I have

ever tried, and only ceased when the areas involved are functionally dead. If the child survives, it will be found that certain cerebral functions, corresponding to the areas attacked, are entirely and permanently obliterated. In no form of brain disease with which I am acquainted is the loss so sudden, complete and lasting as in this form. Post-mortem, we find rarely single, generally several areas in the cortex, quite sharply defined to the eye, gray white in color and slightly elevated. Microscopically it appears to be due to a finely granular effused material, which presses on the normal elements of the cortex, obliterating the lymph spaces. The functional activity of the cells is first destroyed from pressure, and they soon atrophy. A little boy at Elwyn was found to have several areas of this disease, but his mother insisted that he had never had either a fit or any severe illness. That certain faculties (articulate speech for one) had never shown the slightest tendency to develop. This has led me to suspect that this condition might form in utero, as his mother was subject to spasms during her pregnancy. Though only eight years old, he had a well formed brain weighing forty-eight and one-quarter ounces. The diagnosis of this disease is not difficult, its prognosis is distressingly easy, and I know of nothing which can greatly relieve it. I have dwelt on it to this length, because it is not generally mentioned in text-books, and it is desirable to eliminate in diagnosis of more tractable affections.

From our examination of the pathologic conditions underlying mental enfeeblement, it is evident that medical treatment, at the time they are placed in institutions, is liable to arrive too late to be of much service. By the time the child has reached the age of seven years, the brain has finished its period of most active growth. The hypertrophied brain has its bulk of interstitial tissue usurping the space and nourishment needed by the true brain cells and fibers for their own proper development; and the brain which has suffered from violence or destructive inflammatory process, has its mass of sclerotic scar tissue, whose influence on the healthy portion of the organ is that of a local irritant, tending to induce spasm or an increasing area of disease. However refractory such cases may be at their maturity, it is by no means true that they are equally so at the beginning. Let us take up some of the clinical causes of mental enfeeblement in the order of their frequency.

First among them is spasm occurring during the period of dentition. We find no less than 72 of our 322 cases have no other assignable cause for the subsequent mental decadence. Although in a large number of cases the convulsions ultimately cease, mental development is found to have been interfered with. All infantile disease which places any special strain on the system during this critical period, is liable to cause the same danger, and it will be generally found that the brains of the imbecile weigh less than those of normal children, and we have acquired imperfect development as a complication. The spasms of dentition is a subject deserving the most careful study and treatment.

It is a grave mistake to forget that the spasm by itself is but a symptom. That, however alarming it may be to the friends, it rarely does permanent harm. It is not scientific practice in such cases to numb the brain with large doses of bromid, and take

no means of strengthening its inhibitory power by exercising every known means of building up the nervous system. Plenty of fresh air is an essential. Moderate exercise, tonics, especially the phosphates, long continued. Delay all attempts at school education until assured of recovery, and above all other things guard the child's diet. It is my opinion, formed by years of study of large numbers of epileptics, that there is no more potent factor in the production of spasm in children than irritation of the gastro-intestinal tract. In a recent study of 566 cases of juvenile convulsion, in which the histories appeared full and reliable, in 52½ per cent. the convulsions had ceased although mental enfeeblement had in some degree persisted. I believe as many would have recovered without so many cases of mental impairment, had the cause shared the treatment with the symptom.

Next in order comes traumatism, including blows, falls and all other injuries to the head, from which I have excluded all cases which were not followed by spasms, paralysis or other symptoms of severe nervous shock. It is comparatively rare for operative procedure to be made in these cases, partly, no doubt, because friends will not allow them. It is a very doubtful matter how much good operation would do, except where fracture occurs; for post mortem examination demonstrates that the injury from blows is apt to be diffuse rather than local. Complete rest for some time after the accident should be insisted upon, and the appearance of a spasm after the primary irritation has had time to subside, should awaken the gravest apprehension. Secondary mischief has almost certainly been awakened and such cases are most obstinate. The treatment recommended for early convulsions should be begun as early as possible. I would not discourage operative measures for such cases in these days when such operations can be done with relative safety.

It is difficult to believe that large doses of bromids should accomplish anything in these cases, except to smother the spasms and blind both physician and friends as to the progress of the disease. Of the medical treatment I will speak later. The specific fevers are seen to be a very fertile cause of subsequent cerebral mischief, especially scarlet fever. It is not at all uncommon for convulsions to occur at some period of its course. In measles, if the nervous system is weak, meningeal symptoms are very apt to complicate the case. At the Pennsylvania Institute for Feeble-Minded Children, three epidemics of measles occurred, covering 397 cases. In the school department, when the children were of more healthy growth, catarrhal complications predominated; but in the asylum department, cerebral complications were the rule in the many cases where complications occurred, in some cases so severe as to kill the child in two or three days. When pneumonia would fatally attack a measles case, meningeal congestion would also be found post-mortem. In all such cases, as soon as indications of intercranial irritation are seen, prompt derivative measures should be employed to relieve cerebral congestion before the foundation be laid for permanent changes. Bromids may enter freely in the treatment at this stage but should not be long continued. The general remedies for this purpose are too well known to need mention. The number of imbeciles left in the wake of acute inflammatory cerebral disease is well known. Only

the comparative infrequency of this class of affections prevents this number from being frightful.

In all these diseases which I have described it is the residual products which cause the dreaded after effects. The remedies which are known to be of service are not numerous. Among those on which I have learned to look with favor is chlorid of gold. My use of it has been limited, but occasionally it has proved very effective. Much more can I commend a combination of iodid of potash with iodid of iron. In children where there has seemed to be a reawakening of cerebral change, and extension of old trouble has threatened, the symptoms have abated and the children have gained flesh and strength under its use. Arsenic, though less certain, has occasionally done good service.

The most satisfactory treatment is for the physician to follow his case through convalescence to complete health. To advise regular habits, sufficient rest, and above all things, and before all things, to provide rest and food for the rapidly growing brain, whose needs in the very young dominate all other organs, and the retardation of whose growth may be lifelong.

Lastly, I will refer to those obscure cases of epilepsy which arise in the years between dentition and the advent of puberty without any cause that we can demonstrate, merely to confess my inability to understand their origin or to recommend special method of treatment. They will occasionally recover under almost any treatment. Bromids will best diminish the frequency of their spasms, and, I believe, shortens the period during which they are fated to suffer.

THE FUNCTIONS AND THE FORM OF THE OBSTETRIC FORCEPS.

Read in the Section on Obstetrics and Diseases of Women at the Forty-fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1894.

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The functions of the obstetric forceps may be divided into constant, occasional, extraordinary and incidental. Its sole constant function is traction—the reënforcement of the natural *vis-a-tergo* by an artificial *vis-a-fronte*. As traction is intended to supplement the natural forces of labor, it should imitate them in so far as an artificial process may imitate a natural one—it should be intermittent, it should be moderate, it should urge the presenting part by its smallest circumference along the line of least resistance which in a general way will coincide with the axis of the parturient canal, at whatever point the presenting part may be engaged, and as nearly as may be with the axis of the blades of the forceps. Minor exceptions, however, are not infrequent. When the head impinges too strongly on the pelvic walls, either laterally or anteriorly, the line of least resistance will traverse the pelvic axis towards the opposite wall. When the forceps is applied before rotation takes place, the axis of the blades will depart from the axis of the pelvis proportionately to the obliquity of the application; at the outlet the interests of the perineum require that traction be anterior to this axis. Traction by the ordinary forceps as usually employed is neither moderate nor in the line of least resistance, and it is likewise neither in the axis of the blades nor in that of the pelvic

canal. The axis of the handles being set at a considerable angle anteriorly to the axis of the blades, and the grasp being at a right angle with the former axis, the direction of the tractive force exerted is always indefinite, not to say problematical, and generally deviates greatly either anteriorly or laterally from the normal line. Traction must be injurious and excessive in ratio to its misdirection.

The forceps of Morales, Hubert and Tarnier, while avowedly designed for traction in the axis of the pelvic canal, are really adapted to traction in the axis of the blades only. They are all alike incapable of adaptation to the varying requirements of individual cases. They embody a distinct advance in the direction of the principle which should guide us in traction, but they do not fully realize it. This principle is traction in the line of least resistance. It should not be departed from except for some well-defined and rational purpose—to promote rotation, for instance, or to protect the perineum. It may be objected that the line of least resistance, like the mathematical axis of the pelvis in the living subject, is incapable of demonstration, but it can not be denied that an empirical approximation to this line should be attempted in every case of forceps delivery.

Leverage, the occasional function of the forceps, may be either axial or transverse. Axial leverage is employed to promote rotation and transverse leverage to produce flexion and extension and, by some operators, in the form of lateral leverage, to “pry” the fetus out of the maternal passages. Lateral leverage should be rejected absolutely because, as Smith has demonstrated, it is mathematically absurd and, as experience has shown, it is extremely damaging to the maternal tissues. Transverse leverage, in promoting flexion and extension, may be applied equally well with any of the modern forceps, but axial leverage as applied by the ordinary forceps is indefinite and inefficient. It is made in the axis of the handles and at a considerable angle with the axis of the blades, and therefore instead of sweeping the head about its own axis tends to sweep it about an axis altogether external to itself and at a marked angle with its axis of presentation.

Compression, the extraordinary function of the forceps, may be made with the greatest exactitude with the shovel-handled forceps which I presented to the profession about a year ago. Among other forceps, however, when compression is exercised designedly there is little choice, but incidentally the ordinary forceps exerts a compression immensely greater than that required for secure prehension of the fetal head. This, it must in all candor be admitted, is a serious objection to this instrument. If compression as an independent function of the forceps is of doubtful propriety and always to be exercised with the greatest caution, compression as an incident of traction should be reduced to a minimum compatible with a solid grasp of the presenting part of the fetus. This is accomplished by axis-traction forceps and by no other.

Uterine excitation, the incidental function of the forceps, its so-called dynamic influence, is exerted by the ordinary forceps probably in a greater degree than by any other, but solely because of its defects, and not because of its perfection as an instrument of precision. In efforts to make axis-traction the handles are crowded against the perineum and the blades against the anterior walls of the uterus and vagina

while, in leverage, the blades are forced laterally against the latter structures. The pressure and friction thus produced, by reflex action, often materially strengthen uterine and abdominal contractions, but always at the expense of the maternal tissues.

The function of the obstetric forceps must determine its form. The blades should conform to the contour of the fetal head, and to the curve of the pelvis, and afford a secure and harmless grasp of the former without materially enlarging either of its diameters; the lock, on the one hand, should be easily adjusted and, on the other, should entirely prevent rocking of the blades; the handles should enable the operator to exercise all of the functions of the forceps with the greatest ease, safety and efficiency.

In accordance with these views, Messrs. Tiemann & Co. have constructed for me two forceps, a long

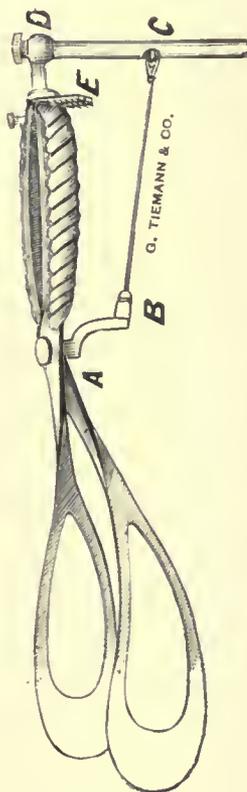


Fig. 1.

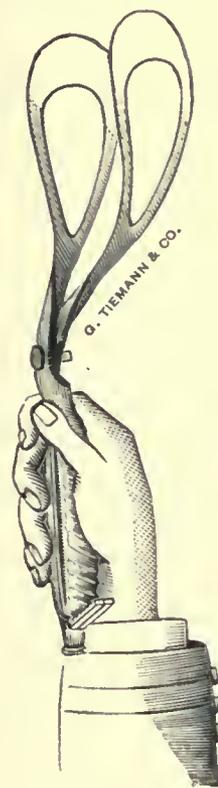


Fig. 2.

and a short which, in form, differ from previous forceps in several important particulars: The distal end of the fenestrum is filled in for a full inch or more; the axis of the handles is parallel with the axis of the blades; the axis-traction rod is connected with the lock of the male blade by a ball and socket joint; the axis-traction bar drops perpendicularly from the right handle about whose axis it moves for nearly 180 degrees; the catch for fixing the blades is in the form of a ratchet placed at the end of the handles, operates automatically and, when not in use, drops between the handles entirely out of the way.

The advantages of this forceps are:

1. Harmless grasp of the fetal head. The danger from compression varies in direct geometrical ratio with the amount of pressure applied, and in inverse geometrical ratio with the area over which the pressure is distributed. Undue compression is exercised

by the ordinary forceps for three reasons—viz, *a*, the extractive force not being exerted in the line of least resistance must be greater than with axis-traction instruments, and the compression correspondingly greater in order to obviate slipping of the blades; *b*, the grasp of the handles is maintained by lateral pressure which increases, particularly when the handles approach parallelism, as it were in parabolic ratio with the increase of extractive force; *c*, traction altogether and compression chiefly are exerted by the distal half of the blades—by the half lying beyond the point of greatest divergence. This pressure, whether of traction or of compression, is made by the ordinary forceps on a narrow surface, that underlying the bars of the blades and rarely exceeding five-sixteenths or three-eighths of an inch in width on either side. This undue pressure, this pressure in excess of what is required for a secure prehension of the presenting part, applied by the narrow bars of the distal half of the blades, it is that so often proves disastrous to the child.

Pressure when applied to the lateral surfaces of the head is by no means so dangerous as when applied obliquely or antero-posteriorly but, with a living child, it may be laid down as a rule absolutely without exception that compression should be reduced to a minimum compatible with a firm grasp of the presenting part and a safe delivery of the mother.

Not only should the pressure be minimized in the aggregate, but it should also be minimized at every point by distribution over the largest possible surface—thus greatly diminishing its injurious results. By the forceps I present to you, total pressure is minimized by axis traction applied by a handle that exercises no leverage whatever, and pressure on any given surface is minimized by filling in the distal or further end of the fenestrum for a full inch and thus nearly doubling the pressure area.

2. Secure grasp of the presenting part of the fetus. Traction with the ordinary forceps is usually made at an angle and frequently at a considerable angle anteriorly to the axis of the blades and has a proportionate tendency to promote slipping. Traction with this new forceps, however, is always quite or very nearly in the exact axis of the blades and slipping, if it occur at all, will not be attributable to any misdirection of the tractive force.

3. Avoidance of injurious pressure on the maternal tissues. The ordinary forceps endangers the maternal tissues in three ways: *a*, by misdirected traction dragging the head upward against the anterior vaginal wall; *b*, by crowding the blades too far forward in efforts to make axis-traction at the superior strait; and *c*, by pinching the intervening tissues between the forceps and the lateral walls of the pelvis in leverage and pendulum traction. These dangers are wholly obviated by the new forceps.

4. Easy application. Comparison here is made particularly with the Tarnier forceps and its numerous modifications.

5. Firm and comfortable grasp in traction. These are possessed by the Tarnier forceps also, but, in protracted and difficult cases, the handles of the ordinary forceps are a source of not inconsiderable annoyance from both discomfort and insecurity of the grasp.

6. Convenient catch for holding and for releasing the blades. The nut and screw of the Tarnier forceps

require some time for their adjustment both in fixing and in releasing the blades, while the catch of this instrument is operated instantly for either purpose and, when not in use, drops between the handles out of the way.

7. Freedom of one hand in traction. The force applied in axis-traction need rarely exceed 20 or 30 pounds and probably should never exceed 50 or 60, although some authorities place the limit as high as 80 or 100 pounds. This force can be easily and comfortably applied with one hand, either the right or the left, leaving the other perfectly free for such uses as constantly present themselves in instrumental delivery.

8. Axis-traction wherever and however the forceps may be applied. The Tarnier forceps and its numerous modifications when applied to the sides of the pelvis enable us to make traction in the pelvic axis as nearly as any forceps can—no more nearly, however, than the forceps under consideration; but when applied obliquely, when applied before rotation has been accomplished, the line of traction departs more or less and sometimes considerably from this axis—it is displaced laterally and superiorly. Not so, however, with the new forceps. When it is applied obliquely the axis-traction handle drops down by gravity into a perpendicular position. Grasping this handle well down below the connecting rod, traction may be still be made in the pelvic axis.

9. Lateral traction whenever indicated. In the living subject it is impossible to determine the exact mathematical axis of the pelvis. Approximation is all that is aimed at even in so-called axis-traction but, as was hinted at the outset, it is the line of least resistance and not the exact pelvic axis that should be sought—this is the method of nature. In a general way, the line of least resistance will correspond with the axis of the pelvis, but at any given point it may or may not. In every case of instrumental delivery the line of most efficient traction, the line of least resistance must be determined empirically—a general law we have, it is true, which must, however, be interpreted by the conditions peculiar to each individual case. Leverage and pendulum traction, are a blind effort to discover this line of most efficient traction, or in other words the line of least resistance. Their efficiency does not depend on leverage but on alternate lateral traction. By carrying the head to one side, pressure is relieved on the opposite side where friction is so reduced that progression takes place; traction is then made on the other side with a like result. This, to my mind, is the solution of the undoubted efficiency of pendulum traction.

But lateral traction is often indicated independently of oscillatory leverage. When the head impinges strongly on either wall of the pelvis, friction will be diminished and the line of least resistance approximated by bearing away to the opposite wall. When, for instance, the forceps is applied obliquely, either at the superior strait or in the pelvic canal, the line of traction may now and then be profitably carried somewhat to the side opposite to that of the presentation. On the contrary, however, traction in the pelvic axis or slightly toward the side of the presentation will sometimes materially assist in producing rotation; for now the force is applied below and to the side of the axis of the blades, while the resistance is made above it and to the same side—the leverage is obvious. This combination of force and re-

sistance is an exact imitation of the process of nature, and conforms perfectly to the dictum enunciated at the beginning of this paper—traction should imitate the forces of labor in so far as an artificial process may imitate a natural one.

10. Index for the direction of traction. The small ring in the axis-traction rod when in normal position marks a point within the axis of the blades. Traction at right angles to the axis-traction bar, with two fingers above the ring and two below, will be in the exact axis of the blades, and approximately in both the axis of the pelvis and the line of least resistance. This ring then furnishes a guide quite as trustworthy as the obsolescent handles or so-called indicatory needles of the Tarnier forceps.

11. Effective leverage. Transverse leverage, either antero-posterior or lateral, may be just as easily and effectually applied by this forceps as by the ordinary one, and axial leverage much more effectually, so that Pajot's criticism of the Tarnier forceps in this respect does not apply to the forceps under discussion. By reversing the axis-traction ring, the nipple is made to catch in a slot at the end of the male blade, and to fix the axis-traction rod. Axial leverage may now be applied by a pronative or supinative movement of the forearm.

12. Freedom of the head to rotate. The ordinary forceps unless very skilfully used materially hinders rotation. The Tarnier forceps allows the head far greater but not perfect freedom. The forceps under consideration may be employed so as to permit the head absolute freedom in this respect, to assist rotation by a combination of force and resistance or, if desired, to act as a powerful axial lever. Freedom of the head is assured in a far wider range of traction by this forceps than by the Tarnier.

13. Exactitude in the application of force and consequent economy in its expenditure. The ordinary forceps is a wasteful instrument. Traction, as usually employed, demands an extravagant expenditure of force which is largely consumed in useless and even injurious pressure on the maternal tissues. Traction by the methods of Smith and Pajot, as Lusk observes, requires both strength and skill. Traction with this forceps, on the contrary, can be made almost wholly in the line of least resistance and therefore with the least possible waste. This must be conceded to be a point of importance when we reflect that in these cases useless force is injurious force.

14. Reserve force and consequent control. In difficult cases the ordinary forceps demands an extravagant expenditure of force and attention. In consequence little reserve, either of force or of attention, remains for the exercise of proper control. As I have elsewhere said, delicacy in any operation implies the existence of a reserve force commensurate with the force employed; with this the greatest force may be conservative; without it the slightest force destructive. With this forceps the various forces are economically applied and intuitively regulated. Power, therefore, is obtained with a modicum of force and regulated with a minimum of attention. In consequence there remains a large residue of force and attention for the exercise of the most perfect control. Not only are the necessary force and attention reduced to a minimum, but also one hand is left free to perform any manipulation that may be indicated in the interest either of mother or of child, and to watch every step of progress or aberration in delivery.

15. Parallelism of the axis of the handles with that of the blades. The forceps is frequently indicated when traction of from three to five pounds or even the mere correction of the cephalic axis is sufficient to complete delivery; strict axis-traction may then be unnecessary. If, for this or any other reason, it is determined not to use the axis-traction attachment it is still possible with this forceps to make traction approximately in the pelvic axis without the adoption of any difficult maneuver. By grasping the handles from below, the forearm is readily placed almost in the exact axis of the blades and makes traction accordingly.

16. Wide range in the line of traction, without axial movement of the blades and consequent friction and abrasion of fetal and maternal tissues. In changing the line of traction with the ordinary forceps the axis of the blades follows that of the handles. The results of this swaying of the blades of the forceps are often observed in abrasions of the fetal tissues, especially near the end of the blades. The line of traction with this forceps, however, is regulated by swinging the axis-traction bar about the end of the handles, and without in the least displacing the axis, either of the handles or of the blades, and consequently without friction or abrasion or injurious pressure of the tissues either of mother or of child.

DISCUSSION.

DR. E. S. MEAD, San Jose, Cal.—It seems to me that however excellent the forceps may be in some respects in helping the traction, they have one anatomic defect. The curve of that forceps is altogether wanting. A forceps to work with facility in my hands must have this curve, especially when you are going to apply them in the interior strait. This curve of the forceps wants to be a great deal more marked.

I do not think it is necessary that we should make such heavy traction, but we should make the traction gradual. Every time the pain comes and every time there is a coming down of the head, the forceps should be re-adjusted. If we do not have an instrument with more curve we wound, necessarily, the maternal tissue. If you can have a forcep made so that the curve exactly corresponds to the curve under the pubis there is no necessity that I see to wound the maternal part. If the forceps are in unskilful hands—I have asked people to assist me in delivery (not me, my patients in delivery), and they put on a pair of forceps, and with great strong muscles that could lift probably two hundred pound dumb-bells, they pull. They seem to think that the only thing to be done is to deliver the child; if they cut off its circulation or bruise the mother, that is a matter of minor importance. That to me is all wrong. It is not brute force that we want; we don't want to make this too strong. I am wonderfully interested in the delivery of children and in the protection of the mother.

Some of the members present have had the fortune, or the misfortune, to see my delivery. I put on a pair of forceps, and they say: "Ain't you going to deliver?" I said: "I am going to wait until there is pain." There is more pain in half an hour, and the child comes. Sometimes the mother is torn, but oftentimes not at all.

I don't like the idea of fixing the handles, as in this instrument exhibited here. When I want to make traction I bring the handles together. I am not a strong woman, but I am strong enough for all the child or woman can bear. It seems to me that it is a lack of anatomic knowledge that destroys so many and makes so many failures.

DR. OSCAR J. MAYER, San Francisco—I think the mechanism as applied to these forceps is directly in opposition to

modern practice and principles of obstetrics. The most improved principle is asepsis. How it can be applied to forceps with so much machinery as this I can not understand.

Another objection to the forceps is their weight. Forceps should be as light as possible. These remind me of some of the older forceps in use. And this handle control I think is entirely unnecessary. Our aim should be not to use brutal force, but intelligent manipulation in expanding, and in rotation of the head in the delivery of the child. I think this forcep will not find much favor with the profession at large.

DR. W. WINTERBERG.—In talking about making that instrument aseptic, my friend Dr. Mayer, evidently forgot that we have sterilizers, and I think it would be very easy to make an instrument like that aseptic. I am in possession of an instrument which will hold that forcep and a whole obstetrical outfit, and all that is necessary to make the total outfit aseptic is to put it in the sterilizer and leave it for a few hours at a certain temperature. I think this is a very nice forcep. I do not object to complication in an instrument, but simplicity is always certainly desirable.

DR. BROWN, California.—I have had considerable experience in obstetrics for the last eighteen years, and I have observed the same objections that Dr. Mead has mentioned. It has not the curve that I like. I have found better success with the old Eclectic or old Philadelphia forceps than any others. I have never had any difficulty with it. I believe that it will fulfil all indications better than any instrument I ever handled.

As far as the complication is concerned of this instrument exhibited here, I can hardly see any objection against that, provided it has all the utilities. But I do think the mechanical shape of the instrument is objectionable.

DR. W. A. BRIGGS.—I will say in regard to the curve of this instrument, that it is really greater than it seems, for the reason that we are all used to the ordinary forceps where the handles instead of being parallel to the axis of the blade are set at quite an angle. This angle makes the blade seem to possess a greater curve than they really have. In these forceps I have measured the curve. I ordered it to be made the same as in the classical forceps; the curve is half an inch less than that of the classical forceps. But it is a condition more in appearance than in reality.

In the second place, in regard to asepsis, that is not, as Dr. Winterberg has said, dependent upon the instrument itself, but upon the care you take of it and the interest you take in making it aseptic. We do not keep an instrument aseptic, but we make it aseptic. This instrument as easily as any other can be made aseptic by heat. What I believe to be the advantage of this instrument is, the greater area for pressure, and the regulation of the direction of traction, so as to make it come within the line of least resistance in any possible application of the forceps.

ABDOMINAL PREGNANCY—FULL TERM, COMPLICATED WITH FIBROID OF UTERUS—CELIOTOMY AND REMOVAL OF THE CHILD AND PLACENTA AND ABDOMINAL HYSTERECTOMY.

Read by title in the Section on Obstetrics and Diseases of Women, at the Forty-fifth Annual Meeting of the American Medical Association, held in San Francisco, June 5-8, 1894.

BY W. F. McNUTT, M.D., M.R.C.S. ED., ETC.

PROFESSOR PRINCIPLES AND PRACTICE OF MEDICINE, UNIVERSITY OF CALIFORNIA.

It is not the object of this communication to discuss the various views of abdominal pregnancy—whether it is a primary or secondary condition, that is, as to how the fecundated ovum found itself in the abdominal cavity, nor to discuss the formation of a capsule about the ovum and the development of the

blood vessels, nor to refer to the different methods of treatment as to the fetus or to the management of the placenta. This case is reported in the belief that abdominal pregnancy (as distinct from all other extra-uterine pregnancies) is sufficiently rare to justify its being recorded, especially as a living child was removed at full term, and the diseased uterus removed as well.

On August 24, 1893, I was called across the bay by Drs. Payne and Hirshiser, to see Mrs. D., age 34; she had gone to nearly or quite her full term, when she was taken with abdominal pains similar to those of labor pains, with active delirium. Mrs. D. had been delivered of a child seventeen years before, had not been pregnant since till now. Had been in fairly good health while carrying the child and had spent most of the summer at the World's Fair, Chicago. I saw her late in the afternoon; she had then been delirious for thirty-six hours, with a good deal of abdominal pain. The bed had been quite saturated with water which was supposed to have been due to the rupture of the membranes. The child's head was thought to have been felt at the brim of the pelvis; the cervix while soft was as long as an unimpregnated cervix, though the abdominal walls were contracted. The child could be felt very distinctly by abdominal examination. This was then late in the evening; I advised giving the woman rest for the night, and that I would return in the morning. Not being able to go over in the morning, I sent Dr. Winslow Anderson, and asked him to carefully examine her per rectum, with the view of ascertaining if what was thought to be the child's head, might not be uterine fibroid, and the case was probably one of abdominal pregnancy. Dr. Anderson examined her carefully, with Dr. Payne and Hirshiser, and telephoned me to come over with instruments, feeling quite sure it was a case for operation. On my arrival we chloroformed her and opened the abdominal cavity, where I found a living ten pound child, loose in the cavity, not encased in membranes. Lifting the child out and having tied the cord I found the placenta a large one, attached along the margin of the right broad ligament and to the peritoneum, and over the ascending colon nearly to the liver. I detached it rapidly; the hemorrhage was profuse, and would have been greater, had not Dr. Anderson controlled the ovarian circulation. It soon ceased after the placenta was detached and a couple of ligatures used, one included in the ovarian artery. We found a large fibroid of the uterus, which had been taken for the child's head at the brim of the pelvis. Thinking it best not to close the abdominal cavity with such a fibroid, I removed the uterus. As the fibroid involved the lower portion of the body and the upper portion of the cervix it was not possible to make a Porro and the whole uterus was removed. When coming out from under the influence of the chloroform, the woman resumed her delirium, showed no evidence of shock, but died forty-eight hours after.

The cause of the delirium was a question of great interest, as the membranes had ruptured, the child escaped from the sac and there was no fluid in the abdominal cavity. Had the absorption of the amniotic fluid by the peritoneum been the cause of the delirium, or had the fluid escaped by the tube, or had the fluid that had wet the sheets been from the bladder?

POMPOUS WORDS IN MEDICAL LITERATURE.

BY EDMUND ANDREWS, A.M., M.D.
SENIOR SURGEON OF MERCY HOSPITAL, CHICAGO.

A good literary style is as important in medicine as in any other kind of writing.

One feature of good style demanded by all standard critics, is that the sentences shall be expressed in simple, pure, crystalline English, and consist mainly of short Anglo-Saxon words, loaded as little as possible with pompous polysyllables of Latin and Greek derivation.

James Russell Lowell laments our inferiority to English writers in this respect. He says: "It has long seemed to me that the great vice of American writing and speaking is a studied want of simplicity." Whether it be for want of culture—for the highest outcome of culture is simplicity, or for whatever reason, it is certain that very few American writers or speakers wield their native language with the directness, force and precision that are common as the day in the mother country. While the school-master has been busy 'starching' our language and smoothing it flat, the newspaper reporter has been doing even more harm by stretching and swelling it to suit his occasions."

Short Anglo-Saxon words of common, daily use are to be preferred wherever they will express our meaning. It is this choice of short words, resulting in a condensed style of singular force, which gave the plays of Shakespeare and the English translation of the Bible much of their irresistible power.

Generally English medical men have kept much nearer to this strong style than Americans.

It is amusing, but vexing, to find a worthy medical gentleman, who talks in a pure and simple style among his friends but who, on taking up his pen to write a book or an article, changes his whole dialect, and fills his pages with a jangle of harsh technical terms, two-thirds of which are not needed to express his meaning.

Technical terms can not be altogether avoided, but they are a necessary evil, and should be reduced to a minimum and never lugged in without necessity. If employed in the least excess they make the sentences obscure, harsh and weak, and give them an intolerable air of pompous stiffness.

After examining an injured gentleman, the surgeon perhaps announces to his family that he was thrown sidewise from his carriage, breaking both bones of his leg and putting his ankle out of joint. This is a simple, clear and dignified statement. Now if he reports the case in a medical journal, why should he get up on his stilts and say: "The patient being suddenly projected transversely from his vehicle, fractured the tibia and the fibula, and luxated the tibio-tarsal articulation?" Perhaps he thinks he has made his statement in a high-toned, or at least a high-flown literary style.

Akin to the literary sin of too much technicality of language, is the error of overloading the speech with Greek and Latin derivatives. Not that they are forbidden, but good style requires them to be used as sparingly as possible.

These languages being of a very different type from our own, their derivatives rarely work in harmoniously with pure English sentences, and their harshness and their polysyllabic complexity make them serious blemishes in our style. For some curi-

ous reason, it is the half educated man who dotes most on these big words, whenever he displays himself in writing.

His old catheter never has an eye nor a hole in it, but a fenestrum. He does not have instruments but an armamentarium. He does not disinfect them by boiling, but by immersion in water elevated to the temperature of ebullition. He never distinguishes diseases from each other, but he differentiates or diagnosticates them. His patient's mouth is an oral cavity and his jaw a maxilla. If the eye-lids are adherent, it is a case of ankylosymbblepharon, and if there is a stone in the bladder it is an intra-vesical calculus. He never sees any bleeding, but only hemorrhage, or sanguineous effusion.

In sewing up a wound he makes, not a seam, but a suture, and often he blunders, as some good authors do, by calling each separate stitch a suture.

If he discovers wrinkles on the skin, they are corrugations. He never examines a limb by touch, but always by palpation. If he finds it hopelessly diseased, he deems it far beneath his dignity to cut it off, but is quite ready to amputate it.

There is something admirable in the sturdy contempt of our English brethren for all mere word pomp and prudishness. In London the most fashionable avenue for horseback exercise is still called "Rotten Row" from decayed houses anciently there, but long since gone.

The English surgeon has the same spirit in him. He cares for the thing to be done, and not for its phraseology. He takes his trochar and taps a dropsical belly, while the American blushes up to the roots of his hair to hear such plain speech from his British brother. He will not imitate him—not he, but he goes out straightway and performs paracentesis abdominis for intra-peritoneal effusion.

However, the pompousness is not all on our side of the ocean, and it is refreshing to see an occasional touch of it beyond the seas, just to show that we are not the only sinners in this matter.

An eminent British surgeon explains himself as follows:

"Septic peritonitis, save where definable from evidence wholly extrinsic to the condition of the peritoneum, is an etiologic entity which exists only in the mind of the pathologic metaphysician."

This is about as bad as anything ever written on our side of the water.

Our American authors have from time to time brought out many valuable researches and discoveries, but usually in a very defective style. Let us hope that the time is near when they will learn to wield our native language with that purity, simplicity and force which always commands the respect of the world.

2520 Prairie Avenue Chicago.

BOOK NOTICES.

A System of Genito-Urinary Diseases, Syphilology and Dermatology, by various authors. Edited by PRINCE A. MORROW, A.M., M.D. Illustrated in three volumes. 8vo, cloth. Vol. iii, Dermatology. New York: D. Appleton & Co. 1894.

In our review of the second volume of this "System" (JOURNAL AMERICAN MEDICAL ASSOCIATION, Vol. xxi, p. 782) we took occasion to say that it surpassed any recent work on the subject; we can also compliment the author on this handsome volume. The illustrations are excellent, and the

typography good. There is some unevenness in the work of the different writers and some lack of uniformity, but the book as it stands is a valuable contribution to dermatology. Twenty-seven well-known authors have contributed. The volume begins very appropriately with a section on the anatomy and physiology of the skin by Dr. Heitzman, of New York. This chapter, which in truth should be studied more carefully than any other, is—alas for the weakness of human nature—likely to be glanced at instead of read, but much confusion of mind would be obviated, concerning all branches of medicine, if more attention were paid by practitioners to anatomy and physiology. We note with pleasure that the decimal system of prescription writing has been followed by some of the writers, and many prescriptions are given in both the old style and the metric. In classification Dr. Morrow has followed with few changes Crocker's modification of Hebra's system. The placing of the exanthemata (scarlet fever, smallpox, chickenpox and measles) among the skin diseases seems to us of questionable propriety.

One of the chapters in the work which will be found of general interest as well as to the specialist, is the one by Dr. Morrow on leprosy. The author is a firm believer in the inoculability of the disease and he cites many cases to prove it. The well-known case in point of Father Damien (of whom a photograph is given) is cited in full. He recognizes, however, that leprosy is communicated mainly through the respiratory and intestinal tract, with secondary infection through the lymphatic system.

We commend this volume as a fitting companion to its two predecessors, and a creditable addition to the literature of American medicine.

Micro-Organisms In Water. Their significance, identification and removal, together with an account of the bacteriologic methods employed in their investigation. Specially designed for the use of those connected with the sanitary aspects of water supply. By PERCY FRANKLAND, Ph. D., B. Sc. (Lond.), F. R. S., Associate of the Royal School of Mines, Fellow of the Institute of Chemistry, etc., etc., and Mrs. PERCY FRANKLAND. 8vo. Cl., pp. 532. London: Longmans, Green & Co. 1894.

Anything written by a Frankland is authoritative on the subject of which it treats, and this book will doubtless take rank in the same class with Edward Frankland's "Water Analysis." The book gives in detail those methods of bacteriologic study, which are applicable to the examination of water, in which both engineers and health officers are practically interested, not less than students of bacteriology.

The work is divided into nine chapters. Chapter I. On sterilizations and preparations of culture media; II. Staining and microscopic examination of microorganisms; III. Examination of water for microorganisms; IV. Bacterial contents of various waters; V. Purification of water for drinking purposes; VI. On multiplication of microorganisms; VII. Detection of pathogenic bacteria in water; VIII. Vitality of particular pathogenic bacteria in water; IX. Action of light on microorganisms in water and culture media.

The appendix contains a valuable descriptive table of the various microorganisms found in water.

No more valuable contribution to bacteriology has been made for a long time, and pathologists will therefore find the book very instructive to them, not less than to those pursuing other branches of the profession.

Saint Bartholomew's Hospital Reports. Edited by W. S. CHURCH, M.D., and W. J. WALSHAM, F.R.C.S., Vol. xxix. 8 vo. Cloth. Pp. 410, and appendix 108. London: Smith, Elder & Co. 1893.

The volume opens with an account of the "Martha" Ward, by Harrison Cripps, and there are several noteworthy contributions among many excellent ones. Mr. W. Marrant Baker proposes the removal of contiguous teeth, to relieve the pain in the tongue in certain cases of cancer. Sir Dyce Duckworth dissents from the common view that the "*Taches blâtres*" observed in fever cases are due to pediculi. Mr. Chas. A. Parker has an interesting article with a statistical

table, on "Nasal Breathing in Nasal Obstruction." There is an instructive paper by Dr. Edmund Cautley on "Irregularity of the Heart." There is a complete index and a full statistical report of cases treated in the Hospital; altogether the volume is fully equal in value to those of the series which have preceded it.

Charaka-Samhita. Translated into English. Published by Avinash Chandra Kaviratna. Calcutta. Part ix.

We have heretofore commented on the value to the history of medicine of this wonderful book, (See JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Sept. 23, 1893, and April 21, 1894) probably the oldest medical book in existence. The following is an abstract of the contents of the Ninth Fasciculus:

In Lesson XXIII are explained the incidents relating to Santarpana or indulgence in food and acts that is both sedative and nutritive. The diseases that arise from such indulgence are enumerated, such as diabetes, itches, etc. The treatment is then laid down that it is advisable for persons afflicted with diseases due to such indulgence. The remedies in the form of indulgence, in excess, in food and practices which are the reverse of Santarpana, are called Apatarpana. The diseases due to Apatarpana are then enumerated, together with the remedies that are advisable to be administered.

Lesson XXIV treats of the nature and characteristics of the blood. What generates pure blood is explained. It is pure blood that brings about strength and complexion and the happiness of health. How the blood becomes impure. The diseases that are due to impure blood are enumerated. The treatment is expounded of diseases due to impure or vitiated blood. The respective indications of blood when it is vitiated by wind, bile, and phlegm, separately or in combination. The indications of pure blood. Vitiated blood leads to insanity, swoon, and apoplexy. The indications of these diseases are set forth in detail. The treatment to be followed in these respective diseases.

Lesson XXV is devoted to the discussion of the various theories of the creation of man. This discussion contains the essence of the different systems of Hindu philosophy in respect to the cosmogony of the world and living creatures. The objections to each system are also explained. The unutility of such discussion is shown. The use of beneficial food is the cause of the growth of a person; while that of food that is injurious is the cause of disease. What constitutes beneficial food and what constitutes food that is injurious. The regulations about diet are set forth in detail. The different classifications of food depending upon different considerations. A detailed enumeration of the qualities of those substances are used as food. The observations on diet, it will be seen, are extremely interesting.

International Clinics. A Quarterly of clinical lectures on Medicine, Neurology, Pediatrics, Surgery, Genito-Urinary Surgery, Gynecology, Obstetrics, Ophthalmology, Laryngology, Otology and Dermatology. By professors and lecturers in the leading medical colleges of the United States, France, Great Britain and Canada. Edited by JUDSON DALAND, M.D., Philadelphia; J. MITCHELL BRUCE, F.R.C.P., London, England; DAVID W. FINLAY, M.D., F.R.C.P., Aberdeen, Scotland. Volume xi. Fourth series. 8vo. Cl. Philadelphia: J. B. Lippincott & Co. 1894.

This volume is a continuation of the interesting series. There are forty-four separate articles, but as many of the clinics are reproductions of what was said and done at college clinic amphitheatres, they represent a great variety of cases.

These clinics, then, not only represent what the authors say about cases, but it represents what they did in all cases where manual procedures were required. The work is fairly illustrated, but much more might be done in this direction to make the book more useful to those of its readers engaged in active practice.

Practitioners desirous of keeping pace with the methods of our clinical teachers can not well afford to do without this serial, which in the course of a year, covers most of the diseases and injuries to which mortal flesh is heir.

One Hundred Years of Business Life—1794—1894. New York: W. H. Schieffelin & Co.

The story of the rise and progress of a great commercial house must always interest the historical student for it throws a sidelight on passing events, many of which would otherwise escape notice. To the medical profession this book will have a double interest, for not only will it have for it the historic motive, but as well the acquaintance of a firm with whom three generations of medical men have had pleasant business relations. The appendix consists of a scholarly review, "one hundred years of chemistry and pharmacy." And as well known, in the progress of the pharmacy of this country, this firm has long borne an honorable and prominent part. The book is handsomely illustrated.

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SATURDAY, AUGUST 18, 1894.

WORK OF THE ANTI-VACCINISTS.

Among other trials and afflictions which delay the advent of the municipal millennium in the city of Milwaukee, is to be numbered an Anti-Vaccination Society, which has been manifesting a most pernicious activity for the past two years.

The usual results have followed.

Its efforts among the ignorant and easily deluded elements of the population have aroused a determined opposition to the measures of protection sought to be enforced by the City Health Department in the presence of a threatened invasion of smallpox. The Society has preached its regulation doctrine of the terrible results of vaccination and the comparative beneficence of smallpox; that compulsory vaccination is a violation of the sacred rights of the person; that the exclusion of unvaccinated children from the public schools is an invasion of parental authority; and has counseled physical resistance to health officers and aided and abetted legal proceedings against school directors in furtherance of its propaganda of free smallpox.

In common with many other large cities of the country, Milwaukee has recently had its share of smallpox cases; but, except in the localities where the anti-vaccinists have secured a following, the Health Department has been able to control the disease. In such localities the people—mainly aliens unable to distinguish between liberty and license and resentful of any exercise of constituted authority—have not only resisted vaccination but, taught to ignore the infectious character of smallpox, have gone freely among those suffering with the disease, in defiance of quarantine and isolation, and have thus caused such an increase and extension of the outbreak as to lead the State at large to demand that

the State Board of Health shall declare Milwaukee dangerously infected and order quarantine against communication with the city.

Still another feature of the labors of the "antis" in the interest of unrestricted smallpox has been the fomenting and fostering of a sentiment hostile to the hospital treatment of the disease. Gross misrepresentation of the hospital administration, exaggeration of defective conditions and vilification of officers and employes culminated recently in a riot, in which it is alleged a mob of 3,000 excited men and women resisted the attempted removal of patients, and a score of rioters and half a dozen policemen were injured. Mass meetings have been held at which the Health Department has been bitterly denounced and a demand made that the Mayor interfere to prevent further removals to the hospital, and cause the hospital itself to be abolished—a demand which was timidly yielded to so far as to cause a temporary suspension of removals.

All of which has redounded to the disgrace of the fair name of the city and to the serious injury of her commercial interests, and all of which is to be charged to the anti-vaccinists and their work.

Fortunately, the health administration of the city is in good hands; DRs. WINGATE and KEMPSTER—the former until recently, and the latter the present Health Commissioner—have proved themselves to be well-equipped sanitary executives, prudent and conservative but courageous and firm in the discharge of duty. They possess the confidence of the health authorities of neighboring cities and States, and have thus been able to avert unnecessary restrictions upon the travel and traffic of the city. DR. WINGATE, as Secretary of the State Board of Health, has secured the coöperation of the railroads with the Milwaukee Health Department and with local health boards, in a system of inspection and supervision of railway travel to prevent the dissemination of the disease throughout the State or beyond its borders. Health Commissioner KEMPSTER, who estimates that one-third the children of the city are unvaccinated as a result of the efforts of the Anti-Vaccination Society, is pushing vaccination vigorously and extending hospital facilities—as well to meet future contingencies as to remove ground for present opposition.

The occasion should be utilized for the permanent remedy of certain evils arising from municipal parsimony—in neglecting to provide a properly located and adequate isolation hospital for contagious diseases. It has been heretofore demonstrated in these pages that the hospital treatment of smallpox affords the patient a better chance for recovery than treatment at home—to say nothing of the advantages accruing to the community from the thorough isolation of cases which only the hospital can secure.

But other things must be equal. It goes without

saying that compulsory removal to hospital is justifiable only when the hospital environment is at least as healthful as that from which the patient is removed; in the matters of abundant ventilation—and of hospital ventilation it has been aptly said that “too much is little enough”—in skilled nursing and in expert medical attendance the hospital should excel the home. Owing to false ideas of municipal economy this is not always the case; the belief seems to be that anything is good enough for an isolation hospital, and appropriations for its establishment and maintenance are, as a rule, given grudgingly and grumblingly.

The Health Department of Milwaukee should make the most of its present opportunity to secure what is coming to be recognized as the measure not only of a city's sanitary status but of its civilization—a properly constructed and adequately maintained isolation hospital for the reception and treatment of cases of the contagious diseases. If this shall be another one of the results of the work of the anti-vaccinists, it will go far to solve the present mystery of their creation and existence.

THE BRITISH MEDICAL ASSOCIATION.

The British Medical Association met in Bristol at its last session, exactly thirty-one years after its former meeting in that city, and the *British Medical Journal* of August 4 says:

“The British Medical Association again meets in Bristol, on this occasion under the accomplished and able presidency of Dr. E. LONO FOX, Consulting Physician to the Royal Infirmary. This is the third occasion on which the capital of the West has hospitably received the Association. It met there for the first time in 1833, shortly after the formation of the Association. The number of members of the Association was then a little more than 400, while the attendance ran up to 200. It is curious to note that at present, when the Association numbers upwards of 15,000, the attendance at an annual meeting so interesting as this is not expected to amount to a proportion of as much as 5 per cent. of the total number of members as compared with 50 per cent. in the earlier days of the Association. Further, the general business was then conducted in the presence of nearly the full number of attending members, while on the present occasion the most important part of the business can only command the attendance, out of the 900 members in the town, of from 30 to 40 in the body of the hall, and, including the members of Council on the platform, of between 50 and 60 in all—a smaller number, in fact, than goes to make up an ordinary well-attended meeting of any of the larger branches when similar subjects are under discussion. The fact appears to be that for all discussions of a political or business character the center of interest is displaced from the annual meeting, which mainly concerns itself with scientific discussions in the Sections and the hearing of the annual addresses, to the branch meetings. The branches have now become the main centers and determining power in the solution of the social and administrative problems with which the Association concerns itself. This decentralization of power and the localization of such discussions in the cities and the counties which are the seats of the branches is in full accord with the democratic spirit of the

times and the democratic constitution of the Association. Inasmuch as the executive body of the Association is elected by the branches, each assembled in its own seat of residence, and is constituted of their representatives, the reports of the Council and its committees, when approved by it, are really the authentic records of executive acts and administrative opinions derived from the true source of power in the Association—the wishes of the members as expressed by their elected representatives.”

The record of the proceedings of the general sessions reads so like a leaf from the proceedings of our own beloved ASSOCIATION, as to bring a tear to the eye. We read, following the report of the Treasurer:

“SURGEON-MAJOR INCE moved the following amendment:

‘That this meeting regrets the great and growing increase in the annual expenditure as compared with the income of the Association, and suggests to the Council the expediency of a careful and substantial reduction thereof in all departments, especially in the matter of the editorial and office expenses, which appear out of all proportion to the needs and nature of the *British Medical Journal*.’

“DR. INCE commenced by a criticism upon the *Journal*, which he said was not the golden article it had been represented to be. The tone of some articles he considered as undignified, often vulgar. He objected, for example, to a leading article written upon the HARNES case, and in response to cries of ‘Read, read,’ he quoted sentences from the article in which HARNES was referred to as—(cheers and cries of ‘hear, hear!’)—‘that champion impostor,’—(renewed cheers)—‘this egregious quack,’—(hear, hear)—the sentiments contained in the quotations being apparently warmly indorsed by the audience. DR. INCE would leave MR. HARNES and pass on to criticise an article headed, ‘A Superior Person, and the Journalism of the Future,’ which appeared on January 28, and which he described as ‘arrogant and satirical.’ The *Journal* was outdone in size by the *Lancet*, which contained 3,212 pages of reading matter last year as against 3,024 in the *Journal*, or 188 pages in excess. He commented on the ‘undisguised personality’ of the editor of the *Journal*. MR. ERNEST HART, in his last year's address on journalism, had spoken of ‘modesty and self-effacement.’ He added that he thought that would ‘fetch them.’ With regard to the financial statement, he complained that it was meager. There was no statement of the investments, while their furniture was put down at its cost, without any allowance for depreciation. There was something wrong in the accounts. He absolved the Treasurer in every way. MR. BUTLIN was reappointed last year at his (DR. INCE's) suggestion, and he had the fullest confidence in his integrity, his probity and discrimination. There was, however, still room for retrenchment, and it was a great mistake not to allow individual members who were desirous of doing so to inspect the accounts. One item that should be cut off immediately was the expense incurred by the peregrinations of their editor. DR. INCE having by this time somewhat exhausted the patience of his audience, was called upon to conclude, which he did by moving the resolution.

“After a long pause, MR. BRINDLEY JAMES seconded the amendment.”

And then the *Journal* was ably defended, (as if it needed any defense!) by DR. BRIERLY, MR. BUTLIN, and the veteran editor, MR. ERNEST HART, after which the mover withdrew the resolutions. All of which took up about two hours time of the general sessions; but the *Journal* had been attacked, and the assailant duly defeated; both sides having thus done their full duty the business of the session was resumed.

THE NECESSITY FOR WORK.

This year the members of the ASSOCIATION should make extraordinary efforts to increase the membership and swell the subscription list of the JOURNAL. A little personal effort will accomplish great things. The only ASSOCIATION in our country having direct connection with the State medical societies of the Union, there can be no question of its representative character.

Membership is now practically unlimited by any technical barrier, and every principle of patriotic pride should urge us to have one of the strongest medical associations in the world. We gained largely at San Francisco by the accessions from the Pacific coast; let us hold fast to what we have gained, by every member promptly remitting his annual subscription. Our ASSOCIATION would long ago have had ten thousand members if it were not that by sheer inattention many of those who join at these annual meetings allow their membership to lapse.

The JOURNAL was greatly enlarged last year, and it will soon move into better quarters, and be printed on its own presses. It will be a source of pride to the members to know that, notwithstanding the gloomy prognostications made after the Milwaukee meeting, by certain critics, the affairs of the JOURNAL were never more flourishing, or its prospects brighter, but it must not lag in the race. "A strong pull, and a pull all together," will soon bring the ASSOCIATION and its JOURNAL to a fair and friendly rivalry with the British Association, whose continued prosperity excites our highest admiration.

AS IT STRIKES THEM IN FRANCE.

M. MARCEL BAUDOUIN, of *Le Progrés Médical* also makes merry over the fact commented upon in the JOURNAL of June 30, under the heading, "Is This a Sanitary Utopia?" In a recent number of his lively journal he says it becomes his duty "to record a sufficiently extraordinary fact; one that is, most assuredly, not on the point of being at once reproduced in France"—that is, the establishment of systematic courses of instruction in sanitary science for the members of the German Legislature. M. BAUDOUIN says:

"In Paris we have, it is true, a course on social hygiene at the *Hôtel de Ville*; but PROFESSOR A. J. MARTIN would astonish us mightily were he to write us that his habitual audience included the majority of the Municipal Council! Can you fancy seeing PROFESSOR PROUST holding forth at the *Palais-Bourbon*? When he is obliged to speak there as a Commissioner of the Government he is listened to for a little while at least, because he knows how to manage the most refractory of audiences. But does any one suppose for a moment that were he not speaking on behalf of electors, large numbers of the people's representatives would think it worth while to come and wear out their trousers on the benches of the dynamited hall, under the pretence of learning how to avoid infecting Paris with dirty water? What would thenceforth

become of the famous interpellations, with a similar caliber to those of the *Seine-et-Oise* Deputies?"

He facetiously closes—"A post to be filled of which I had not dreamed: Professor of Deputy's Hygiene! I claim it, if, peradventure, it be not already bespoken. Berlin is an amusing place; one does not there get bored!"

There are other countries, it may be remarked, whose legislators need instruction in public health matters more than do those of France. In a late issue (July 21) we recounted the formation of an extra-Parliamentary committee of physicians, members of the French Parliament, to investigate pending questions relating to the profession, to poor-relief organization and to the protection of the public health. Among the twelve Senators and twenty-two Deputies who participated in the formation of this committee were many of equal celebrity in medicine and hygiene with those who are lecturing to the German Legislature, and *Le Progrés* itself announces the recent election of another medical man, DR. MARFAN of the Aude, to the Chamber of Deputies, and the appointment of DRs. LOURTIES and VIGER to the French Cabinet—the former as Minister of Commerce.

The recognition of medical men and medical matters in the British Parliament is too well known to need more than mention, and in Italy and elsewhere on the Continent the profession exerts an important influence in matters of legislation and the affairs of government.

CORRESPONDENCE.

LETTER FROM WASHINGTON.

Tenure of Medical Offices—Health Officer—Sanitary Affairs—Other Matters.

WASHINGTON, D. C., Aug. 4, 1894.

To the Editor:—The Commissioners of the District of Columbia have adopted a rule limiting the term of service of police surgeons, physicians to the poor, and health officer to three years. Heretofore there has been no limitation to time of service—the new rule does not prevent re-appointment to office.

Dr. C. M. Hammett, who three years ago succeeded Dr. Smith Townshend as Health Officer, tendered his resignation to the Commissioners on July 31, and it has been accepted. Dr. Hammett has been a successful practitioner in this city for twenty-five years and is a very accomplished gentleman. During his term of service in the health office he had many opportunities to exhibit his skill and judgment which he always did to the entire satisfaction of the profession and the public. He greatly improved the system of medical care of the poor, re-arranging the districts and filling all vacancies in the staff with physicians of the highest ability. His kindness and courtesy will always be remembered by those who had business with his office. He was, upon acceptance of his resignation, appointed to the office of Coroner.

Dr. W. C. Woodward who for the past few months had the office of Coroner, resigned and was appointed Health-Officer to succeed Dr. Hammett. He is a graduate of the

Medical Department of the Georgetown University, Class of 1889, and late Resident Physician in the Emergency Hospital, is very popular as a physician and will have an opportunity to distinguish himself in his new position.

The conference report on the appropriation bills for the city is agreed to and contains a number of interesting matters. One thousand dollars is allowed for horse hire and expenses of Coroner's Department, with salary of \$1,800.

The additional appropriation of \$60,000 proposed by the Senate for the collection of garbage was stricken out, and a clause inserted requiring the Commissioners to specially investigate the best methods of collecting and disposing of garbage, and to receive proposals under such methods and report the result at the next session of Congress. The Senate amendment legalizing the ordinances of the late Board of Health of the District was agreed to.

For work on the receiving reservoir of the aqueduct \$52,500 was provided, and the requirement inserted that the work shall be completed within the fiscal year, at a cost of \$90,000. For protecting the conduit at waste weir No. 1, \$5,000 was provided.

The emergency fund of the District was increased to \$25,000, and the fund for the support of convicts fixed at \$25,000.

For transportation of paupers \$3,500 was provided.

The item of \$1,710 for a new family building for the Reform School for boys was omitted and the Senate amendment was stricken out, which transfers the management and control of the Reform School to the Commissioners.

It was provided that not exceeding \$300,000 of the surplus revenues of the District on July 1, 1894, shall be applied to the payment of the principal of the debt incurred for increasing the water supply. The Senate item of \$1,000 for five members of the plumbing board was omitted. The Superintendent of Charities received a messenger at \$840.

An appropriation of \$165,000 was provided for assessment and permit work, and the Senate provision regulating such work was retained.

For relief sewers and replacing obstructed sewers, \$65,000 was agreed upon, and for main and pipe sewers, \$90,000. Authority was granted to enter into a contract for the construction of the Rock Creek intercepting sewer at \$80,000, and \$20,000 was appropriated to commence the work. The provision of the House concerning the paving of streets between the rails and tracks of street railways was omitted. The Senate amendment requiring fenders on street cars was retained.

The Senate provision concerning the condemnation of lands through the Prospect Hill Cemetery for the extension of North Capitol Street was retained.

For sweeping, sprinkling and cleaning streets \$137,500 was provided, and the Senate provision that \$5,000 of the amount may be used in the suburbs was omitted. The appropriation for gas and electric lighting was fixed at \$190,000, the price for street lamps fixed at \$20.50 per annum and electric lamps at 40 cents per night.

The bathing beach received \$1,000, and the public pumps \$4,000.

The disputed charities appropriations were agreed upon as follows: For the Emergency Hospital, \$12,000; for an addition to Columbia Hospital, \$10,000; for the National Homeopathic Hospital, \$8,000; for expenses of the Girls' Reform School, \$9,425; for child-caring institutions and the board of children's guardians, \$56,500. The provision of the Senate placing the management and control of the Freedman's Hospital under the board of incorporators was stricken out.

The recent ruling of Attorney-General Olney to the effect that the entire direction and control of the Freedman's Hospital and Asylum is vested in the Commissioners by virtue

of the act of Congress making appropriations for the past fiscal year, grew out of a question as to whether the transfer from the jurisdiction of the Interior Department extended to general control or only contemplated supervision of expenditures.

Superintendent of Charities Tracey, in his last report, recommended that the transfer of the institution to the jurisdiction of the Commissioners be completed, he being of the opinion that the clause in the appropriation act only contemplated supervision of expenditures.

The Attorney-General's recent opinion, however, holds that entire control was necessarily contemplated, and in view of this opinion no further legislation is necessary. In speaking of the appropriations for charities in the District appropriation bill, now in the President's hands, Col. Tracey expressed himself as entirely satisfied with the sums allotted, as in every instance the amount appropriated is identical with his recommendations.

For the enforcement of the provisions of an Act entitled "An Act to prevent the spread of scarlet fever and diphtheria in the District of Columbia," approved December twentieth, eighteen hundred and ninety, four thousand dollars.

That the ordinances of the late Board of Health of the District of Columbia, as legalized by joint resolution of Congress, approved April twenty-fourth, eighteen hundred and eighty, be, and the same are hereby, declared to have the same force and effect within the District of Columbia as if enacted by Congress in the first instance, and that the powers and duties imposed upon the late Board of Health in and by the said ordinances, are hereby conferred upon the Health Officer of said District, and that all prosecutions for violations of said ordinances and regulations shall be in the police court of the District of Columbia in the name of the said District: *Provided*, That said regulations shall not be enforced against established industries and the carrying on of any business therein mentioned, which is not a nuisance in fact.

H. L. E. JOHNSON.

A Word for the General Practitioner.

To the Editor:

"What the General Practitioner Should Know About Eye Diseases."

The above title has appeared at the head of numerous articles by as many authors within the last few years. It has recurred with such frequency as to nauseate the one for whom it was intended. A careful analysis of the articles oftentimes reveals a stupendous amount of ignorance and inexperience, either or both of which are reprehensible. They begin something after this fashion: "The object of this paper is to instruct the general practitioner what diseases and conditions of the eye he should send to an oculist and what the oculist is willing that the general practitioner shall treat." Then will probably follow a rehearsal of some cases where a general practitioner is held up to public view because of an error of diagnosis and treatment. Fortunately these cases are very rare in the oculist's practice, if from the practice of thoroughly informed physicians. They are too common if from the practice of those Ishmaelites, the itinerant and advertising quack. The articles above referred to then deal with the different diseases of the eye sometimes very elaborately, and before one is through reading them he is impressed with the irresistible conclusion that it is not safe for a general practitioner to treat any eye disease, and that he had better send all eye cases to the author of the article for treatment; for these articles are not primarily intended to be read by oculists, but by general practitioners and for this reason they very rarely appear in journals devoted exclusively to ophthalmic science, but in

journals which the general practitioner is most likely to read. These articles subserve no good purpose in advancing the progress of ophthalmic science. They are written, as Dr. Joseph Eastman said, in the Section of Gynecology at the last meeting of the AMERICAN MEDICAL ASSOCIATION, like the tariff bill "of these Democratic Senators, a tariff for revenue only."

The time has come when the better class of oculists should cry out against this debauchery of ophthalmic science. This advice will apply to all specialties. The attempt is to narrow the field of usefulness of the general practitioner until the only recourse for him will be to make a specialty of general practice. Because operations have been rendered easy and comparatively successful, specialists have often become egotists. No doubt this spirit of egotism has prompted the publication of the articles above mentioned.

The well-informed general practitioner can often teach a specialist more in a minute than the specialist can teach him in an hour. The great advances in ophthalmic science within the last fifty years have been due very largely to the general practitioner. Some of the most valuable hints, those hints which often do more for a surgeon's reputation than the most formidable operation he may perform have come to us from general practitioners. You perhaps have never seen in a text-book on the eye that when a foreign body is lodged under an eye-lid, by rubbing the other eye it will often be dislodged and removed, and trouble the eye no more forever. The rhinologist perhaps has never read in a text-book of laryngology that an acute coryza may be very quickly and efficiently broken up by the inhalation of the fumes of iodine crystals placed in a bottle. These valuable hints were given the author by a prominent practitioner of this place whose modesty has prevented him from writing a lengthy article advising the specialist what he should know of general practice. Very many other hints might be given similar to the two above.

All honor to our general practitioners. May their shadows never grow less. May the bulk of their knowledge on eye diseases continually increase. May the size of their pocket book be more plethoric. May those who limit their practice exclusively to a certain disease, because of *circumstances not their own*, reverence the general practitioner, the old-fashioned family physician, whose skill has pulled us through many rough experiences on beds of pain. It is to be wondered at why general practitioners have not filled the pages of our medical journals with articles entitled thus: "WHAT THE SPECIALIST SHOULD KNOW OF GENERAL PRACTICE."

GEO. F. KEIPER, M.D.

SOCIETY NEWS.

Twelfth International Medical Congress.—The next International Medical Congress will be held in Moscow, Russia, in August, 1896.

Medical Society Missouri Valley.—The annual meeting of the Medical Society of the Missouri Valley will be held in Council Bluffs, Iowa, Thursday, Sept. 20, 1894.

Medical Society of the State of West Virginia.—The Medical Society of the State of West Virginia convened in its twenty-seventh annual session at Berkeley Springs, W. Va., July 10 and 11. Ten new members were admitted to the Society, making a total of 221. President R. W. Hazlett delivered his annual address. The following papers were read:

"New Remedies," by Dr. E. H. Fravel; "The Prevention of Consumption," by Dr. N. D. Baker; "The Prevention of Tuberculosis," by Dr. A. S. Maddox; "A Synopsis of Practical Bacteriology with Demonstrations," by Dr. J. Schwynn;

"A Plea for the Old Physician," by Dr. C. F. Ulrich; "Antiseptics in Normal Labor," by Dr. W. P. Hogue; "A Witness in Court," by Dr. D. P. Morgan; "O'Dwyer's Operation, with Report of Three Cases," by Dr. R. H. Cummins; "The Influence of Bacteriology upon Surgical Practice," by Dr. R. J. Reed; "Legislation for the Prevention of Blindness," by Dr. G. A. Aschman.

Resolutions attached to the above paper, similar to those adopted by a number of other State societies for the prevention of blindness, were unanimously adopted and referred to the Committee on Legislation.

Dr. J. D. Myers, of Huntington, informed the Society of his intention of issuing a monthly medical publication, *The West Virginia Journal of Medicine and Surgery*.

The following officers were elected for the ensuing year:
President: Dr. D. Mayer, of Charleston.

Vice-Presidents: First District, Dr. R. H. Cummins, of Wheeling; Second District, Dr. C. S. Hoffman, of Keyser; Third District, Dr. V. T. Churchman, of Charleston; Fourth District, Dr. W. S. Keefer, of Parkersburg.

Secretary: Dr. G. A. Aschman, of Wheeling.

Treasurer: Dr. J. A. Campbell, of Wheeling.

Next year's meeting will be held at Elkins, W. Va., and Dr. B. M. Smith was appointed Chairman of the Committee of Arrangements. The exact date will be left to the decision of the officers.

PUBLIC HEALTH.

Cholera Disinfection.—Inasmuch as all researches on the subject go to prove that the cholera bacterium dies at 50 degrees C., and very quickly at 70 degrees C., and seeing that a mixture of one part of choleraic matter with ten of boiling water preserves a temperature of not less than 85 to 55 degrees for an hour (which is long enough to kill the stoutest cholera microbe), Dr. Valaëff, after thorough experiment, proposes to disinfect cholera stools by means of boiling water, which can be procured pretty nearly everywhere. Instead of being placed in corrosive sublimate solution, all linen soiled by cholera dejections should be plunged in boiling water, and allowed to remain submerged for fifteen or twenty minutes.

The Situation.—Public health conditions in the United States remain free from sensational features, despite the efforts of an occasional daily paper to create alarm by its headlines. Even in Milwaukee, where the anti-vaccinists have done some mischief as elsewhere detailed in this issue of the JOURNAL, it appears from the latest report of Dr. U. O. B. Wingate, Secretary of the Wisconsin State Board of Health, that there have been only 55 cases of smallpox with 6 deaths since January last, and a total of 135 cases and 33 deaths in the entire State. (*Abstract of Sanitary Reports*, Aug. 10, inst.)

A British "tramp" steamer, from Liverpool via Colon, Belize, Honduras and Vera Cruz, has given the New Orleans health authorities some little concern on account of the development on board of a suspicious case of sickness after her arrival at the city pier; she had been detained at quarantine for seven days for cleansing and fumigation and was supposed to be free from infection. While there were some characteristic symptoms of yellow fever lacking, the case was sufficiently suspicious to warrant the return of the vessel, crew, and sick man to the quarantine station, which was done on the 14th.

There is little to add to last week's summary of the cholera situation in Europe. Only in Russia may the disease properly be called epidemic, although its spread in Austria-Hungary, in the crown-land of Galicia, is becoming threat-

ening—resembling in its features of extension, the invasion of 1872-3 in the fourth pandemic of the disease. There is also some increase, both in the number of cases and of infected localities, in Holland, Belgium and France. English and Continental sanitary authorities—except, possibly, those of Eastern Europe—still seem to be able to cope with the situation and to afford a sufficient measure of protection for this country.

Cremation Sanctioned.—The advocates of the substitution of cremation for earth burial, on the score of the sanitary advantages of the former will be gratified at the recent decision of Mr. Asquith, the Home Secretary for England, on an application for a faculty authorizing the interment of an urn, containing cremated remains, beneath the floor of a church. The faculty was granted and a precedent is thereby established which, at least in a country so largely influenced by precedent, can not fail to give a fresh impetus to the practice of cremation.

Congress of Hygiene at Buda-Pest.—From a recent bulletin of information concerning the forthcoming International Congress of Hygiene and Demography at Buda-Pest, it is learned that already 725 papers have been notified, of which 593 belong to the hygienic, and 132 to the demographic group of the Congress. A total of 290 public bodies with 620 delegates, including 26 Governments, have given notice of their intention to be officially represented. Many important towns—Berlin, Hamburg, Brünn, Paris, Montpellier, Venice, Odessa, Alexandria and San Louis de Potosi, have promised to send in plans and models of their public sanitary works. Of the papers and lectures the following are given special mention: 1. Dr. Ernest Hart (London), Protection against Cholera in the Orient, and the Hypothesis of its Epidemic Diffusion; The Propagation of Cholera by River Communication and by Railway Lines; the direct connection between the Propagation of Cholera and of Typhoid Fever by Water, Milk and Food, together with the proved connection between the Suppression of Cholera and Typhoid Fever, and the Improvements in the System of Drainage, etc.; 2. By Prof. Dr. E. Leyden, Med. Privy Councillor (Berlin), On Provisions made by large Towns for Consumptives; 3. Prof. Dr. George Mayr (Strassburg), On Statistics and Social Science; 4. Baurath Herzberg, C.E. (Berlin), The Civil Engineer's Work in Hygiene; 5. Prof. E. Levasseur (Paris), The History of Demography; 6. Prof. Dr. E. T. Erisman (Moscow), The Struggle with Death; 7. Prof. Dr. C. Lombroso (Turin), The Criminal.

Tobacco as a Bactericide.—Can cigars be made a medium for the propagation of the cholera infection? is the question which Dr. Wernicke answers (*Hygienische Rundschau*) in the negative, after a series of careful experiments. He made cigars, using in the preparation of the tobacco leaves, water to which the cholera bacilli had been added, and also by placing within the cigars a small piece of cloth impregnated with a culture in broth for one day, and rolling up the last or outer layer or leaf with hands moist with water containing the specific bacilli. After remaining twenty-four hours in the oven the cigars were used to inoculate cakes of gelatine. The inoculation was effective only with the pieces of cloth placed within the cigar; on the tobacco leaves the cholera bacilli were already destroyed by the development of other microorganisms. In all cases the spirillum was found dead after three hours of drying; it survived longest (two hours) in cigars made from Havana tobacco; one hour was sufficient to kill in Sumatra and seed-leaf tobaccos and thirty minutes in that from Brazil. It is worthy of note, in connection with the theory of the acid prophylaxis of cholera, that the last three kinds of tobacco had an acid re-

action while that from Havana was alkaline. Wernicke also sought in vain for the presence of cholera bacilli in cigars manufactured in Hamburg, when the epidemic there was most severe, and while the cigars were still moist and contained a great number of other species of bacteria.

Kitasato's Discovery.—The "bill of particulars," which the *JOURNAL* last week intimated the bacteriologic world was awaiting with respect to the discovery of the specific plague bacillus, is furnished editorially by the *Medical Press* (Eng.) of August 1, inst. Soon after the appearance of the disease in Hong Kong the Japanese Government despatched Professors Kitasato and Aoyama to the island in order to study the disease. Both observers are well-trained bacteriologists. Dr. Kitasato, after taking his degree in medicine at Tokio, spent seven years at Koch's institute in Berlin, where he devoted his time to the bacteriology of infectious diseases. His fellow-worker, Dr. Aoyama, spent four years in similar studies under Prof. Koch. After much laborious work Dr. Kitasato is said to have discovered in the blood of a patient a bacillus which he believes to be the specific pathogenic organism of plague. This interesting microbe is found in the blood on the second day of the disease and proceeds to attack the principal internal organs of its host. It is described as being composed of very slender straight filaments of short length, of the form known among the Germans as a "stäbchen" bacterium. Both investigators are agreed that no such bacillus has yet been described in the human blood. Experiments made by Dr. Kitasato by subcutaneous injections of pure cultures of the bacillus have invariably killed the inoculated animal within two days. The resulting symptoms are stated to have been those of plague, although the symptoms of vomiting, diarrhea, and buboes were absent, possibly owing to the rapid development of the disease. Kitasato's discovery is made the occasion of a tribute to Japan by the journal quoted, which says: "The mere fact of such a discovery being possible from that quarter of the globe is itself an eloquent testimony to the intellectual powers of a versatile and capable nation. A short generation ago medical science, as such, simply did not exist in Japan. To-day it is provided with universities and schools, where all branches of learning are taught by trained and highly educated natives. The identification of the plague bacillus is likely to be merely a matter of time, that is to say, if the conclusions of the two learned professors should not be upheld by later investigators. They may be congratulated, however, even at this stage of affairs, on the energy and learning which they have brought to bear upon the elucidation of an obscure etiologic problem. To our own mind there is no more marvelous phase of the modern development of Japan than that which enables it to join the foremost ranks of scientific thought and investigation."

NECROLOGY.

PHILIP H. PFARRE, M.D., of Brooklyn, died June 8, aged 24 years, at the home of his family, 196 Lincoln Place. He received a detail as interne of the Brooklyn Hospital in 1893, where he was still on duty when ill-health forced him to leave the institution. The fatal issue is reported to have been consequent upon an influenzal attack in December last, with endocarditis supervening. He was a graduate of the Long Island College Hospital, in the class of 1890.—Julius Wolfenstein, M.D., of Cleveland, Ohio, August 12.—R. M. Straus, M.D., of Chapmanville, August 5, aged 42.—W. Y. Royer, M.D., of Monticello, Ill., August 11, aged 56.

Blank Applications for membership in the ASSOCIATION at the *JOURNAL* office.

MISCELLANY.

A Doctor's Footsteps.—The laborious nature of a busy practice is illustrated by the story of a Swiss doctor, who is said to have counted his footsteps during the year by means of a pedometer. The total is a large one, namely, 9,760,900, or average of 26,740 daily. Of this number 600,000 to 700,000, or from 1,500 to 2,000 daily, are said to have been taken up by staircases.

Red Noses.—A German physiologist—or physiognomist—one Dr. Kelling, has, according to the *Journal de Médecine de Paris*, discovered a simple method of saving abstemious people who are afflicted with red noses from being mistaken for confirmed toppers. According to Kelling, the "jolly red nose" is caused by a contraction of the venioles, producing sanguineous stasis of the capillaries and consequent loss of tone in the muscular parietes of these latter. His method of treatment, for which he claims entire success in upward of a score of cases, is as follows: A continuous current of medium (supportable) strength is passed through the pectant organ for from five to eight minutes, the two rheophores being the while freely promenaded all over the tinted surface. Sittings take place every two or three days, the violet-red color disappearing after from ten to fifteen applications.

Removal of Li Hung Chang.—If it be true, as reported by cable dispatches, that Li Hung Chang has been deprived of his premiership of the Chinese Empire, the cause of western medicine in the Far East will suffer a distinct loss. It was through his efforts that the Imperial Medical School at Tientsin was established and is now holding its first session in accordance with approved European methods of medical instruction. The Viceroy, who has been called the "Bismarck of China," is one of the most remarkable men of the age, having risen from obscure and humble parentage to be the actual ruler and chief administrator of an empire of 400,000,000 souls. Made Viceroy in 1863, at the age of 40, he has been the persistent friend and advocate of modern civilization; has permitted coal mining and coast steamer traffic to be carried on by the English, and has been favorable to the railroads; has founded a steamship line and is not opposed to European exploration of the Empire. No negotiations between China and other powers have been conducted of late years without his participation, and often the ambassador or ministers never got further than his palace at Tientsin. He represents the progressive party in China and his introduction of the telegraph, machinery, and European industrial methods has been accomplished with the greatest opposition from the mandarins of every degree. Naturally, he has incurred the enmity of these ultra-conservatives, who have probably made his alleged inactivity in the Korean difficulty the pretext for his present disgrace by the Emperor, Kuang Hsu—a young man of weak and yielding disposition, surrounded by courtiers who sedulously exclude from him all knowledge of the world of the nineteenth century and especially of the life of his people. It is recalled that the Viceroy was once before—in 1870, after the Tientsin massacre—similarly disgraced and his titles taken from him, on the ground that he had not properly assisted the general then in command. He remained in disfavor, however, less than two years, when he was restored to his office with increased power. As he is now in his seventy-second year and the present Emperor is so largely under the influence of the mandarins, such an event is not likely to be repeated; and it is to be feared that not only the Imperial Medical School will suffer but that medical missionaries in common with other civilizing agencies, will

be driven from the Flowery Kingdom if Li Hung Chang has been deprived of his yellow jacket and the authority it symbolizes.

The Supply Table of the Army Medical Department.—The Surgeon-General of the Army has issued a new edition of the "Supply Table of the Medical Department," an octavo pamphlet of fifty-one pages. In turning over its pages one is impressed with the liberality of the Government to the sick soldier. Everything needful for his treatment is on the list, with the complete outfit of a dispensary and hospital wards. The allowance for a year of the various articles of the materia medica is given for posts having an official population of from 100 to 1,000; the phrase "official population" including those other than soldiers entitled to medical attendance and medicines. The list of drugs in this edition of the "Supply Table" differs from its predecessors in two notable particulars; in the use of the official or pharmacopœial instead of the English name of the article, and in the adoption of the metric system of weights and measures. Thus, instead of "iron chlorid tincture, in 1 pound bottles" we now find, "ferri chlorid tinctura in 500 c.c. bottles," and instead of "silver nitrate, molded, in 1 ounce bottles," we have "argenti nitras fusus in 25 gram bottles," and so on. Following the medicines are lists of antiseptics and disinfectants, hospital stores, microscopic accessories, stationery, surgical instruments, appliances and dressings, furniture, bedding and clothing and miscellaneous articles, the last beginning with such items as bandage winders and bath bricks and ending with washtubs. The routine giving out of disinfectants to be scattered about a military post is prohibited. Not long ago the Surgeon-General notified his officers to give no countenance to the mistaken idea prevalent among officers and non-commissioned officers of the Army, that disinfectants are required for general post sanitation. In the absence of infection there is no need for disinfectants. Sulphate of iron and other cheap deodorants may be used when necessary, but the necessity for their use is a reproach on the sanitary police of a military post. The remedy for offensive water-closets, bad smelling urinals and foul drains is cleanliness and strict sanitary police, not disinfectants. Sterilized dressings are not issued; their preparation being so simple and so well understood they are expected to be prepared as needed. Medical and surgical chests are to be kept in perfect order for immediate service in the field. The Bausch and Lomb Universal is the microscope now issued by the Army Medical Department, although the Investigator of the same makers and a few of Beck's Binocular are still in use. A chemic and a bacteriologic set are issued to enable medical officers to carry out original investigations and to throw light on such sanitary questions or medical cases as may require special inquiry. No list of medical books is included in the "Supply Table," as it is considered that owing to the rapid advances in medicine a large part of any fixed list soon becomes obsolete. Such new books as may be selected by the Surgeon-General are furnished to military posts. The *Index Medicus* is supplied all posts, in order that medical officers may be informed and make use of the latest additions to the library, books from which may be obtained on application and payment of express charges both ways.

The Weather in 1893.—The annual summary of the weather for 1893, edited by Prof. Cleveland Abbe, has just been issued from the office of the Weather Bureau. The barometric pressure was below the normal .02 to .05 in the southwest, the interior valleys and the upper lake region, but above the normal by .02 or .03 in the extreme northeast and at several Pacific coast stations. The mean temperature was highest in Florida, Arizona and Southern Texas, the

maximum being 76.9 degrees at Key West, Fla. The isotherm of 60 degrees Fahr. passed from Hatteras, N. C., westward through Central Arkansas, Oklahoma to Southern California. The isotherm of 40 degrees passed from Central Maine westward over Lake Huron, Central Wisconsin, Northern Montana and thence northwestward through Alberta. The lowest annual averages within the United States were 29.9 degrees at St. Vincent, Minn., 35 degrees at Moorhead, Minn., and 37.4 degrees at Duluth, Minn., and at Sault Ste. Marie, Mich. The mean annual temperature was above the normal in the South Atlantic and Gulf States and the Eastern Rocky Mountain slope, the maximum excess being 2.2 degrees at Abilene, Texas. Elsewhere, temperature was usually below the normal, the maximum deficit being 4 degrees at St. Vincent, Minn., 2.9 degrees at Portland, Me., 2.4 degrees at Chicago, Ill.

The maximum temperatures of the year were noted at Fort Yuma, Ariz., 111 degrees June 7 and August 2; Tucson, Ariz., 107 degrees, June 7 and July 1; Miles City, Mont., 107 degrees, July 25; Dodge City, Kan., 106 degrees, June 23 and Red Bluff, Cal., 106 degrees, August 4. The lowest temperatures were—45 degrees at Havre and Miles City, Mont., February 1;—42 degrees at Helena, Mont., January 31 and St. Vincent, Minn., February 1; and—41 degrees at Bismarck, N. D., January 1. The range of temperature was least in Florida and on the Pacific Coast, greatest in Montana and North Dakota. The smallest ranges noted were 39 degrees at Key West, Fla., 40 degrees at Eureka, Cal., 50 degrees at San Diego, Cal., 54 degrees at San Francisco, Cal., and 55 degrees at Galveston, Texas. The largest annual ranges were Miles City, Mont., 152 degrees; Havre, Mont., 148 degrees; Helena, Mont., and Bismarck, N. D., 144 degrees; Moorhead, Minn., 140 degrees and St. Vincent, Minn., 138 degrees. The greatest annual rainfalls were 104 inches at Tatoosh Island, Wash., and 118 inches at Neah Bay, Wash. The precipitation exceeded 80 inches on the coast of Washington and 40 inches on the coast of California. It was from 2 to 10 inches in Nevada, from 10 to 40 inches in Idaho, and from 5 to 20 inches in Arizona; on the eastern slope of the Rocky Mountains from 5 to 15, increasing as we go eastward until in the Mississippi Valley it ranged from 25 at the northern and to 45 or 50 inches at the southern. Along the Atlantic coast the fall was generally about sixty inches, diminishing northeastwardly to Eastport, Me., which had about thirty inches and southwardly to Key West, Fla., which had 22 inches. The annual rainfall was generally deficient particularly so in Louisiana, Kansas, the interior of Georgia and Southern Florida; only in the north Pacific districts was there an excess of rainfall.

Collective Investigation of the Continued Fevers.—A most interesting class of diseases and one, as yet, but imperfectly defined, are the long continued fevers of the South. A special committee of the Orleans Parish (La.) Medical Society has been created for their collective investigation, and Dr. F. W. Parham, of New Orleans, Chairman of the committee makes (*New Orleans Medical and Surgical Journal*) a preliminary announcement of the plan of the work. Physicians will be requested to record accurate data of their cases of continued fever and keep clinical charts. Blank forms will be drawn up by the committee and sent throughout the State asking for information on important points in the pathology and treatment of this class of fevers, to the end that the investigation may be as complete and as thorough as possible. The pathologic investigation will be conducted by the pathologists of the committee, Drs. Archinard, Pothier, Bruns and McShane, who will study especially the means of differentiation of this from malarial and other fevers of Louisiana, having particular reference to the diagnostic data furnished

by the bacteriologic investigation of the discharges and the minute examination of the blood. The clinicians of the committee, Drs. Matas, Chassignac, Salomon, Martin and Bloch, will gather all other data bearing on the subject, and the whole committee will collate the results of the investigation and present its conclusions at the annual meeting of the Orleans Parish Medical Society next spring.

The committee will undoubtedly avail itself of the results of the work done in this direction by the U. S. Marine-Hospital Service in 1888-90, under the following order:

RECORD AND CLASSIFICATION OF CONTINUED AND REMITTENT FEVERS.

1888. Department No. 65.] Treasury Department.

OFFICE SUPERVISING SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

WASHINGTON, D. C., June 7, 1888.

To Medical Officers and Acting Assistant Surgeons:

With a view of formulating a more precise symptomatology of the "continued" and "remittent" fevers, from and after July 1, 1888, you are directed to take full and accurate notes of all cases of "continued" and "remittent" fevers, treated by you among patients of the Marine-Hospital Service and to make special semi-annual reports of all such cases to this office.

The cases of fever should be classified, as far as practicable, according to the symptoms in each case, into simple continued, enteric, remittent, etc., and every symptom noted.

The presence or absence of the following symptoms relative to enteric fever should be carefully noted, together with the dates of their respective appearance:

| | |
|------------------------|-------------------------------------|
| Eruption; | Enlargement of spleen; |
| Diarrhea; | Delirium (character); |
| Tympanites; | Mode of onset (gradual or sudden), |
| Intestinal hemorrhage; | presence or absence of initial |
| Peritonitis; | chill; |
| Temperature range; | Necropsy; |
| | Presence or absence of intestinal |
| | lesions, and if present, give exact |
| | location. |

JOHN B. HAMILTON,

Supervising Surgeon-General.

Approved:

C. S. FAIRCHILD, Secretary.

The reports thus provided for were continued up to June 30, 1890, and cover a total of 339 cases—241 of the enteric group, 87 of the remittent group and 11 of the simple continued fevers, the details of which will be found in the Annual Reports of the Supervising Surgeon-General for the years 1889 (p. 243) and 1890 (p. 96).

Positive Proof Necessary to Warrant Revocation of License.—Gradually the courts are teaching medical licensing bodies the forms of procedure to be observed, the competency of evidence, the methods of pleadings and the rights of individuals, in trials involving the tenure of the license to practice. Another important and valuable lesson on this subject is contained in the decision of the Supreme Court of Montana, rendered March 17, 1894, in the case of the State v. Kellogg. This was an appeal to the Court against the revocation of Kellogg's license by the State Board of Medical Examiners on a complaint of "unprofessional, dishonorable or immoral conduct." The complaint, as it reached the Court, charged that the defendant, a licensed physician, 1, threw into a furnace with intent to destroy it, a human acephalous fetus seven months old; 2, that, at a coroner's inquest upon this fetus, he certified that it was three months and a week old, and refused to give the name of the mother, but promised to divulge the name to the coroner the next day, who could use his discretion; 3, that, at the inquest on the following day, he testified that the woman whose name was demanded had left the State and, without her presence to explain her condition at the time the fetus was taken from her, his answer, under the circumstances, would incriminate him and be testimony against him. Upon trial of these charges before the Board the defendant was found guilty of immoral, unprofessional and dishonorable con-

duct, and his license to practice medicine in Montana was revoked. The evidence upon which this judgment was based was not presented to the Court, which had before it only the complaint embodying the charges above set forth. The Court analyzes these charges *seriatim*, and finds nothing in the complaint inconsistent with the theory of innocence of wrong doing or intent on the part of the defendant. The Court severely criticizes the manner and form of the complaint and its ineptitude. It is said to hint at guilt, but to leave open the hypothesis of innocence. If true, the defendant might be guilty and he might be innocent. Pleading of such a nature, it was said, would not do in a civil case, and it surely must not be allowed in a quasi-criminal case. Concede that the facts set up in the complaint raise a grave suspicion of the commission of an abortion by the defendant. Must he prepare for trial upon a suspicion? To be a member of an honorable profession, such as that of medicine, should raise his conduct above suspicion. But if circumstances arise which may, under one construction, cast a suspicion upon a physician, and if the circumstances are susceptible also of a construction consistent with his innocence, then, if the construction of guilt is to be adopted, the guilt should be charged, and not left to inference. And while extending all approval to legislation intended to exclude immoral and dishonorable conduct from an honorable profession, yet the spirit of our American law is such that the Court must hold that a doctor, to be tried for professional misfeasances, is as much entitled to a clear charge and specifications against him as has a burglar or murderer the right to a definite, specific indictment. The judgment of the Board was reversed.

The Metric System in Pharmacy.—At a recent Council meeting of the Pharmaceutical Society of Great Britain, Mr. W. Martindale moved the following resolution: "That after Jan. 1, 1895, a practical knowledge of the metric system of weights and measures shall be required of all candidates for the Minor Examination in the subjects of prescriptions and practical dispensing, and that the Board of Examiners be instructed to require from candidates a general knowledge of posology in terms of the metric as well as the British system of weights and measures as defined by the British Pharmacopœia, 1885; and in practical dispensing 'to weigh, measure and compound medicines' by the metric as well as the British system of weights and measures." After some discussion the resolution was altered to the effect that the Board of Examiners should be requested to consider the advisability of acquiring a practical knowledge of the metric system of weights and measures for the Minor Examination. In this form it was carried.—*British Medical Journal*.

A Wide-awake Hospital Administration in Madagascar.—The following are some points taken from a report, prepared by Drs. S. B. Fenn and C. F. A. Moss, relative to their work at the hospital supported by three English missionary societies at Antananarivo, Madagascar. These two gentlemen, with some aid from English laymen and from natives trained by themselves, have been enabled to build up a hospital with four or more dispensaries, and training schools for nurses and for physicians and surgeons. They show in their work great energy, enterprise and shrewdness:

"1. *In-patient Work.*—The hospital is always open the year round, for the reception of patients. A few years ago the reluctance shown by the people to enter a hospital was great, as they did not like the necessary restrictions and rules. But this, we are glad to say, is gradually but surely giving way, and with this larger and better hospital we are often over-crowded, and are obliged to refuse admittance to some. Many, too, come from great distances, and these we are always glad to see, for they carry back with them to their distant homes accounts of what they have seen and

heard. Short services are held in each ward morning and evening, and as opportunity offers the good seed is also sown by private talks with the patients.

Let me add that the hospital, being also a training institution, is worked very much on the same plans as our hospitals at home. There are staff nurses, nurses and probationers, also clerical clerks among the students. Temperature charts, notes, and histories of cases are all carefully made and kept, and as far as the time and strength of two doctors and one lady superintendent permit, the work is done thoroughly.

"2. *Out-patient Work.*—There are four dispensaries connected with the Medical Mission. One is at the hospital itself, where patients are seen three days a week. Another is situated at the north end of the town, near the great market-place, and is opened three times a week also. A third dispensary is at the extreme southern end of the city, where patients are seen on Mondays and Thursdays, and a fourth is at the little town of Ilazaina, about eight miles north of the capital.

"3. *Teaching of Students.*—The training department of our work, viz., that of young women as nurses and midwives just mentioned, and that of young men as doctors, is perhaps the most important of all. There are at present over fifty students in the Medical Missionary Academy, under the management of a conjoint board, representing three societies in England. The students have to pass an examination on general education before entering on their medical studies. If this is done successfully, the first year is devoted to science subjects, viz., botany, physics, chemistry, zoölogy, also Latin and English. If they pass the examination in these subjects and have proved to be worthy men, they are allowed to commence their medical studies proper. These are pursued for at least four more years. The first two are spent in studying anatomy, physiology, histology and materia medica, and the last two are especially devoted to clerical work in the hospital, medicine, surgery, midwifery and gynecology. A final examination is held once a year, after which the successful candidates publicly receive the diploma of the Academy. Over twenty young men now hold this diploma. Some have practices in town, and many are settled in country districts and doing excellent work. Thus by spending our time and labor on the few we are, in reality, benefiting the many.

"4. *Outside Work.*—Not much need be said on this point. My esteemed colleague, Dr. C. F. A. Moss, and myself, find our time more than fully occupied with the direct work of the Mission. Still, there are missionary families and others to be attended to in illness, and occasionally visits have to be paid to Malagasy patients at their homes. A little literary work, too, is done from time to time, and the preparation of suitable text-books for the students is slowly advancing."

There is a band of forty Malagasy women who have been trained to serve as a nursing staff at the hospital and dispensaries.

Washington Notes.

CITY PUMPS.—A number of pumps for drinking water have been closed by order of the Commissioners because they were found more or less contaminated by surface drainage, and others have been marked for inspection by the District chemist.

ASSISTING UNREGISTERED PHYSICIANS.—It has come to the notice of the Health Department that an unregistered physician was attending a case which died, and as he could not sign the death certificate secured the signature of a friend, a registered physician. The matter will be investigated.

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—The monthly report for July shows the following: Number of new cases, 1,121; number of visits, 3,011; number of prescriptions, 2,496; ambulance calls, 34; number of deaths from all causes, 6; number of autopsies, 6; number of emergency cases, 316; number of operations, 164; number of redressings for minor cases, 207.

CAPITAL WATER SUPPLY ENDANGERED.—Col. John M. Wilson, in charge of public buildings and grounds, has called the attention of the Commissioners to the fact that Eckington and Soldiers' Home Railroad Company, in constructing

the new track at Florida Avenue and North Capitol Street, has placed ties apparently immediately over the four-inch water main which conveys the drinking water from the Capitol Spring to the Capitol. Col. Wilson says the pipe will probably be broken as soon as cars are run over the track. The pipe was laid by the United States about fifty years ago, the right of way having been purchased by the Government.

BURIAL PERMITS INACCURATE.—It has been found by the Health Department that in some cases where the certificate of death showed that the deceased was to be buried in a given cemetery it was afterward found that the remains were in another. A case in point showed a body supposed to have been buried at Mount Olivet was in reality buried at Arlington. These cases are for some reason quite frequent. The matter will be investigated. A heavy fine is the penalty for such an offense.

MIDSUMMER DEATH RATIO.—The health conditions of the city as shown by the returns of the Health Department for the past week are good. Infant mortality is on the decline. Contagious diseases, as well as those of the lungs, are seen to be in almost complete abeyance, only one death from diphtheria and one from whooping cough being reported. Number of deaths, 127; white, 60; colored, 67; death rate per 1,000 per annum, white, 17.9; colored, 34.7; total population, 23.1; 44 were under 5 years of age; 33 under 1 year and 25 over 60 years. Twenty-six deaths occurred in hospitals or public institutions. The deaths by classes were as follows: Zymotic, 36; constitutional, 24; local, 49; developmental, 9; violence, 9; principal causes were: Croup, 1; diphtheria, 1; consumption, 8; diarrhea, 16; typhoid fever, 13; malarial, 2; congestion of lungs, 1; bronchitis, 1; whooping cough, 1; kidney diseases, 4; meningitis, 2; cancers, 6; births, 90; white males, 31; females, 24; colored males, 17; females, 18; marriages, 36; white, 29; colored, 7; still births, 2 white and 8 colored.

GARBAGE DISPOSAL.—Considerable friction exists between the Health Departments of Washington and Alexandria, Va., growing out of the anchoring of garbage scows too near the latter city. Upon the failure of the contractor to abate the nuisance, after due notice, the Alexandria authorities attempted to burn the boats; they were so wet that fire failed so dynamite was resorted to and the objectionable, foul smelling scows scattered. The present contract of the garbage company is in force until July 1, 1897. In the District appropriation bill, as it passed the House, \$29,500 was provided for the collection of garbage, being the amount of the company's yearly contract, with a slight addition for extra daily collections during the summer months. When the bill reached the Senate the sum of \$30,500 was added to provide for the disposal of the garbage by cremation or otherwise within the limits of the District, making a total appropriation of \$60,000. When the bill went to conference, the Senate amendment was knocked out and the bill was finally passed with the item for garbage the same as provided by the House, and the Commissioner directed to further investigate the matter of garbage disposal and report with plans and estimates to the next session of Congress. The Commissioners think, however, that they will be able to secure the additional appropriation desired before the present session adjourns.

Deaconess' Hospital, Dayton, Ohio.—The trustees of the Deaconess' Hospital, Dayton, Ohio, held their regular monthly meeting August 7. The Superintendent's report was as follows: Number of patients in hospital June 30, 19; admitted in July, 29. Total number treated, 48. Dismissed, 17; died, 3. Number remaining in hospital August 1, 28.

THE PUBLIC SERVICES.

Postponement of Examinations for the Army Medical Department.—Candidates for permission to appear before an Examining Board for entrance into the Medical Corps of the Army have received the following letter, signed by Major Charles Smart, from the office of the Surgeon-General:

SIR:—I have the honor to inform you, by direction of the Surgeon-General, that the number of assistant surgeons in the Medical Corps of the Army was reduced by recent Act of Congress from 125 to 110. There being therefore no vacancies to be filled, no Examining Board will be convened at present, nor until the number of assistants is reduced by casualty below 110 (there are now 115). It is impossible to say when this will occur, but due notice of the next Board will be given in the medical press, so that you can renew your application if then eligible. It is expected that the age limit will hereafter be 22 to 29.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from August 4, 1894, to August 10, 1894.

Capt. WILLIAM J. WAKEMAN, Asst. Surgeon U. S. A., granted one month's leave of absence, on completion of his duties at Ft. Thomas Rifle Range, Ky.

Capt. W. FITZHUGH CARTER, Asst. Surgeon, is granted leave of absence for one month, to take effect about Aug. 5, 1894.

A board of medical officers to consist of Major VALERY HAVARD, Surgeon; Major JOHN VAN R. HOFF, Surgeon; Major GEORGE H. TORNEY, Surgeon, is, by direction of the Secretary of War, appointed to meet at West Point, N. Y., Aug. 15, 1894, or as soon thereafter as practicable, for the physical examination of the cadets of the first and third classes; the cadets of the second class on their return from furlough, and such other cadets of the Military Academy, and candidates for admission thereto, as may be ordered before it.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending August 11, 1894.

Medical Inspector F. L. DuBois, detached from U. S. S. "Chicago," ordered home and granted two months' leave.

LETTERS RECEIVED.

(A) Asdale, W. J., Pittsburg, Pa.; Alexander, E., El Paso, Texas; Aschman, G. A., Wheeling, W. Va.

(B) Bates & Morse Advertising Agency, New York, N. Y.; Bacon, C. S., Wood's Hall, Mass.; Buxton, G. E., National City, Cal.; Bowman, A. H., Deadwood, S. Dak.

(C) Colvin, D., (2) Clyde, N. Y.; Collins, John P., Philadelphia, Pa.; Chapman, B., Copley, Ohio; Coates, Truman, Russellville, Pa.

(D) Dungleison, R. J., Philadelphia, Pa.; Douchy & Co., New York, N. Y.

(E) Eagleson, J. B., Seattle, Wash.

(F) Feuger, Christian, Chicago, Ill.; Foote, A. E., Philadelphia, Pa.

(G) Grow, George P., Buffalo, N. Y.; Glass, P. J., Chattanooga, Tenn.; Gallagher, G. W., New Haven, Pa.; Great Northern Railway, Chicago, Illinois.

(H) Hill, Gresham H., Independence, Iowa; Hun, Henry, Albany, N. Y.; Howell, S. M., Duncan Falls, Ohio.

(I) Ingals, E. Fletcher, Chicago, Ill.

(K) Keiper, Geo. F., La Fayette, Ind.; Keyser, P. D., Philadelphia.

(L) Lowrie, Wm., Chicago, Ill.; Lewitt, W. B., San Francisco, Cal.

(M) McNutt, W. F., San Francisco, Cal.; Magruder, G. L., Washington, D. C.; Mellier Drug Co., St. Louis, Mo.; Mercer Chemical Co., Omaha, Neb.; Millard, Perry H., St. Paul, Minn.

(N) National Vaccine Establishment, Washington, D. C.; Newman, H. P., Chicago, Ill.; New York Pharmaceutical Association, Yonkers, N. Y.; N. Y. Med. Ad. & Pub. Bureau, New York, N. Y.

(P) Parkinson, J. H., Sacramento, Cal.; Porcher, F. P., Pinopolis P. O., S. C.

(R) Rebekah Hospital Association, St. Louis, Mo.; Robertson, J. W., Livermore, Cal.; Rucker, H. N., Oakland, Cal.

(S) Stewart, F. E., Detroit, Mich.; Sullivan, T. J., Chicago, Ill.; Schumpert, T. E., Shreveport, La.; Subscription News Co., Chicago, Ill.; Sun Printing & Binding Co., Williamsport, Pa.; Swasey, Edward, Worcester, Mass.; Sayre, R. H., New York, N. Y.

(T) Thomas, F. S., Connell Bluffs, Iowa; Tiffany, F. B., Kansas City, Mo.

(W) Winslow, C. E., Albuquerque, N. M.; Westermaun, B. & Co., New York, N. Y.; Wilmarth, A. W., Norristown, Pa.

PAMPHLETS RECEIVED.

Remarks on Hog Cholera and Swine Plague, By Wm. H. Welch, M.D., and A. W. Clement, V. S. Johns Hopkins University.

Vaginal Hysterectomy for Cancer; 23 cases. By W. F. McNutt, M.D., California.

First Special Report, Factory Inspectors of Illinois; on Smallpox in the Tenement House Sweat-Shops of Chicago, July 1, 1894.

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ORIGINAL ARTICLES.

A STUDY OF THE EFFECTS OF POISONED AIR, IN THE CAUSATION OF INEBRIETY.

Read in the Section on State Medicine, at the Forty-fifth Annual Meeting
of the American Medical Association, held in San Francisco,
June 5-8, 1894.

BY T. D. CROTHERS, M.D.

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The statement, so often repeated, that inebriety is the result exclusively of alcohol is not true. Careful studies of individual cases indicate a great variety of complex causes which are unrecognized in most cases. Inebriety is a symptom in many instances, which disappears when certain causes are removed. In certain cases, the ejection of a tapeworm has been followed by total abstinence of the person. The removal of a spicula of bone pressing on a nerve; the trephining of the skull; the operation and removal of a stricture; the curing of hemorrhoids; constipation; diarrhea and many other conditions, have been followed by recovery from inebriety. Conditions of exhaustion, anemia, poisoning from malaria, and degenerations following acute disease, frequently break out in continuous drinking which subside when these states are removed.

It is also true that alcohol, taken any length of time, will produce degenerations which demand its continuous use. A single excessive use is often followed by a craze for spirits that is a literal inebriety. From a degenerative soil inebriety grows most luxuriantly, and the previous degenerations are intensified to an unknown degree. Sanitary conditions are always influential, and in many cases exercise a marked power over the intensity and duration of the case. Experience shows that a certain number of cases of inebriety recover, from a change of surroundings and living. I have described, in Vol. iv, *Journal of Inebriety*, four cases of persons who always drank near the sea coast, but who had no desire for spirits and did not drink when living in mountain regions. Change of occupation has frequently been followed by complete restoration from inebriety. What conditions and influences in the person and his surroundings exist in such cases are at present unknown.

The influence of poisoned air is seen in many ways by all observers. How far it may be an exciting or predisposing cause in disease is not always clear. In certain cases very marked results follow the improvement of aeration. In the two cases following are embodied some very significant hints which suggest a line of study for sanitarians and others, that is comparatively new:

A professional man of ability, temperate and healthy in every way, moved to New York city and occupied a fashionable house four rooms deep in a rich section of the city. He slept in one of the middle rooms without sunlight, and only

ventilated from the other rooms opening on the front and rear of the house. He worked very hard mentally and lived regularly, avoiding all excesses. The next year he became anemic, suffered from insomnia, and began to use spirits to encourage sleep. A year later he was considered an inebriate and drank to excess every night. He suffered from chronic gastritis, the urine was loaded with albumen, and his mind was on the border of delirium all the time. He was in bed for days at a time, in a dark room with heavy curtains about and gas burning all the time. A closet near gave a suspicious odor, and great anxiety was manifest to avoid a draft of air, and the possibility of acute pneumonia. His pulse was 120, temperature 100, body bathed in perspiration; insomnia and semi-delirium was present most of the time. Milk punches, brandy and eggs, morphia and other drugs, also alcoholic baths were given freely. I advised that he be taken to the country and placed in a large sunny room with southern exposure and all spirits withdrawn; baths every day, foods and salines and massage. Recovery followed rapidly, and in three months he went back to his office retaining his residence in the country. Two years after he was a vigorous temperate man doing business in the city and living in the country. The inebriety in this case was largely due to the poisoned air of the sleeping rooms; the rapid recovery and subsequent good health in a well ventilated house confirms this. It will occur to any one how clearly these sources of imperfect aeration would produce general disturbances of the functional activities, for which the narcotic of alcohol would be most grateful.

In five years I have been called twice to advise concerning inebriates in a rich home of an aristocratic section of New York city. In both cases, father and son occupied very ill-ventilated sleeping rooms, and suffered from insomnia and general weakness, for which spirits were ordered as a tonic and medicine. The father died and the son became melancholy and was sent to an insane asylum. The history seemed to point to some close connection between the bad air of his home and the first use of drinking.

Two young men, temperate and well, left their country home to become coachmen in New York, sleeping in a bad ill-ventilated stable room. They became inebriates and were discharged, returning to the country, recovered, and are now temperate and well.

Many cases of similar character will occur to every one, and while it may be difficult to trace back the origin of the excessive use of spirits to this particular cause, viz., bad air and bad ventilation, there is evidence of a very intimate association and undoubted influence as an active predisposing force.

The early use of spirits in many cases follow states of exhaustion and weakness, and the use of alcohol covers up these conditions, conveying the impression of relief. This physiologic impression is more powerful than theory or reasoning, and readily leads to a repetition of the use of spirits and inebriety. Bad air and bad ventilation always leave the system debilitated, favor auto-intoxications, and the formation of compounds in the blood and tissues that are distinctly poisonous. Alcohol used at this time may bring to the system germs and soil for the culture and growth of still more poisonous states. In all events it brings increased weakness and degeneration with diminished power of resistance.

Inebriates from crowded tenements and basement residences are always more degenerate. Inebriates from homes of wealth, in wealthy sections of cities,

where possible bad ventilation exists, are equally exhausted and worn out. Both of these classes make rapid recoveries in well-ventilated rooms, and seem to have been suffering largely from poisoned air.

Clerks, business men, and persons who have ill-ventilated offices, where they spend many hours each day, are far more inclined to use spirits than others in better surroundings.

A case was reported to me by an eminent New York physician, of a merchant who tried to abstain from all use of spirits at home without success. He worked steadily in his office and lived in a rich house up town, where apparently, every condition of healthy living was present. After several ineffectual efforts to give up the use of spirits; he went out camping in the White Mountain region. In a few days all taste for spirits left him, and for the first time in twenty years he became a total abstainer. On the return to the city he drank again and could not stop. The next season he moved out in the country and all taste for spirits left him. Finally, he gave up his city residence and lives out in the country coming to the city for a few hours at a time, and has become a total abstainer, not having any taste or desire for spirits. It seems most rational to suppose that poisoned air and defective ventilation were the exciting causes of the drink craze in this case. No other condition of surroundings and living could explain his ability to stop drinking in the country and not in the city.

Another incident, well verified, seemed to bring out the same fact:

A delicate, nervous child, supposed to be inclined to consumption, was guarded with extraordinary care against colds and the open air, in a rich city home. At 15 years of age, a strong taste for spirits developed, and at 20 he was an inebriate. His mother died and he was forced to go into the country to live. He became a total abstainer at once, and is now at 26 years a strong temperance man. It would appear that in this case some condition of cell and tissue starvation began from defective aeration, and continued until the surroundings changed.

I think the poison from defective oxidation of the blood, together with imperfect elimination of waste products is a very active factor in inebriety. In all rational treatment, efforts to remove these possible causes should precede all other means of treatment. The continual inhalation of impure and defective air is always followed by the accumulation of poisons, which in many ways unknown, cause reflex nerve disturbances and reactions. The heart contracts more frequently, respiration is accelerated, and elaboration of nutritive material is altered in all the cells of the body. Fatigue, depression and lowered vitality follow. Alcohol at this time is a grateful narcotic, which not only conceals the real condition, but brings increased degeneration with new bacteria formations and diminished resistance to disease. The brain and nervous system suffers as much as any other part of the body although this is not recognized.

The inebriety of any one in poisoned air may be in part or entirely due to this one cause. This can be demonstrated with a very strong probability of correctness. Pauperism, criminality, and the varying degrees of idiocy, with other of the degenerative diseases all are known to originate in a large degree from this source.

We are fast recognizing the fact that diseases of the brain and nervous system are not all the result of mysterious psychical forces. The delirious maniac, the melancholia, or the wild varying alcoholic, all spring from physical causes and conditions that are in many cases as tangible as the germs of typhoid or diphtheria.

The alcoholic or inebriate possessed with the one impulse to use spirits, manifests simply a symptom of some brain condition which seeks relief. The in-

ebriate, as the result of his use of spirits, will neglect all hygienic care and be more or less oblivious to bad poisoned air, bad food, and dangerous environments. Breaking up and changing all these bad surroundings is always followed by an improvement, and if the surroundings and conditions of living can be kept up to a high level of health, restoration will follow, simply by the operation of natural forces. Inebriety means, in every sense, poisoning by many very complex agents, both from without and within. Sometimes these agents originate externally to the body, or within the body, and the use of alcohol is a signal flag of danger, a sign of degeneration going on and a demand for relief.

The workmen in a clock factory, employed in a certain room where enamel was used and the heat kept up to a fixed point, were noticed to become beer and spirit drinkers more than all others. For a long time the men in this work were often discharged for drunkenness. It was noticed that they abstained when employed in other factories at other work. The fact was finally made clear that the ill-ventilated, poisoned air of this room was the factor or real cause of the spirit drinking. By changing the room and alternating the workmen the previous inebriety of this class disappeared.

A case came under my observation in which this fact seemed confirmed:

A poor man had three children born in a crowded tenement house where all the conditions of air and surroundings were bad. They were weak defective neurotics; one was an inebriate. Two other children born later, after he had moved into the country, where the conditions of living were excellent, became vigorous healthy persons. It seemed that the bad surroundings of early life had much to do in causing the defects of the first three children, and the later children were vigorous in a large degree from the better surroundings of early life and living.

The efforts of sanitarians to improve and regulate the surroundings of all classes, also point out the dangers from imperfect aeration, are always very effectual measures to prevent and control the evils of drink. Abundance of pure air at all times and places and no oxygen starvation will raise the vigor of the race and increase the resistance to disease, that will show itself in all disease and mortuary statistics.

The fact I wish to emphasize is that in the causation of inebriety there are always to be found many exact physical conditions, which can be seen and controlled. That oxygen starvation is of far more importance than other supposed causes. No amount of training, culture, religious or secular, can overcome the injury from deficient oxygen and the presence of poisonous gases.¹

Reforms carried on down in the slums of crowded cities, or in the palace homes of the wealthy, where the air is vitiated and poor are useless. Medical treatment is equally worthless where the victims live in such surroundings. Oxygen nutrition is of equal importance to that of food, and the brain suffers more quickly from deficient air than diminished food supplies. Those who use alcohol are more incapacitated to take up and utilize the oxygen brought to the lungs. The blood cells, by virtue of the absorption of the watery contents from alcohol, are unable to take up the usual amount of oxygen, and hence the tissues are starved in all cases more or less. Every inebriate is oxygen starved, and like the chronic dyspeptic, whose digestion is impaired and unable to utilize the nutrients of the food, he is unable to ap-

appropriate the oxygen of the air to meet the demands of the body. Both the dyspeptic and inebriate are anemic for the same reason. Both are starved and suffer from diminished nutrition. The more indigestible the food, the greater the debility of the dyspeptic. The struggle with him is always to procure some food that will be assimilated easily, and a vast number of predigested foods and remedies are on the market to meet this condition. The inebriate, in like manner, grows worse in air that becomes more and more vitiated; venous congestion and many other external hints of defective oxygenation are always present.

The failure of the blood cells to absorb oxygen, and the air to supply the oxygen necessary, are conditions that must be overcome if restoration ever follows. This explains, in some measure, why men in prison who are forcibly kept from spirits for long periods often drink to excess the moment they are liberated. The bad air of prisons has still farther increased the degeneration of the inebriate, and made him more incapacitated for recovery.

The experience of all insane asylums indicate a great diminution of all the acute symptoms of insanity where the inmates can go out into the open air freely. One central principle of all treatment of these obscure brain disorders is to promote the nutrition, not alone by food, but by abundant supplies of oxygen. The sick and wounded in the late war recovered more rapidly in tents than in the best hospital buildings, because the supply of air was better and more abundant. I have known excessive drinkers to recover out on the plains herding cattle, and sleeping in the open air—persons who came from luxurious surroundings, and who had tried various means of treatment without success. There can be no doubt that the increased vigor from pure air was an important factor in the causation.

A lawyer of eminence who drank to excess at regular periods of three months, found by accident that the drink craze was milder and more under his control in a summer house high up in the Catskill Mountains. The drink paroxysm was preceded by excessive irritation several days in advance, during which he would stop all business and go to this place. The house was five miles back from the railroad station; this distance he would walk, and after a sponge bath retire in a large barn room with no windows, if it was summer. The next day would be spent dozing in the open air, heavily clothed, on some high mountain peak. On the third or fourth day all desire for spirits would disappear and he would recover. In the winter he would sleep in an open wood-house, and seemed to crave the stimulus of the open air. For four years this man has been able to remain free from drink, and he is firmly convinced that it is particularly due to the pure air of the mountains. After any special exertion and debility from overwork he goes up to this mountain place and spends a few days entirely in the open air and returns restored.

I have seen many cases where persons who had been inebriates previously, declare that in certain surroundings they could not abstain. A lawyer always drank after trying a case in a certain court room which was badly ventilated; a mechanic drank daily in a certain factory; in another factory of the same class, higher up the stream in excellent surroundings he could abstain. In both cases the impression prevailed that it was entirely due to the different air. How far this is correct it is impossible to

determine. This impression is very positive in the minds of many people, and the only tangible reason for it is the previous poor surroundings they have lived in.

Vegetarians and others who have extreme confidence in the power of selected food to prevent disease and lengthen out life, often overlook the value of oxygen and pure air. They fail to recognize the complexities of foods, and the inability at present to understand their relations and values. The air we breathe is far more tangible, and its effects can be studied and realized with more certainty and exactness.

A society of aerationists, who would seek to show how disease could be prevented and life lengthened by always breathing pure air, would do some real work for the elevation of humanity. Specific hunters and reformers will find an open field and unlimited scope for research in the study of the air we breathe and its influence in increasing or diminishing disease. That inebriety is caused by bad air in some cases, and is largely influenced by both good and bad air in all cases, is a fact unquestioned. That in the study of the causes of inebriety and its treatment, the questions of the air and its quality which have been used are of great importance there can be no doubt.

Rational medicine demands a study of all conditions of living and surroundings in the questions of diagnosis; it demands that disease and diseased conditions should be regarded as physical entities, and that causes tangible and preventable be sought and found; then the questions of treatment will rise above the present empiric methods and become an exact science, in which means and measures can be applied along lines of natural laws.

STATE MEDICINE; ITS RELATION TO PATENT MEDICINE.

Read in the Section on State Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY SAMUEL P. DUFFIELD, M.D.

DEARBORN, MICH.

At the request of your esteemed President, Dr. Geo. W. Stoner, I have prepared a few notes for your meeting, on which I hope your honorable body will not only take action, but also bring the matter before the appropriate committee of the general body of the ASSOCIATION in such a way that a remonstrance may be forwarded to the Attorney-General of the United States, asking him to rule in the matter and take such steps as will best put a stop to the dangerous and fatal methods of dispensing medicines through the mails or otherwise.

I will, therefore, without any preamble and as briefly as possible, detail the cases which have called forth this paper, and without any appeals or moralizing leave the matter in your hands, feeling sure such a statement of facts will be well weighed and acted upon by your honorable body.

On Sept. 1, 1892, in the city of Detroit, a married lady who had previously been in good health, called for help as she was taken suddenly and seriously sick. She was attended by one of our reputable physicians who soon called one or two others in consultation. She was taken with spasms and they increased rapidly and in greater severity up to the time of her death. As these physicians had not administered any drug which could have provoked such a state of affairs, and as they were at a loss to determine what was the cause of death, I was consulted, being the health officer of the city at

that time. At their request I viewed the body and heard their descriptions of the form of convulsion or spasm which resulted in her death, and without giving you the reasons in detail, I decided that she had died of poisoning by strychnia or its salts. One of my consultants took exception to my opinion, and while the others indorsed it as the only plausible cause of death, I deferred acting in the matter until they had made a post-mortem and assured them that should they not find any cause of death in the body, I would myself in my private laboratory make a full toxicologic analysis of the organs of the body (the stomach and liver and see if we could in any way solve the mystery which seemed to shroud the cause of death. On Sept. 2, 1892, about midnight one of the physicians brought me the stomach in a clean Mason jar tightly sealed, with the request to proceed with the matter as I judged best.

On examination of the stomach I found it to contain some grapes and some cake, a light supper, which was only partially digested.

A carefully conducted analysis enabled me to detect the presence of the alkaloid strychnia and the separated poison was used to produce the characteristic spasms in a *rana esculenta*, common frog, and resulted in his death. I had in addition all the chemical tests which identify and detect strychnin. As soon as I had arrived at this point, I communicated the fact to the coroner who began the legal investigation of the matter. The detectives were set at work to find where the poison had been bought and by whom. They could not find that she or her husband ever purchased strychnia from any drug store and it was evident that it had not been prescribed by any of the physicians.

I asked the husband who seemed to feel that a cloud hung over him, and as if my detection of the strychnia in his dead wife's stomach was a false accusation of him, not to say casting reflections also upon his wife, to bring me all the medicines which were in the house and of which she had partaken. Medicine after medicine was analyzed without finding any poison, and one daily paper even opened its columns in a tirade against the health officer for suggesting such an idea. I still insisted the woman had been poisoned. One day the husband brought me some ovoid, pink, sugar-coated pills put up in a wooden, turned box with the remark: "I do not suppose, Doctor, that these will do you any good. I know she took these as a tonic and they did her good." I began the analysis and had enough strychnia in one pill to meet all the definite chemie reaction, and another pill produced the physiologic action upon a frog. The pill contained a salt of iron and strychnia and the mystery of her death was solved.

The coroner's verdict was that the woman had come to her death by taking these pills probably in larger doses than intended, not knowing the contents to be poisonous.

The wrapper and directions of this patent medicine gave no intimation that it contained such a potent alkaloid. It has been and now is advertised through the daily papers as doing more than any doctor's prescription could do. (We admit this for it killed this woman.)

The proprietor of this medicine called upon me, bearing letters of introduction to me from two prominent wholesale drug houses of Detroit, assuring me he was a gentleman and worthy to be treated as such, and that he desired to have a private consultation with me. In that private consultation he stated he had built up a large trade which was bringing in a good revenue and that this analysis I had made would hurt him severely, and intimated that I was in danger of getting prosecuted. I replied that there was a higher moral duty I had to perform and that I felt no fear. He said that they did not put it in such quantity as to be poisonous in the dose assigned. But he admitted that they did not state these pills contained strychnia. I understand he has sold out for a handsome sum to another firm who still manufacture. This ASSOCIATION could do no better work than to try and have the contents of these drugs printed upon them, and the Patent Office should not issue a patent to *any one* for a general public medicine which contains such potent alkaloids as strychnin, aconitin, atropin, colchicin, pilocarpin, etc.

The second case has not resulted in physical death but its bearing is of such a character that I think you will admit it produces a moral gangrene which leaves the patient in worse condition sometimes, than death.

Of late, these men who benefit humanity (at \$10 a case to start with), have been using the mail for their deceptions, and I was a committee of one, detailed to investigate. I made the investigations and analyses which proved that the main drugs they used were lupulin, for quieting nervous conditions; pills containing aloes and iron, and a sugar-coated pill of phosphorus which was to restore "lost vitality"; they did not say anything about "lost morals."

Their circulars, etc., I put up a *straw man* to get, and I give them to you as Exhibit A, and Exhibit B. They are for the committee to read and act upon, not to be reproduced in print.

By addressing the Attorney-General he was induced to refuse them the use of the mails, and for a short time we had them shut out of the mails. I understand lately that Roberts & Compton, those who sent out the sugar tablets, went to Washington with their attorney and admitted they had not been doing right and now proposed to resume upon the plan of first getting their patient and then prescribing for him. I understand that they have spent nearly \$2,500 and are about to start again. The arch fiend,—Page, whose circulars are in the exhibit, encouraged by the success of the sugar tablets, made an effort and has had his order revoked, and his old advertisement is again seen in the papers.

The Attorney-General for the Post Office Department took the ground that their method of doing business was not that of honest institutions, without reference to the remedy, and on that basis issued an order. The magnitude of the business will surprise you. Page alone, has cleared it is stated \$100,000, starting from nothing.

Just what point or argument was used to induce the Attorney-General to rescind or suspend the order, I am unable to say. There is now a bill before the committee in Congress looking to the exclusion of all such advertisements, but these men in this lucrative business have, it is said, a powerful lobby at Washington and I should fear unless our ASSOCIATION takes hold and memorializes Congress that the bill will never get out of the committee. Perhaps the better way would be to have the AMERICAN MEDICAL ASSOCIATION through the Section on State Medicine appoint a committee to look after the committee in Washington.

Is it not a deplorable state of affairs, when the Patent Office issues the right to manufacture and sell medicines so powerful that they work death to an innocent citizen, and when the Post Office Department becomes a common central sewer into which such filthy advertisements of a medical deception are freely poured without let or hindrance? "*Amicus Plato sed magis amica veritas.*"

International Courtesy.—Dr. William Osler, of the Johns Hopkins, in speaking on behalf of the visitors at the recent meeting of the British Medical Association, said that he hoped that consideration would be given to the idea of holding a meeting of the Association at Montreal in the course of a year or two. They would, he assured them, receive in his native town as warm a welcome as had been accorded to the members of the British Association for the Advancement of Science.

THE PHYSICIAN AND THE STATE.

Read in the Section on State Medicine, at the Forty-fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1894.

BY CHAS. E. WINSLOW, M.D.
ALBUQUERQUE, NEW MEXICO.

"An ounce of prevention is worth a pound of cure," is a truth that can not be gainsaid. The Great Physician had that in view, when from Sinai's Mount he gave Moses the sanitary laws that were to govern the Hebrew children.

If laws for public health were necessary, then, how much more are they needed now. With the great advance in intelligence, ways of living have changed which call for better sanitary care. The onward march of civilization has blotted out the plague and pestilence of olden times, but with this new civilization have come new diseases, which must be controlled by the best scientific methods of the times. A large amount of the sickness that falls to the lot of humanity is preventable. The value of preventive medicine has been repeatedly proved. More people die of disease caused by neglect of the laws of health than by war.

"A little fire is quickly trodden out, which being suffered, rivers can not quench." From squalid surroundings may spring diseases that will spread, destroying thousands of lives; epidemics that come as punishments to communities for neglecting the rules of health must be stamped out at once. Many sin through ignorance, but thinking men are beginning to realize that the question of preserving the public health is one of the first duties of a civilized people. Let an army threaten to invade our shores, and the people with hearts aglow with patriotism will spring to arms, offering money and lives to their country.

When danger of pestilence and death threaten us, then should we rise in our patriotic might and drive it from our land. The best way to prevent war is to be prepared for war. The best way to prevent disease is to be prepared for disease. Then build the bulwarks and arm for the invasion before an epidemic, carrying destruction and death, like a mighty army sweeps down upon us.

Few men appreciate what good sanitation means. Public attention must be awakened to the knowledge that sanitation means less sickness and longer life, that it preserves health and prevents disease, that unhealthy men make an unhealthy nation. A ruined castle may be picturesque but a ruined man, temple of God, is a sad spectacle. The glory of man is his strength, and to preserve that strength is a glorious victory.

Man owes certain duties to man that must be acknowledged. He did not make himself, but he can help preserve what God has given him. Every man and every class of men has a niche to fill in this republic. The business men of America are planning and striving to better the financial condition of the nation; the mechanics and laboring men are working for the physical comfort of our homes; the pastors, on sanitary principles, attempt to prevent their flocks from suffering the burning fevers of hell; the lawyers are busy tangling and untangling the complicated affairs which mankind is heir to, while the physicians aid them all, working for the "greatest good to the greatest number." Some one has said "public health is public wealth." Show to the

business man that disease obstructs business, and sacrifices lives that are valuable to the State, prove to him that sanitary reform will save money and lives and he will listen to you.

The American people, notwithstanding Barnum to the contrary, do not want to be humbugged. They are seekers after truth, though having been deceived so often they are inclined to be suspicious. Come to them in an honest way with honest figures.

The Government must be taught that it is economy to keep the people of a community in good health, for though an epidemic may be confined to one section of the country, its effects are felt upon the life and commerce of the whole nation.

It is a fact that healthy nations are wealthy nations, proving that public health is of great commercial value. This being true, is it not worthy of a place in the Cabinet?

To build a substantial structure we must commence with a good foundation; to build up a nation of strong healthy people, we must begin with the children. There are hundreds of thousands of youth in this land of ours whose minds are being filled with knowledge. What an opportunity to sow the right kind of seed! Then "what will the harvest be?" Give them common sense text-books that teach them the true way to preserve health. Do not cram their little brains full of all the hard names in anatomy and physiology. Make the study of sanitary science simple and attractive. Mix it all through the education of the youth, weave and interweave the principles of hygiene in the studies until the young men and maidens are saturated with ideas of how to preserve their health. Then they will exert an expanding influence that will be felt, not only in the present generation, but by the millions to come. Body and mind must be developed together. Have a department of public health in every college, that while the youths are growing in intellect, care will be taken that they develop strong healthy bodies.

We, as a nation, need to exercise the greatest care in regard to our sanitary laws, on account of the thousands flocking to our shores coming as they do from every clime, many being the very scum of other countries, coming from districts tainted with epidemic disease, which only slumbers waiting to be awakened.

The study of public sanitation brings the physician into closer relation with the masses. The people must be taught. Often those who are considered authority on other subjects are ignorant in regard to public health. The physician must be the educator; then to the work. "Be instant in season and out of season," "here a little, there a little," shoulder to shoulder, pressing forward to the "mark of our high calling," elevating the medical profession, and raising the standard of the people in general, instilling into their minds the laws of good health until in every nook and corner, hovel and mansion, Hygeia reigns supreme.

Every physician should be a wise impulse to enthuse the people along the line of sanitation. It is the duty of every true physician to prevent as well as to cure disease. While the duties of curative medicine give the active practitioner time for little else, yet his influence dropped here and there will be seed that may find root in good soil and bring forth an hundred fold.

Medical intelligence has produced great changes in

medicine, and necessity has been a great stimulus in seeking after truth. In the wonderful advance of the science of curative medicine, we must not forget the science of preventive medicine. While the causes of disease may be difficult to discover, the conditions favoring disease are known. Every citizen has the same right to be protected from disease as from violence.

It is unjust to endanger health and life by defective drainage, impure water and poor ventilation. The physicians are the conservators of the public health. They can advocate the best sewerage system, and quietly produce a public sentiment in its favor, impressing upon the communities that impure water is detrimental to good health.

The medical men came into existence because of the Macedonian cry for help, and they must accomplish the object for which they came, working earnestly and wisely to free man from sickness and suffering. Let us put on the whole armor and fight the invasions of the enemies of mankind,—standing between the people and danger, protecting our homes and our native land; ever in the front, fighting boldly all that tends to lower the vitality of our nation, aiding all that will better the condition of men, living so that in dying we leave behind us the imprints of our lives in a more healthy, moral and stronger race of men. Let us be thinking men, keeping up with the onward march of civilization, not hinderers but helpers in progress, making our profession grander and nobler for having been one of the number.

To-day we can advance new ideas in regard to medicine without fear of torture or imprisonment, but we must carefully weigh our theories, and before giving them to the public, be sure that the facts obtained from our investigations are accurate, for "human experience proves that all false systems fail," and we can not afford to be crushed in the failure. We may be called visionary, but if we are in the right we shall expose some false and evil ideas.

A true physician is a reformer in his profession, always searching after truth, never knowingly aiding an injustice, nor endangering another's health. To allow a preventive disease to come, and make no cry of warning, is an injustice to the people.

The relation between the physician and public can not be too closely connected. The masses look to the physician as authority on medical knowledge. He who professes to try to prolong human life and ameliorate the sufferings of humanity, should be well qualified to advise in regard to all rules of health.

The public must be protected from medical impostors. Medicine must be elevated by the medical man alone. It is his duty to protect the ignorant from the quack, for ignorance and quackery go hand in hand, and like the "blind leading the blind both will fall into the ditch."

To protect the state, the state must protect itself by making and enforcing such stringent laws that an uneducated and unprincipled physician will be unknown. While many of our States have fairly good laws they are far from perfect. Let us diligently strive to create a public sentiment electing those to office who favor such laws, and demanding from our law-makers protection for the people. "If, at first we don't succeed, try, try again" until the legislatures, like the unjust judge, grant our request because of our importunity.

Nothing is so important to a nation as public health, and yet our government recognizing the importance of public school and charitable institutions does not realize, as it ought, the necessity of protecting our inhabitants from disease and death. The Government has financially encouraged the experimental study of the diseases of domestic animals, assisting those in that department, until the contagious diseases of animals have been almost stamped out. In agriculture the Government, and nearly every State spend large sums of money in experiments. Not one dollar is spent for experimental study of prevention of disease in the human family.

Is it just to endanger the lives of the American people, when it is well known that whole tribes and races of men have been swept away by epidemics that could have been prevented? No objection can be made to the use of money by the Government in researches that will benefit the nation. To be just to all it should lend its aid to find out why yellow fever, cholera and other epidemic diseases seem to have a preference for one location and not another; why one season of the year and not another; what produces and propagates different diseases and what will control them. Then prevent the spread of disease by official measures. If the improvement and preservation of plant and animal life are important enough to need a representative in the Cabinet, vastly more important is that which prevents sickness, prolongs life, protects homes, uplifts humanity, adds wealth to the state, and is the life blood of the nation.

Human rights, in the name of justice, demand a Secretary of Health.

As we meet here to-day coming from all parts of the nation, casting our mites into the tithing box, exchanging ideas and gathering golden thoughts, laying up a fund from which to draw pleasure and profit, aiding in building up the noblest profession God has given man, let us exert an influence that will grow in power until the nation rouses and "old things pass away and all things become new," expanding "more and more unto the perfect day." Let us press forward, onward and upward, growing broader minded in regard to our views of humanity, true to self and true to state, for:

"A wise physician, skilled our wounds to heal,
Is more than armies to the public weal."

A FEW REMARKS ON LEPROSY.

Read in the Section on State Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held in San Francisco, June 5-8, 1894.

BY H. S. ORME, M.D.

LOS ANGELES, CAL.

Owing to failure in receiving replies to several letters of inquiry and to other pressing demands upon my time, I have been unable to complete the supplement to my former report on leprosy, which I expected to offer at this meeting. I shall, however, add a few facts and observations to what was written four years ago.

Since 1890, evidence has been accumulating in favor of the theory then advanced, that the most important factor in the causation of leprosy is contagion, and it is now generally admitted that it is the only factor deserving serious consideration. The most noteworthy testimony to this effect is the report of the Indian Commission of 1892, based upon in-

vestigations made the previous year. The most important conclusions reached were that leprosy is not kindred to syphilis or tuberculosis, that it is contagious, and that it is not diffused by hereditary transmission.

They also report that the disease is not increasing in India, but apparently slowly decreasing, though no adequate measures of segregation are practiced. The explanation of this paradox is, that the people have long been acquiring a tolerance and resistance on the principle of natural selection and survival of the fittest. There is ample reason to believe that the same principle applies to other diseases. Even during the present generation, syphilis has become milder than it is remembered by some of the oldest now living.

The ravages of smallpox among the Indians of the United States have at times almost swept away whole tribes, during its earliest visitations; but among the natives of New Mexico who are substantially the same race, but who have been almost constantly subjected to its influence more than three centuries, it is so far from formidable that mothers voluntarily expose their young infants in order that they may take the disease and be through with it before they are weaned.

But I do not regard this observation as justifying the let alone method of dealing with preventable diseases of a dangerous nature. There is abundant proof that the plan of segregation will in time cause leprosy to disappear, provided it be enforced (rigorously). Though not carried out with absolute strictness in Europe during the Middle Ages, the results were so nearly perfect that the belief in its contagiousness gradually died out, the restrictions were relaxed, and the re-appearance of the disease in successive generations in certain families of the lowest class led to the theory of inheritance.

In the present period the plan of segregation in Norway and New Brunswick, though not enforced with absolute rigor, is causing a gradual diminution of cases, and the same effect has begun in the Hawaiian Islands.

Between 1856 and 1880, the number of lepers in Norway declined from 2,863 to 1,582, as I showed in my report of 1890.

At the focus in New Brunswick the number of lepers in 1875 was thirty-six; in 1885 it was twenty-five; and a recent letter informs me that the number in 1894, is twenty-one in hospital and three at large.

It has disappeared from Tracadie, where it was most prevalent a few years ago, but new cases have appeared in surrounding districts. Isolation is now practiced more strictly than before, and the authorities expect to stamp out the malady more rapidly.

The let alone policy is illustrated by the recent rapid increase of leprosy in the United States of Columbia. In two of these states alone, the number of lepers is estimated at 30,000, and the Government is now considering the advisability of planting a leper colony on one of the islands off the coast.

We are informed that a hospital for lepers has been established at Rio de Janeiro, equipped with a laboratory for study of the disease.

At the present time Louisiana contains probably more lepers than all the other States of the Union together, except perhaps California or New York.

It is recently reported that there are thirty-five to forty lepers in the city of New Orleans, and about

fifty more in three of the parishes (counties) situated in the southern part of the State. In 1889, forty-two cases were found in New Orleans, and fifteen to eighteen cases were traced in the country, with the probability that more were undiscovered. It is believed that the disease has existed for several generations among certain families of the lowest class of Creoles in Southern Louisiana. In 1892 the State Legislature passed an act of which the following is a copy:

An Act to prevent the spread of leprosy and to provide for the treatment of the same and for isolation of persons afflicted with said diseases and penalties for non-compliance with this Act.

SECTION 1.—*Be it enacted, etc.,* That whereas the disease known as leprosy which is contaminating and dangerous to public health and welfare, exists in this State and that persons afflicted with said disease are permitted to be at large thus endangering public health,

SEC. 2.—*Be it further enacted, etc.,* That all persons afflicted or suffering with said disease of leprosy shall be confined in an institution isolated and used for the treatment of said disease. And it shall be a misdemeanor for any one to harbor a leper or lepers and the penalty to be imposed upon any one harboring said leper or lepers and refusing to commit them to the care of said institution shall on conviction before any committing magistrate in this State, be subject to a fine of not less than \$5 nor more than \$25 or imprisonment for a term not exceeding thirty days. Said fine shall go to the support of said institution and said party so found to be a leper, shall be committed to said institution. That whenever it shall be made known to the judge of the district court by the petition and oath of any individual, that any person afflicted with leprosy within his district ought to be sent or confined in said institution, it shall be the duty of said judge to issue a warrant to bring before him, in chamber, said person so afflicted with leprosy, and after proper inquiry into all the facts and circumstances of the case, if in his opinion, he ought to be sent to or confined in said institution, he shall make out his warrant to the sheriff of the parish, commanding him to convey said leper to said institution: for which duty the sheriff shall be liable and have the right to demand the same fees as are now allowed by law for the conveyance of insane persons to the State Insane Asylum, which shall be paid out of the parish treasury upon the order of the district judge, and likewise all other expenses previously incurred in bringing said person before the district judge.

SEC. 3.—*Be it further enacted, etc.,* That the buildings and institution situated in the city of New Orleans in this State now used, or that may hereafter be used, selected, or directed to be used for the care of and treatment of leprosy, under a contract with the city of New Orleans, by virtue of an ordinance No. 5785, passed and adopted on March 31, 1891, shall be the institution to which lepers shall be sent and committed under the penalties provided for in Section 2, of this Act.

A number of lepers have been gathered into a hospital at New Orleans, where they are maintained on a contract with a certain physician at a charge of \$25 per month.

At the date of my information (January, 1894,) this number was only ten, and this arrangement could not be regarded as a successful mode of dealing with the case.

In California, several unsuccessful efforts have been made to obtain an appropriation from our Legislature for a State leper hospital. The law requires lepers to be kept apart from the other population, and the burden of their maintenance falls on the counties. No one of the counties or cities has a special hospital which deserves such a name.

Most of the known lepers in the State are kept in a hovel which stands on the same grounds as the smallpox pesthouse in San Francisco, and the two classes of patients intermingle at will, whenever cases of smallpox are sent there.

This method (if method it be) of dealing with these two loathsome diseases in our metropolis, is in the highest degree discreditable to a great and wealthy city.

Whenever it is found practicable, the Chinese and Hawaiian lepers are shipped back to their native countries, as the easiest method of disposal of troublesome subjects. At present there are fourteen inmates of the leper quarter.

As to the control of leprosy, therapeutics still affords us no hope. Segregation has succeeded in the past, and will succeed again, though it involves individual hardship.

It seems probable that contagion is to be apprehended only from cases of the tubercular type at a stage when open sores exist, and that others need not be deprived of their liberty.

In my judgment, however, all lepers should be legally registered and kept under surveillance by the sanitary authorities, so that they may be isolated whenever necessity occurs. The law might provide for periodical inspection, and certificates of the same to those allowed to be at large.

RESTRICTION OF TUBERCULOSIS.

Read in the Section on State Medicine, at the Forty fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1894.

BY J. H. DAVISSON, M.D.

MEMBER OF CALIFORNIA STATE BOARD OF HEALTH; MEMBER AMERICAN PUBLIC HEALTH ASSOCIATION, ETC.

Tuberculosis is the great enemy of the human race,—one-seventh of the entire human family die of tuberculosis.—(Koch). But little progress had been made in prophylaxis or treatment until the discovery by Koch of the pathogenic germ, the bacillus tuberculosis, which he announced to the world in 1882.

The bacillus tuberculosis is "parasitic, aerobic, non-motile, and only grows at 37 degrees C."—(Sternberg); though certain bacteriologists of the French school say it thrives even better at 39 degrees C. The thermal death point of the bacillus tuberculosis is about 70 degrees C.—moist heat—but it was formerly believed to be much higher, even 100 degrees C. The unstained spaces in the preparations of the bacilli under the microscope are generally believed to be spores, but the question of sporulation remains unsettled as the non-resistance of the bacillus to chemical agents, and having such a low thermal death point, would not indicate the existence of spores.

The bacillus being strictly a parasite does not grow or propagate outside of animal bodies, though certain animals, indeed a large number of the mammalia are immune. The human species, bovines and monkeys are more susceptible to the action of the bacillus tuberculosis than other animals. The period of viability or potential period of the bacillus tuberculosis, as it is found in dried sputum in residences, public buildings, and thoroughfares, where hidden from the sunlight, is about three months. De Tonia and others have found it potential after nine or ten months.

It is needless to say that it is now definitely settled that every case of tuberculosis in man or other animal, like every case of typhoid fever or Asiatic cholera, is due solely to its own pathogenic germ, and derived from a previous case. No one now believes in heterogenesis, as every circumstance connected

with origin, development and progress of tuberculosis goes to prove the correctness of pathogenesis, as in typhoid fever, Asiatic cholera, and other infectious and contagious diseases. Dr. Flick's analysis of the mortality of the Fifth Ward in Philadelphia constitutes a most striking example of the infectiousness of tuberculosis.

Tuberculosis has always been regarded an hereditary disease, but since the discovery of the specific bacillus we have learned that tuberculosis is not inherited but is due to infection. That peculiar condition of the organism which lacks immunity to tuberculosis and renders one susceptible is inherited. While the greater number of individuals are born immune, many conditions of ill health and traumatism lower vitality, and render many others susceptible to tubercular infection by destroying native or innate immunity.

Human tuberculosis of every form then is directly due to inhalation, ingestion or inoculation of bacilli derived from mammals, either taken in with the air we breathe, or with food or drink, or by kissing, or by handling infected articles, as money, toilet articles, furniture, etc., or being otherwise inoculated with tubercular bacilli. Probably the larger proportion of cases of tuberculosis originate from the inhalation of the bacilli in desiccated and pulverized sputum which floats in the air as impalpable dust, in apartments and in the open air, producing pulmonary phthisis generally.

Next in order of frequency comes the immense number of cases of the numerous forms of tuberculosis from ingestion of infected food and drink—especially milk. Among this class are to be found most of the tubercular infants and children with tubercular meningitis, tuberculosis of glands, joints, bones, etc., the direct result of infected milk.

The third class, and probably the smallest number, in the light of existing knowledge on the subject, includes all cases otherwise infected or inoculated.

Many people look upon the restriction of tuberculosis by legal methods as tyranny and not consonant with our highest civilization; but this first thought or impression is soon dispelled by an understanding of the *rationale* of infection and correct methods of sanitation and its results. The restriction of tuberculosis by offensive legislative enactments being placed upon the subjects of this chronic, infectious, and eventually fatal malady is erroneous. Certain reasonable legal restrictions should be placed upon tubercular patients, but principally upon others with whom they have to do. A strict quarantine should not be placed upon intelligent, rational and cleanly patients who willingly conform to the demands of sanitation which offers the surest means of preventing auto-infection, and security to the family and the country at large. It is a mistake to think that society is not ready for restriction. Society has long since been educated up to the point of absolute quarantine against all other infectious diseases, as smallpox, cholera, yellow fever, etc., diseases comparatively less fatal and by far less frequent—indeed society clamors for restriction of all such preventable diseases; but the legal restriction of a disease as surely preventable, so universal and so fatal, confronts the sanitarian with many difficulties, chiefly imaginary, that thorough education of the masses by official bulletins and other literature, by boards of health, can remove in a little time. Legal re-

strictions should be placed upon hotels, lodging houses, dwellings, public buildings and public thoroughfares, as railway coaches, sleepers, steamships, sailing vessels, omnibuses and other public conveyances. All such apartments and common carriers should be so furnished that under rigid sanitary rules they should be thoroughly disinfected immediately after occupancy by tubercular patients. Tuberculosis is not infectious until it is apparent—as during the third stage of pulmonary tuberculosis, or when breaking down and ulcerating and discharging, in affections of the glands or bones—and is not communicated by the breath of patients. Notification, registration and disinfection after death, removal, or recovery, should not be deemed hardships in the face of so much danger, even to members of the household.

If patients in the third stage of pulmonary tuberculosis will persist in traveling, it should be unlawful to infect highways, public buildings and thoroughfares, etc., by spitting broadcast, as is usually done, but such patients should be provided with suitable sanitary cuspidors, or they should be supplied with handkerchiefs of cheap and suitable material, to be used but once and then rolled up and burned at the first opportunity. The roving of such patients in the vain hope of regaining their health—often by the advice of a physician, but generally at the suggestion of some would-be friend who knows absolutely nothing of the case and generally less of the country or climate to which he presumes to direct the sufferer, is to be condemned as dangerous to the public health, and bad treatment for the patient. Many of these unfortunates, in the third stage of consumption, and beyond all hope of recovery, roam the country over, planting germs of disease and death in their tracks, and subjecting themselves to all manner of hardships and unscientific treatment at the hands of unscrupulous advertising charlatans, to die away from home and among strangers. Keep such patients at home for their own sakes and keep them at home for the sake of others.

The segregation of tubercular patients in hospitals, both private and public, is to be encouraged. While it is true that with perfect sanitation tubercular patients do not spread infection, even though they are intimately associated with others, yet segregation in hospitals, hotels, restaurants, lodging houses, asylums, prisons, dwellings, and in common carriers, is necessary until the masses are thoroughly schooled in the technique of sanitation.

"A person suffering from tuberculosis can be made entirely harmless to those about him by thorough sterilization of all broken down tissue immediately upon its being given off. With proper precautions it is therefore possible to live in the closest relation and upon the most intimate terms with consumptives without contracting the disease."—(Report of Committee American Public Health Association, 1893.)

I am in full accord with Dr. Baker, the efficient Secretary of the Michigan State Board of Health, in the idea that no State charity can accomplish more good results to mankind than a State hospital for the care, treatment and prevention of tuberculosis. By it the indigent consumptive can be infinitely better cared for and at less expense than now done, and all classes of society protected from this prolific source of infection. Private hospitals for the care and treatment of cases among the well-to-do, rather

than sending them to the numerous health and pleasure resorts, would give much better results, as far as the patient is concerned, and restriction would be accomplished without objectionable features. Such institutions would have every facility for treatment and the perfect sanitation of such places would lessen auto-infection, so common among tubercular patients. These sanatoria should be located in climates and localities adapted to the purpose, and in the country in mountainous regions and at altitudes of about 2,000 feet, since the best results have been attained in climatic treatment by Loomis, America's greatest climatologist, at 1,800 to 2,000 feet in this country.

The question of altitude, in the treatment of tubercular consumption is in great part determined by locality or country and peculiarities of topography, meteorological conditions and climate. Tranquillity of the nervous centers, with consequent refreshing sleep, together with absence of cardiac disturbances and lessened tendency to hemorrhages, commend the relatively lower altitudes in California and many other climates in this country, barring the disturbances of the nervous and circulatory systems, the higher altitudes of the Rocky Mountains, so ably set forth by Dr. Denison, of Denver, in many articles and reports, form notable exceptions to this rule. While in Europe many of the best climatologists regard altitudes below 4,000 feet as only preparatory to higher altitudes—as does Dr. Denison—and secure the best results at from 4,000 to 6,000 feet, or more.

In corroboration allow me to quote from Dr. S. Jaccoud's original article in the *Medical Week*, March 9, 1894, as follows: "Undoubtedly by reason of its location both toward the north and east, the climatic conditions of Görbersdorf, Brehmer's admirable creation in Silesia, in spite of its low elevation (1,827 feet), are closely analogous to the conditions prevailing in Switzerland at a height of 4,200 to 4,600 feet, and the tonic action is in every respect similar."

The dairy is now known to be one of the prolific sources of tubercular infection and Dr. Salmon, Chief of the Bureau of Animal Industry, states that about 3 per cent. of dairy cows near our large cities are tubercular. In a report to the Provincial Board of Health, Toronto, Dr. Brice, the Secretary, says that 4.5 per cent. of cattle slaughtered in Berlin were tubercular; 9.5 per cent. of those in Upper Silesia; and 12.22 per cent. of 12,000 cattle killed in England under the Pleuro-Pneumonia Act of October, 1890, as determined post-mortem.—(JOURNAL AMERICAN MEDICAL ASSOCIATION, May 12, 1894.)

That milk is often filled with tubercular bacilli, with no apparent disease of the udder, is the dictum of many authorities, hence we should have thorough inspection of cattle and dairy cows by competent veterinarians, and in addition to the usual methods of investigation the use of tuberculin as a diagnostic agent is now indispensable.

Dr. Legay stated to the Congress de la Tuberculose that he had added desiccated and powdered tubercular sputum to milk which he then boiled and then injected into rabbits and produced tuberculosis.—(*National Popular Review*). This teaches another lesson in the important process of sterilization of this most important food product.

The Committee on Restriction and Prevention of Tuberculosis, of the American Public Health Association at Chicago, in October, recommended the follow-

ing resolutions relating to restriction, which were adopted, viz:

"1. The notification and registration by health authorities of all cases of tuberculosis which have arrived at the infectious stage.

"2. The thorough disinfection of all houses in which tuberculosis has occurred, and the recording of such action in an open record.

"3. The establishment of special hospitals for the prevention of tuberculosis.

"4. The organization of societies for the prevention of tuberculosis.

"5. Government inspection of dairies and slaughter houses, and the extermination of tuberculosis among dairy cattle.

"6. Appropriate legislation against spitting into places where the sputum is liable to infect others, and against the sale or donation of objects which have been in use by consumptives, unless they have been thoroughly disinfected.

"7. Compulsory disinfection of hotel rooms, sleeping-car berths and steamer cabins which have been occupied by consumptives, before other persons are allowed to occupy them."

A practical means of limitation of tuberculosis or prophylaxis is thorough drill of the patient, friends and attendants by the physician in charge, and ample rules of technique and literature relating to the disease should be furnished gratis to physicians and nurses by boards of health. The plan of the New York Board of Health, of making bacteriologic examinations gratis for medical attendants, in suspected cases, should not only be generally adopted, but should include other infectious diseases as well.

When we contemplate an annual death rate of 163,500 in the United States from the various forms of tuberculosis, without efficient restrictive measures, we should take courage at reading the following extract from an editorial in our official JOURNAL: "The indisputable fact that its death rate (meaning tuberculosis) has been reduced to one-fifth of its former proportions by rigid enforcement of simple and practicable measures of disinfection, of excretions and discharges of every tubercular patient, and of every material thing liable to be contaminated by such excretions and discharges, is a rift in the cloud through which may be discerned the time when tuberculosis like leprosy and the black death, shall, be of interest merely to the historian of human progress,"—(Rohé).

In a recent presidential address before the Medical and Chirurgical Faculty of Maryland, Dr. Rohé says: "The isolation of patients is unnecessary; when the material containing the tubercle bacilli—in these cases the sputa—is destroyed, the consumptive is no longer dangerous to his most intimate associates." Such positive statements by these and many other most competent sanitarians should inspire the consumptive and his friends to the strictest sanitation as a means of self-defense.

Restriction of tuberculosis is not only justified from the standpoint of sociology but it is also justified from a business standpoint. When tuberculosis is viewed in the light of financial losses to the country and the nation, the logic of results of restriction demonstrates the correctness of restriction as a business proposition. It is rather difficult to understand why no material advancement in prophylaxis has been made, as the contagiousness of tuberculosis has had its believers for centuries. It is also a matter of wonder that after the thorough restrictive decrees of the King of Naples more than a century ago, which seemed to be based upon correct

views of infection, and so effectual—though in some respects overdone—that the medical world did not take up the cue and that the dictum of the Neapolitan Kingdom did not mark an important era in the prevention of tuberculosis; to be rapidly followed with more general restriction.

As announced in a circular letter in November, Dr. J. R. Laine, Secretary of the California State Board of Health, at the second annual State Sanitary Convention, held at San Jose, April 16, 1894, (under the auspices of the State Board), offered the following resolution, which was adopted:

"Resolved, That hereafter consumption (and other diseases due to the bacillus tuberculosis) should be included in the list of diseases dangerous to public health, requiring notice by householders and physicians to the local health officer as soon as such disease is recognized."

Advanced grounds are now being taken in the prevention of tuberculosis in many countries in Europe, and in our own country by various State Boards of Health, and by many cities and towns.

In conclusion, permit me to say that the difficulties of restriction of tuberculosis are in fact chiefly imaginary and pessimistic and will soon give place to reason and thorough sanitation.

TUBERCULOSIS AND ITS PREVENTION.

Read in the Section on State Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY WINSLOW ANDERSON, A.M., M.D., M.R.C.P., LOND.

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Quarantine regulations are enacted and rigorously enforced in cases of cholera, smallpox and other contagious and infectious diseases, while the most dreadful scourge the human race has ever known—a disease which causes the death of more human lives than any and all other infectious and contagious diseases combined—is permitted to spread its frightful ravages without the slightest interference from medical, municipal, State or national authorities, and that disease is tuberculosis. Quarantine is declared against epidemics of a hundred or a thousand cases of cholera or yellow fever, and yet no laws reach consumption, although over 150,000 deaths occur annually in the United States from this disease alone. If this enormous death rate from any one disease does not constitute an epidemic, I should like to know what it might be termed.

To indicate how it is contracted—for it is never inherited—it is only necessary to quote such high authority as Prof. Wm. H. Walsh, of Johns Hopkins University, who states that the bacilli of tuberculosis, among other infectious diseases are found in the sputum. This sputum is dried, pulverized and inhaled. The breath itself is seldom contagious so long as it remains moist, but when it becomes dry it is competent to infect those who breathe it. Tuberculosis is also contracted by contact and absorption as well as by food and drink which has been contaminated by the bacilli.

EARLY HISTORY.

In 1810 Bayle demonstrated that persons having died of consumption exhibited peculiar grayish nodules in various organs of their bodies. Laennec considered these nodules specific of tuberculosis.

Virchow named these tubercular deposits "cheesy infiltration or caseation." Scrofulous enlargements such as glands, were later on considered tubercular. In 1865, Villemin discovered that these cheesy, tubercular deposits would, by inoculation, produce tuberculosis in healthy animals. Somewhat later, Klebs and Cohenheim declared that tuberculosis was a specific infectious disease, contrary to the generally accepted theory of Niemeyer, that consumption, in the main, was a chronic non-specific inflammation of the lungs. Afterwards, Koch in 1881 isolated the microorganism which is now proven and accepted by the scientific world as the specific pathogenic microorganism of tuberculosis.

All wasting diseases of the lungs are not necessarily tubercular. We have chronic bronchitis, bronchorrhoea, chronic cirrhosis of the lungs, etc., with more or less expectoration, fever, sweating and emaciation, which are not due to the bacilli tuberculosis, but the vast majority of cases of consumption must be looked upon as tubercular; and if you will look for the bacillus you will nearly always find it.

The tubercle bacilli, as you all know, are small rod-like bodies having a length of about one-fourth to one-half the diameter of the red blood corpuscle, so that it requires from 7,000 to 15,000 of these rod-like vegetable bodies, if placed end to end, and from 50,000 to 75,000 of them, if placed side by side, to measure one inch. The interior of these rods may frequently be observed to contain very minute colorless spots—spots which do not take up the coloring matter usually employed in staining the bacilli. These are the spores, the most dangerous part, as they are exceedingly difficult to destroy. It is more than probable that the bacilli which we discover under the microscope in the sputum of a phthisical patient, are merely the dead shells or carcasses holding the living spores. The staining of these bacilli is exceedingly simple. Any physician having the slightest doubt of his diagnosis should at once resort to the microscope, as the disease can be arrested in its early stages.

The tubercle bacilli will be found in tubercular sputum, lungs, brain, intestines, spleen, liver, kidneys, glands, scrofulous or tuberculous bones, and in the so-called "lupus," which is in fact nothing but a tuberculous skin. The bacilli are frequently found in chickens, dogs, monkeys, guinea pigs and cattle. "Pearly distemper" of cows is now definitely known to be tuberculosis.

HOW DOES TUBERCULOSIS AFFECT MAN?

It is now agreed that tuberculosis can not, like syphilis, be born in the infant. It must be acquired. Therefore, if acquired, it can and should be prevented. Dr. Billings says that in consumption the specific germ is very rarely, if ever, transmitted; inheritance giving only a special susceptibility to its action. The effect of occupation and bodily condition also plays an important part. This is proven by Dr. Biggs, who shows that out of every 1,000 deaths among farmers only 103 die of tuberculosis, while out of the same number of deaths among printers, 460 die of the disease. According to a report recently sent into the Academie de Medicine, in Paris, giving the statistics of 662 towns in France it is shown that consumption increases in proportion to the size of the towns, viz:

| INHABITANTS. | MORTALITY FROM PHTHISIS. |
|-----------------|--------------------------|
| 5,000- (less) | 2.00 to 1,000 |
| 5,000- 10,000 | 2.16 " " |
| 10,000- 20,000 | 2.71 " " |
| 20,000- 30,000 | 2.88 " " |
| 30,000-100,000 | 3.05 " " |
| 100,000-430,000 | 3.63 " " |
| Paris | 5.00 " " |

Fourteen per cent. of all deaths is from tuberculosis. Tubercular diseases play sad havoc in every civilized country in the world. Statistics show that about *one-seventh* of all deaths from all causes, is due to this same tubercle bacillus. This fact should be firmly impressed upon the mind of every physician and sanitarian, also that an acquired disease must be a preventable one. One-quarter of all deaths occurring between the ages of 15 and 30 years, according to Dr. Biggs, is due to tuberculosis. This would seem to increase the percentage even more, for many children die in infancy and many people die in old age of causes other than tubercular. During the twenty-five years ending 1886, the average annual deaths in England from consumption reached the enormous number of 50,000. During any one year in the United States over 150,000 people die of this disease. And yet we are bound to admit that the disease is a preventable one. Over 30,000 deaths from tuberculosis occurred in New York city during the five years ending Jan. 1, 1893, while all the other contagious and infectious diseases combined, including smallpox, typhus, typhoid, scarlatina, diphtheria, measles and whooping cough, only caused the death of 21,000 during the same period.

The vast majority of cases of phthisis occur in the lungs—why? Because the germs are drawn in during inspiration. Inoculation experiments prove that the first expression of the disease takes place at the site of its inoculation. Extension may then be rapid or slow and become general or remain localized. If inoculation be practiced in the anterior chamber of the eye, the first tubercular nodule will appear on the iris. If it be in the abdominal cavity, there is first a tuberculosis of the abdominal glands and peritoneum. Should the bacilli enter a wound or a scratch on the hand, the first manifestation of tuberculosis will be seen in the nearest lymphatic gland. Consequently, if the germs are breathed into the lungs we have first a tuberculosis of the bronchial glands and lungs.

For several years, Tappeneiner and others, powdered tubercular sputum in the Pathological Institute in Munich and had different animals inhale it. In every case the animal experimented upon became tuberculous. Domestic animals also play an important part in the production of tuberculosis in man. Chickens will eat the sputum of phthisical patients and contract the disease. By eating under-cooked chickens, tuberculosis may be communicated to man, although the disease is claimed to be slightly different. Dogs in like manner become consumptive and may readily communicate the disease by licking the mouth. Fissures and excoriations of the skin may also become infected. The wearing of clothing, earrings, etc., previously worn by consumptives may spread the disease. Laundrywomen have been known to contract the disease from washing infected clothing. Consumptives occupying public positions, such as clerks in post-offices, banks and the like, are dangerous to public health. Clerks in grocery stores and dry goods establishments should not be con-

sumptive, as the dry sputum might easily infect the food and the wearing apparel which they handle. Meat and milk often spread the disease. Cattle frequently become consumptive as manifested in the "pearly distemper," which, it is estimated, affects at least 3 per cent. of all cows. Their meat, as has been proven by Strümpell, is capable of communicating tuberculosis by infecting the intestinal glands with the uncooked bacilli. Billings assures us that one-half to 1 per cent. of all meat sold for food is tuberculous. More frequently, however, the communication is produced by diseased milk. Pallaske in *Virchow's Archiv.*, concludes from a series of experiments that microorganisms are found in 50 per cent. of human milk. Cow's milk frequently contains bacilli tuberculosis and nearly always when the udder presents pearly nodules. This will no doubt explain why so many children die of tubercular meningitis and consumption of the bowels, and yet we have no systematic scientific examination of milk in any part of California. For that matter we have no scientific inspection of any article of food that we consume. Is it any wonder that one-seventh of our deaths is from tuberculosis? One sometimes wonders how it is so many escape! It can readily be seen how easily persons having weakly strumous tendency or diathesis inherited from sickly or drunken parents may become tuberculous. They are certain to breathe in the germs, if not at home from some member of the family, then from the air in the street cars, railway carriages, churches, theaters, the streets and public highways which are sure to contain the bacilli, so long as that filthy habit of spitting is permitted. Our modern sweeping machines are excellent microbe disseminators. Those in San Francisco can be particularly recommended for that purpose.

There is every reason to believe that man becomes infected principally from the sputum of phthisical patients which dries upon the ground, on the floor, linen and other objects. It becomes powdered, and with the dust particles the bacilli float about in the air. Thus we see how easy it is for infection to take place. Sternberg says there can be no doubt that a large proportion of cases of tuberculosis in man results from the respiration, by susceptible individuals, of air containing the bacilli in suspension in a desiccated condition. He also asserts that the germs of tuberculosis may remain in the air for many months and retain their vitality until they find a favorable nidus for multiplication.

BACILLI IN AIR AND EARTH.

According to Billings, bacteria are persistently present in the lower stratum of the atmosphere we breathe, just as they are nearly always found in the upper stratum of the earth. These statements hold good with the exception of high altitudes, mid-ocean and polar regions. Tuberculosis is rare over 10,000 feet and never found over 16,000 feet elevation.

The bacilli most frequently found in the air and in the earth are those of tuberculosis, malignant edema, tetanus, summer diarrhea, anthrax, malaria, diphtheria and cholera. Dr. Osler has estimated that from one and one-half to four billions of bacilli are expectorated daily by every well marked case of phthisis. Carnet examined the dust on the floor, on the walls, in the curtains, etc., in houses previously occupied by phthisical patients, and found it teeming with bacilli. When these were injected into guinea-

pigs, consumption was rapidly established. This is about what we should expect. How could it be otherwise? And yet we move into these houses and occupy the very rooms without knowing or caring who occupied them previously. In prisons the mortality from consumption often reaches as high as 50 per cent. of the total number of deaths. This is easily explained when we remember that the rooms are infected with the deadly germs.

The Imperial Board of Health of Germany have been conducting experiments with dust taken from the floors, walls and seats of passenger cars. They examined forty-five compartments of twenty-one cars and inoculated with the dust so obtained one hundred and seventeen animals. Some of these died within a few days of various contagious diseases, before there was sufficient time to develop phthisis; three of those remaining had tuberculosis when killed five or six weeks after the inoculation; 78,000 bacteria *per square inch* were found on the floor of a fourth class car, and from 16,500 to 34,400 for the same space on the first, second and third class.

INTERMARRIAGE.

Intermarriage of consumptives is one of the most baneful practices modern civilization countenances. Hundreds of deaths occur annually from this cause alone. Not only is the offspring weakly, puny and prone to contract tuberculosis from one or both parents soon after birth, but the husband or wife even if perfectly healthy, will contract the disease from the sick one. I recently saw this exemplified in my own practice.

In 1874 Dr. Herman Weber furnished some startling statistics regarding the transmission of consumption between husbands and wives. He records thirty-nine husbands more or less tainted with the disease who had married healthy wives, nine of whom died with consumption. These nine husbands lost eighteen wives among them, viz: three lost one each; four lost two each; one lost three and one lost four; all of these women were healthy previous to their marriage and died within two years thereafter of consumption.

Ten years later the British Medical Association, wishing definite information on the subject, communicated with medical men in various parts of the world, and received returns to the effect that in the majority of cases the husbands imparted the contagion to their wives, but occasionally the rule was reversed. Servants and nurses contracted the disease from their mistresses and from each other. One case was cited of a consumptive dressmaker who had three apprentice girls from different villages and without any consumptive diatheses, who took turns in sleeping with her. In less than two years these three girls died of consumption.

Compare the foregoing conditions with the care we take in breeding horses and dogs. We go to any expense and trouble to breed healthy full-blooded horses. Stables of palatial pretensions are erected for them in the most salubrious climates. A veterinary surgeon visits them frequently, inspects their food and directs their exercise and the hygienic conditions under which they live. Dogs are similarly cared for and tended and yet, sad to relate, no such care, attention nor prophylaxis is attempted in regard to the human race. It is indeed a sad commentary on the value we place on one of God's noblest creations

when we have to chronicle the fact that more care and more thousands of dollars are expended on a horse or a dog than on the life of a human being. The horse and the dog are carefully mated and cared for during gestation, while man, in any condition, is permitted to marry whom he pleases although loved ones are carried to the grave by the hundreds, and the soil for scrofula and tuberculosis is prepared for generations yet unborn by such unwise, unjust and unjustifiable marriages.

IMPURE FOOD.

Fully as dangerous as the foregoing is the matter of impure food. Last year I had the honor of pointing out, in a paper read before the Sanitary Convention of the State of California, that much of our food supply was unfit for use, as it had not been properly examined. A still greater evil exists in our milk supply of this and many other cities. I have examined many samples of milk, and I am bound to confess that very few of them came anywhere near the standard prescribed in England or Germany, or the standard for pure milk in our own country. But the most dangerous consideration is that of tuberculous milk. Of this I found more than one sample. Several other investigators have corroborated my researches. It is now conceded and capable of demonstration that from three to five cows in every one, are suffering with tuberculosis.

Dr. P. H. Bryce in his report presented to the Provincial Board of Health Feb. 15, 1894, says that from 2 to 3 per cent. of the cattle in the State of New York are afflicted with tuberculosis. This means that there are over 1,200,000 head of cattle in the United States which should be killed. Dr. Bryce further states the relative prevalence of tuberculosis in cattle in different countries to be 4.5 per cent. in Berlin, 9.5 per cent. in Upper Siberia, and 12.22 per cent. of those slaughtered in England under the Pleuro-Pneumonia Act of 1890.

The State Board of Health of California under its distinguished President, Dr. C. A. Ruggles, found more than 50 per cent. of the cows used at the Stockton Insane Asylum infected with tuberculosis in 1894.

Their milk contains the bacilli of the most dreadful foe the human race has to contend against, and yet we have no scientific milk inspection. Butter may also contain the germs as we all know meat does. Who can tell how many cases of *tabes abdominalis* are due to the bacilli-laden milk the infant drinks? Consumption of the bowels is not an infrequent disease in San Francisco, and it has been fully demonstrated that tuberculous milk produces the fatal disease. Not only is this the case with infants but also with grown people. Dr. Olliver reports an instance requiring more than a passing notice. It was in a boarding school for young ladies. In the course of some little time several of the scholars were taken ill with tuberculosis and removed to their homes. Sanitarians inspected the premises. The plumbing was good, the air salubrious and the buildings were properly ventilated. The food and water were found to be wholesome and no cause could be assigned for the disease. Still one after another came down with abdominal or pulmonary tuberculosis until the number had reached twelve. Everything had been examined excepting the milk. This was the last article of food thought of, as it was produced from a large dairy not far away. However, upon investigation the

milk was found to contain tuberculous germs, and as milk was cheap and presumably healthy, the young ladies of the school had been fed upon it *ad libitum*. The cows were next inspected and many of them were found to have "pearly distemper" or consumption. The owner of the herd was forced to withdraw his milk from the market, and not knowing what to do with it he fed it to his pigs. The records show that even the pigs could not withstand the bacilli tuberculosis, as all died from the disease within a year. Suffice it to say that as soon as healthy or boiled milk was supplied to the young ladies' school there was no more consumption. It is asserted, and rightly so, that if bacilli are introduced into the stomach of a healthy individual, they are usually digested or rendered inert by the gastric juice, but how many infants who drink milk are *not healthy*? How many have the necessary resisting power? We all know that there are thousands upon thousands of susceptible cases in every large city, and these are the first to succumb. It is all wrong, it is unscientific, nay more, it is absolutely criminal to allow such matters to go unchecked. We owe it to ourselves, our friends, and to the community at large to enter our solemn protest against the consumption of articles of food, and especially of milk, until they have been carefully examined by competent authorities. Every Board of Health should have the power to appoint competent chemists and bacteriologists to investigate this matter, and thus lessen the mortality from tuberculosis.

ISOLATION OF TUBERCULOUS PATIENTS.

A hundred years ago a law was enacted in Naples which compelled physicians to report all cases of consumption to the Health Department under penalty of a fine of three hundred ducats; a second offense being punishable by ten years' imprisonment. In this way Naples has reduced her mortality of consumption 90 per cent. Improved hygienic conditions and isolation of tuberculous patients in England, has reduced the mortality 50 per cent. within the last few years. Philadelphia, during the eight years just passed, has reduced her mortality from phthisis 20 per cent.

The disposal of consumptives both living and dead is another subject of considerable importance. There can not be the slightest doubt that consumption is communicable from one person to another in the various ways indicated. It can not, therefore, be denied that every consumptive becomes a danger to those around him—a danger to public health. What shall be done with him? Shall we, as intelligent physicians, fully aware of the danger, prostrate ourselves before Allah as do the good Mohammedans in times of cholera epidemic and say: "Let thy will be done; there is no God but Allah?" or shall we stand calmly by with our hands folded and our face to the sun, as do the people of India, imploring protection from Brahma and Vishnu the creator and preserver, that Shiva—the destroyer—does not annihilate us? Rather, shall we not as men, imbued with Western thought and civilization and freed from the trammels of oriental and occidental superstitions, assert our rights as teachers of the healing art, determine what had best be done with the unfortunates who become consumptive? I say, yes, we must protect the public health. In that event we are bound to isolate and care for consumptives so that the disease does not

spread. California is rapidly becoming a great sanitarium for these unfortunates. If we allow them to come to our shores to seek health, is it not proper that we should protect the healthy? Should we not protect our fair sunny shore with its balmy atmosphere from becoming a cesspool of contagion and infection? How can this be accomplished? Not by denying consumptives to come to our fair land to be cured. No; but by proper isolation; by proper regulated sanitarium, giving them all the advantages of climate and hygienic surroundings, rationally constructed buildings and scientific medication.

CREMATION OF CONSUMPTIVES.

What shall be done with the bodies of those who die of tuberculosis? It is estimated that 32,000 persons die annually to every million that are living. This means that 48,000,000 people die annually, of which one-seventh, or about 7,000,000, die of tuberculosis. These figures are almost incomprehensible. Estimating seventy-five pounds to each consumptive's body there are about 300,000 tons of bodies for burial annually. Fortunately they are not all buried; many of them are, as they should be, cremated. The bacilli of tuberculosis have been found in old cemeteries in which no inhumation had been practiced for over twenty-five years. Pasteur and others have proven that the earthworms bring the bacilli to the surface of the soil where they can be found in all cemeteries. It takes from five to twenty years for human bodies to decay, and as millions upon millions of consumptive bodies are continually being added to those already buried, the result must be self-evident, and instead of one seventh of our population dying—as they do now—of tuberculosis, it must of necessity increase. Something must be done, and that before it is too late.

The Mosaic laws direct that all lepers be driven out of their houses and their effects burned. What leprosy was to Moses and his people, and is to-day to the Hawaiians, tuberculosis is to the American people—the greatest scourge the human race has ever encountered.

RULES FOR THE PREVENTION OF TUBERCULOSIS.

Comprehensive and efficient means should be adopted for the prevention of tuberculosis. I will recommend the following:

1. Educate the public to a proper understanding of the communicable character of tuberculosis. Teach the people how they can avoid contracting the disease themselves and how they can prevent transmitting it to others.

2. The promiscuous expectoration of consumptives should be prohibited. The sputum should be received into a 10 per cent. solution of carbolic acid, or an acid solution of bichlorid of mercury, 1 to 1000. If at any time this be impracticable, the sputum may be collected on paper napkins or handkerchiefs which must be burned before they become dry. Under no circumstances should a phthisical patient be allowed to spit on the floor or on the streets.

3. Let every physician employ systematic bacteriologic examination for the early diagnosis of the disease, and let us inaugurate compulsory registration of all cases of tuberculosis.

4. It should be made compulsory to have careful and thorough disinfection of all houses, apartments,

penal and reformatory institutions, carriages, street and railway cars, steamships, theaters, churches, etc., which have been exposed to infection from phthisical patients.

For disinfection of rooms I would recommend sulphur acid gas obtained by burning one ounce of sulphur to every ten cubic feet of space, or chlorin gas to saturation. Shut all doors, windows and crevices for four hours, then let in the fresh air and scrub the walls, floor and articles of furniture with the acid bichlorid solution (bichlorid of mercury 3ij, tartaric acid ʒii to the gallon of water, or ʒij each of HgCl₂ and permanganate of potassium to the gallon). Remove all wall paper if it can not be washed or painted. Thoroughly boil or steam all bedding, carpets, curtains, etc., for at least one hour.

5. Under no circumstances should the stools of tuberculous patients be emptied into the sewers until they have been thoroughly disinfected. The intestinal glands are frequently implicated in tuberculosis, and the dejecta often teem with bacilli; therefore all discharges should be received into a solution of eight ounces of carbolic acid to the gallon, or four ounces of chlorid of lime to the gallon of water.

6. Enact regulations prohibiting tuberculous individuals from following vocations that may expose others to the danger of infection. The sputum may dry on their beards or clothing and then be disseminated. For the same reason, consumptives should avoid kissing and even hand shaking to protect those near and dear to them. All dishes and drinking cups should be used by the patient exclusively and should never be mingled with those in use by other members of the family. The promiscuous use of public drinking cups in schools, cars, streets and churches, can not be too severely condemned, as contagion is possible from this practice.

7. Tuberculous mothers should not nurse their children. In fact, consumptive people should not be permitted to marry.

8. There should be established careful scientific examinations under city and State control, of all milk, meat and other articles of food sold. All animals suffering from tuberculosis, anthrax, septicemia, glanders, cattle plague, sheep-pox, swine plague, foot and mouth disease, acute pneumonia, actinomycosis, drosy and rabies, should be killed and at once cremated.

9. Consumptives should always be isolated, and there should be established under State control public hospitals and sanitarium for the segregation and isolation of the consumptive poor, where they could live under the best hygienic laws, receive proper food and judicious medication.

10. All persons having died of tuberculosis should be at once wrapped in sheets wrung out of bichlorid solution, and cremated as soon as practicable. If this be not possible, then they should be buried with quick-lime, as the bacilli do not die with their host, but have been found in cemeteries from two to twenty-five years after inhumation.

Is it not our duty to prevent the ravages of tuberculosis and thereby save over 150,000 lives annually in the United States? Are we not bound by our obligations to ameliorate suffering and prevent loss of life, and this can be accomplished by isolation, proper hygiene and disinfection. That tuberculosis is contagious—even from man to wife, no one but the ancient, non-progressive physician will deny—preven-

tion is not only possible, but comparatively easy, and it is *demande*d of us as physicians and sanitarians guarding the public health.

CLEANLINESS THE CHIEF ANTISEPTIC.

Read in the Section on State Medicine at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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In these days of bacteriologic investigations much time and study is necessarily devoted to the prevention of disease by destroying the bacilli that have entered the human body or preventing their entrance. The latter of these methods is to be preferred where it can be done, and it is the province of this paper to show that this may be accomplished much more thoroughly and satisfactorily by perfect cleanliness than by the use of so-called antiseptics. First, a few words regarding the physician and surgeon in whose practice cleanliness is an absolute necessity. This branch of my subject, although not precisely to be classed with State Medicine has nevertheless a bearing on it, and will form a suitable introduction to the main theme. Let us first speak of the surgeon and his work, in which the necessity of cleanliness is most apparent. If the surgeon will see that his hands, his person and his clothing are clean, that his instruments have always been thoroughly cleansed immediately after using them and are then cleansed again just before using, much difficulty will be avoided. Drenching the body and its exposed cavities with antiseptic fluids is not always the best thing to do, as injury is sometimes done by the absorption of the poisonous articles used as antiseptics. When a laparotomy is performed in which the interior of the abdomen is exposed to the outer air; when the interior organs are handled by the surgeon or his assistants: when instruments and sponges are introduced into the cavity and come in contact with healthy organs, the necessity of perfect cleanliness becomes apparent even to an inexperienced observer. I have seen surgeons who prided themselves on their extreme care in preserving antiseptics, make lamentable blunders by allowing sponges that had been in contact with diseased parts, removed from the abdominal cavity, to be used again in cleansing the cavity after the operation, preparatory to closing it up. Many little errors of that kind, escaping observation at the time, contribute to unfortunate results which are then ascribed to something else. A few words about the physician before referring to the main topic. Here cleanliness is just as important as in the case of the surgeon, although not always so carefully observed. See the number of cases of puerperal peritonitis caused by the carelessness of the accoucheur in handling the puerperal woman with unclean hands or with imperfectly cleansed instruments. I knew a case of a physician who was skilful, amiable and generally beloved, compelled to abandon the practice of medicine because, during one season, almost every case of obstetrics he attended was followed by puerperal fever, fifteen of which died within the space of a few months. Now there is no doubt in my mind that he carried the disease from one patient to another by a want of proper attention to cleanliness. He either failed to clean his instruments thoroughly when he used them,

or carried some of the contagion on his hands. There are many places on the hands that escape the scrutiny of the owner, even when he employs frequent lavations; as under and around the nails, between the fingers, etc. The thermometer may carry disease when used in the mouth, if it is not carefully cleansed before and after using. In treating contagious and infectious diseases absolutely perfect cleanliness will do much toward preventing infection of the patients who are seen afterwards; the hands, the clothing, the hair and beard of the doctor may do much mischief if not kept perfectly clean.

We will now approach our main subject, the prevention of disease by cleanliness, so far as this can be controlled by the public authorities. Disease is undoubtedly propagated by germs, bacteria, micrococci, bacilli, or whatever they may be called. These germs may be conveyed into the body by the air passages or by the alimentary canal. In regard to the former, many would say that legislation can do nothing to purify the air. This, however, is not true. Consider the sewer gas, the exhalations from manure piles, the foul smells from shallow or full privy vaults, the odors from reeking back yards and alleys, and you will find them filling the air with all kinds of disease germs. When there is any talk of a prospective invasion of cholera, how all the papers teem with cries for a general cleaning up! How the health officers and inspectors begin to bestir themselves, ordering the people to clean up their premises, throwing copperas and other alleged antiseptics into holes from which issue foul smells, not knowing, perhaps that about all the effect these so-called antiseptics have on the bad air is to substitute another smell, so that the original one is not perceived. If the health officers and the health boards under whose authority they serve, instead of getting spasmodic fits of cleaning up, would exercise eternal vigilance to prevent the accumulation of filth, would have the plumbing of houses, the sewer system leading from the dwellings to the streets regularly inspected; if they would devote time and labor to the proper construction and maintenance of the sewer system in the streets of their cities; if they would appoint men to attend to this business who have made this work a special study, instead of making their appointment a means of bestowing political patronage upon their favorites, there would be infinitely better results.

In a paper I read before the Wheeling Medical Society, I spoke of the air as one of the media through which the bacillus of typhoid fever is conveyed into the system. This was controverted by several members who have had a bacteriologic training, on the ground that the bacillus of this disease can only be propagated in the alimentary canal. Admitting this hypothesis I still maintain my position. We will suppose that the excreta from a fever patient have been deposited upon the surface of the ground, or have found their way there from an imperfect receptacle, what becomes of it? It mingles with the soil and much of it is converted into dust. This dust pervades the atmosphere and is inhaled by people who move about in the air thus polluted. "But," says the objector, "the lungs do not form a suitable nidus for the bacillus of typhoid fever." Granted. But what becomes of the dust that clings to the cavity of the mouth, the palate, the pharynx, the upper part of the esophagus? By the next drink of water or any other fluid that is swallowed, the whole of it

is washed into the stomach where it does precisely the same work as that performed by the polluted drinking water. From this we see that impure air may even be instrumental in propagating diseases that do not develop in the air passages.

Much can be done by legislation and continual vigilance to purify the air of disease germs, in the way of proper attention to sewerage, the prompt destruction by cremation or otherwise, of the filth that is so often left rotting on the surface of the ground. The methods of doing this I do not propose to discuss here, that being a subject too extensive for a single paper.

Having spoken of the air which enters the mouth and nostrils, we will take up the substances that are taken into the stomach for nutrition, *i. e.*, food and drink. I will endeavor to show that much can be done here by being clean and by using our utmost endeavors to prevent anything that is unclean from entering the great work-shop of the body, the alimentary canal. When I speak of clean food I do not mean only the absence of that which is generally known as dirt or filth; for the average housewife will see that such impurities are not permitted to defile the food she prepares for the use of her family. I mean by impurity everything that is not a natural constituent of the article of food that is to be prepared for the table. All sorts of adulterations may be characterized as impurities. Some of these are of the grossest kind. For instance, the various ground spices that are sold by the grocer for family consumption. Who can tell what filth and what bacteria-laden substances are added to pepper and other spices to make them more profitable to the dealer, but deleterious to the consumer? The adulterations of butter, lard and other fatty substances are sometimes of a character that is injurious to health and dangerous to life. Meat can not be adulterated but it may come from diseased cattle, sheep or hogs. I know a man whose cow died of some unknown disease when she was near calving. The owner being a butcher, dressed the meat for market and sold it. He also prepared the unborn calf in the same way and sold it for first class veal. You might suppose that vegetables at least must be pure. Even here much filth may be found. Take radishes, lettuce, etc., which are raised in hot-beds for early use and in highly manured ground for later consumption. What is used as a fertilizer to hasten and render more luxuriant the growth of these vegetables? It is the manure taken from stables where may be diseased horses or cattle; or from privy vaults of the city where may have been deposited the dejecta of patients suffering from typhoid fever or other infectious diseases. This manure is not prepared by a chemical process which would destroy the life and activity of the germs that might be contained in it; but it is put on fresh just as it comes from the reeking receptacle. These vegetables are eaten raw and even if the sap going into them is purged of all germs, yet the outside of them is in close contact with the soil enriched by the manure which teems with all sorts of bacteria and may be, in some instances, a deadly poison. All these sources of impurity can and should be prevented; and it is the duty of every conscientious sanitarian to do all in his power to render the food we eat as clean as human care and watchfulness can make it.

What we drink forms a much more abundant and

deleterious source of disease than anything else. The effects of spirituous, vinous and malt beverages do not come under my consideration unless they are adulterated with poisonous substances. I will leave the discussion of these articles to the tender mercies of the temperance lecturer, prohibitionist, etc. Although water forms by far the largest constituent of the human body, and must be constantly consumed in order to keep us alive, it is nevertheless the most prolific source of disease. It is not necessary to explain here how the germs of disease find their way into the water; for that is known to every intelligent and well read physician, and most certainly to every one who pays any attention to sanitation. To keep the water used for drinking clean, *i. e.*, free from bacteria, is one of the great problems of the hour.

In most of the cities of our land the water is pumped from running streams into reservoirs and thence sent through a system of pipes into the dwellings of the inhabitants. Now let us look into the character and qualities of this water and see whether it is clean and fit for use as a beverage. In order to make a test case by which all other localities may be judged, I will select my home, Wheeling, W. Va., situated on the Ohio River, ninety miles below Pittsburg, Pa. What an amount of filth is poured into this stream by the two great rivers, the Allegheny and Monongahela, one of which, at least, passes through a densely populated region, I shall not endeavor to portray. But let us look at the stream from which our water supply is taken and let those who hear or read this paper judge if it is clean. Between Pittsburg and Wheeling are about twenty-eight towns and cities situated on both banks of the river. Besides there are numerous small tributaries that have towns and villages on their banks. Now what becomes of all the filth and excreta that are deposited by the inhabitants, both human and animal, in these places? You all know that the greater part of them finds its way into the stream running by. Much is being done and has been done to obviate the difficulty and to remove this source of disease. But this is scarcely a drop in the bucket. Crematories are established here and there for the destruction of garbage and the contents of privy vaults. But what proportion of the disease-breeding filth is thus destroyed? Very little. Some years ago, the Legislature of West Virginia passed a law prohibiting the throwing of filth of any kind into a running stream. But who is there in the rural districts to see that the law is executed? Even if it is obeyed, where do they put their objectionable substances? If it is manure, animal or human, they spread it on the ground and the first rain that falls washes it down into the nearest stream. These streams carry the pollution into the great river, and the unfortunate people dwelling on its banks pour this polluted, disease-producing fluid into their stomachs, where it is likely to breed pestilence and cause destruction of life. The country districts, where the water supply is not obtained from the river, are not exempt from this scourge. It is often cited by those who do not believe in the theory of infection, now almost universally accepted by the profession, that epidemics of typhoid fever exist in villages far away from the great source of contamination, the river. Now let us investigate a typical farm-yard, or a home in a village in which horses and cows are kept. This

farm-yard, in a hilly country, is generally located on a gentle slope; the dwelling near the front with perhaps a moderate sized lawn. In the farm-yard is the well, an old-fashioned affair with a windlass, by means of which the "old oaken bucket, the moss covered bucket" is lowered and raised, bringing up the clear and limpid fluid of which the farmer is so proud, boasting that he has the finest water on the whole country side. In the rear, and consequently at a greater elevation are the stables, the cow sheds and the inevitable privy. This latter is generally shallow, liable to overflow when a heavy rain falls. This overflow runs down the slope, and much of it finds its way into the unguarded and carelessly constructed well. Now, let us suppose some visitor has come from the city; or one of the members of the family has visited a friend in the city where the river water is used, and returned. A case of typhoid fever occurs; the contents of the night vessel are emptied into the "backhouse" as they call it. The overflow comes and the well is polluted, the water being charged with bacilli. The inevitable consequence is that other members of the family become infected by drinking the water. Should neighboring families use out of the same well, as is often the case, they take in the contagion, and an epidemic on a small scale is the result. Now what is to be done here? We can not put antiseptics into the water to kill the bacilli for two good reasons: 1, it would render the water unfit for drinking; 2, it would not destroy the poison.

Antiseptics have by no means the powers that have been attributed to them. It was suggested some years ago to administer antiseptics, such as iodine and carbolic acid to fever patients for the purpose of destroying or neutralizing the ptomaines which cause the disease. I paid some attention to that practice, observing that all the young physicians employed it. I also tried it in some cases myself, although I had but little faith in its efficacy. I discovered that the death rate was not diminished by that method of treatment. Much preferable would be the treatment first proposed by Debove; subsequently experimented on by Lichteim and lately adopted with great success by Maillart, of Geneva, called the drinking treatment; in which large quantities of water are administered to the patient for the purpose of diluting and washing out the toxic substances in the alimentary canal and the blood. So we see that neither in nor out of the body is much gained by piling in antiseptic substances. The best thing to do is to see that everything that enters the body is clean, *i. e.*, free from deleterious ingredients, whether disease germs or irritating substances. It is utterly impossible to do this with absolute perfection; but we can at least approximate to a perfect standard of cleanliness.

I might go on ramifying this topic and speak of the necessity of giving none but pure uncontaminated water to the cattle, as much has been said lately concerning the communication of typhoid and other fevers through the milk, many cases of which have been proved beyond a doubt. It has long been known that certain diseases are communicated to persons using the milk from cows that are not themselves affected by these diseases; and this is sometimes plainly traced to the water that the cows drink. But my paper is already assuming an unwarrantable length and I will not discuss that here. If the phy-

sician is always clean in his person and clothing; if he takes care that his thermometer, or any other instrument he may have occasion to use, is thoroughly cleansed before and after using; if he insists on cleanliness in the sick room and of the patient as well as of the attendants, much trouble will be avoided and the death rate greatly diminished. If the authorities will use their utmost endeavors to purify the atmosphere, not by distributing antiseptic vapors, but by seeing that the least possible filth goes into it; if they will adopt the necessary precautions to prevent the sale of impure food; and if they will not only make laws but exercise eternal vigilance in their execution, to render the water supplied to the inhabitants, clean, in the proper sense of the word; not only clear and transparent, but free from the germs of disease; the general health will be vastly improved, the death rate will be reduced to the minimum, and preventable diseases will be almost stamped out. It will be found that antiseptics will not play so important a part as they are doing now; neither will the physician's duty be as sad and somber as it is at the present time. He will constitute an advisory committee to show his clients how to avoid disease, and will be a gentle help in alleviating the sufferings of those who are afflicted with unavoidable and incurable diseases. Let us hope it may not be too long before we reach "this consummation devoutly to be wished."

COMMON CARRIERS AS DISSEMINATORS OF CONTAGION.

Read in the Section on State Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY S. S. HERRICK, M.D.
SAN FRANCISCO, CAL.

It is not necessary here to consider the part played by sea-going craft, for this, as a factor in spreading disease, is practically eliminated. The ancient method of detention for a definite period has been superseded by inspection and exclusion of infected persons and things at the port of departure and repeated inspection, with disinfection if needed, at the port of arrival. Neither is it necessary to speak of the modern methods of inland quarantine, in which inspection with cleansing and disinfection have obviated all serious interruption of traffic. In both the measures used are reasonably efficient for the protection of the public, and at the same time generally satisfactory to carriers.

There is, however, a source of danger which so far, has attracted little attention, and no measures have been put in operation to counteract it. This is the disposal of the excretions of travelers on inland waters and on railway cars, in such manner as to prevent the contagion which they carry from reaching other persons. There are certain communicable diseases, whose contagions property is discharged from the alimentary canal, and is liable to reach the alimentary or respiratory tract of other persons, if not intercepted or destroyed. Cholera, typhoid fever, dysentery and intestinal tuberculosis are notable examples, and they are common enough among travelers by rail and by steam-vessels on inland waters to become a source of serious danger.

In some of the States there are statutes which forbid the pollution of streams by animal impurities,

having reference chiefly to the contents of sewers and to carcasses and offal of domestic animals. I am aware of no legislation thus far, which seems to take into account the pollution of rivers by travelers, nor the dangerous and indecent practice of allowing fecal matter to drop from railway coaches.

Art. 370 of the Penal Code of California reads:

"Anything which is injurious to health, or is indecent or offensive to the senses, so as to interfere with the comfortable enjoyment of life or property by an entire community or neighborhood, or by any considerable number of persons . . . is a public nuisance."

Art. 372 reads:

"Every person who maintains or commits any public nuisance, the punishment for which is not otherwise prescribed, or who willfully omits to perform any legal duty relating to the removal of a public nuisance, is guilty of a misdemeanor."

There is no reason to suppose that the authors of the above enactments had in view the prohibition of the special nuisances herein considered, and it is rather doubtful whether courts would now construe them as applicable to the same, for want of precedent; but it would be practicable to amend these articles so as to make them apply to this offense, or to frame new statutes which would cover the ground.

Obviously, travelers themselves should not be held responsible for committing a nuisance, so long as transportation companies provide no facilities for obviating the same; and legislation should be aimed directly at these companies, holding them responsible and requiring them to provide an adequate remedy.

It is well understood that the law must not ordain what is impracticable, and equally plain that no serious difficulty and expense would be involved in abating such nuisances. No mechanical difficulty exists for a steamboat or railway coach to have its closet provided with a closed receptacle, having suitable means for deodorizing, disinfecting and ventilating, and for discharging the contents into some proper place at short intervals. The details of a contrivance suited to such a purpose need not here be entered into; they belong to the inventor and mechanic rather than to the sanitarian as such.

Aside from considerations of health, it seems strange that respect for common decency has not abolished a practice in travel by land which would have brought a blush to common carriers in the good old days of slow coaches. While inventors and builders of palace cars are doing so much for the comfort and convenience of passengers in other respects, they adhere to a form of closet from which travelers must be excluded at the time when it would be most acceptable (halting at large stations) and which scatters filth and disease along the route. It is to be noted that cholera still lingers in Europe, and meanwhile we must not consider ourselves safe here within two weeks' travel by steam; while the other filth diseases, like the poor, are always with us.

In my judgment the time has come for sanitarians to speak plainly and forcibly on the subject, and to demand of legislators a specific remedy which courts will be bound to apply to this class of offenses against health.

VACCINATION AND RE-VACCINATION.

Read in the Section on State Medicine at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY EZRA M. HUNT, M.D., LL.D.

SECRETARY OF STATE BOARD OF HEALTH OF NEW JERSEY.

Vaccination for the prevention of smallpox was the first indication that an animal disease could supervene a human disease; that one disease could modify or prevent another, and that a great plague could possibly be abolished from the earth.

It is not our plan just now to outline, even in brief, the marvelous historical record, or the clinical facts as to it for the last hundred years, but only to specify and briefly note changes of view that have modified what we may call the Jenner impression as to it.

1. We have probably come to know that more than one animal disease has the power by inoculation of modifying smallpox. Jenner thought that it was the disease known as "grease" in horses, modified by passage through the cow, and again in man so as to prevent smallpox. Now it is probable that there are two or three forms of disease that may supplant variola in man, such as horsepox, sheeppox and cowpox of which some claim that there is more than one effective variety. Dr. Flemming (see paper referred to, *Lancet*, Aug. 2, 1890,) favors the conclusion that these three variolous diseases in the horse, cow and man are distinct, yet the inoculation of the virus of either of these affections protects from smallpox in man.

2. It is more than probable that kinpox is the smallpox of man which passing through animals is attenuated so as to give a virus which supplants the "caught" smallpox of man and so prevents it. This, in the view of Badcock and Ceely, is the real source of all the varieties of vaccine lymph in use for the prevention of smallpox. It is still, however, disputed by Flemming and various other authorities, the latter calling it a dangerous and fallacious doctrine. It has too many facts as to it, to be so regarded.

Besides various foreign papers, some confirmatory facts in the United States are presented in a paper in the *Philadelphia Medical News*, March 31, 1883, entitled "Notes on Variola and Vaccina." We think this view has been strengthened the last few years. Dr. McVail in his recent classical essay says: "The whole tendency of the evidence is to show this." (See *Treatise on Hygiene and Public Health*, Stevenson and Murphy, Vol. ii).

3. Though the identity of the disease is unchanged it has not a uniform type of severity. So far as we can trace in the period before inoculation, and far more before vaccination, the type was uniformly severe and the death rate uniformly high. This is not, as many affirm, so much the case now, independent of vaccination. Leicester and the anti-vaccinationists of England have been in the habit of giving many facts bearing on this point and some are added by Dr. B. A. Whitelegge in his Milroy lectures, London, 1893, "On Changes in Type in Epidemic Diseases," (See Lecture 2 especially. February, 1893). We quote as follows: "Vaccination has profoundly affected the epidemic course of smallpox, but changes of type are evident. In the latter part of the last century smallpox contributed on an average about one-tenth of the whole death rate of London, and in

1796 no less than 18.3 per cent. After this and coincidentally with the introduction of vaccination, its ravages lessened until 1830. From 1830 to 1838 the records are missing, but in 1838 the mortality was again comparatively high, though below even the average which prevailed half a century before. After 1838 we can measure its course by actual death rates, and a considerable degree of order and even rhythm becomes apparent. Every few years—usually four or five, but sometimes two or three only—it recurred as an epidemic, but with somewhat reduced destructiveness each time until 1855, which happened to be halfway between 1838 and 1871. After 1855 minor epidemics continued to recur at about the same interval, but the loss of life on each occasion increased rather than otherwise. Then came the great epidemic or pandemic of 1871, killing a larger proportion of the population than in 1838. The course of events for twenty years after 1871 was not unlike that which followed the 1838 epidemic—successive outbreaks at intervals of four or five years, decreasing in mortality and subsiding after 1885 to a much lower level than was ever before reached.”

4. Protection depends upon the quality and quantity of lymph and is often not permanent, so as to need repetition. It is now fully conceded that there is significance in the character and number of the marks, such as quite justifies a plan of vaccination in use on the continent which repeats the process from week to week until no effect is produced. The English habit is to have four insertions within an area equal to a half inch square and to insist that at least three must be effective in order to have the cicatrix or marks satisfactory. Re-vaccination is now insisted upon as always necessary after a few years.

5. Through modification of type and through vaccination and re-vaccination we are far more apt than formerly to have mild and walking cases of the disease, so that by reason of this, far greater numbers are exposed to the contagion. In other words, unless vaccination and re-vaccination in all their details are followed up and become the universal habit of the people, smallpox or varioloid will be more largely diffused and more frequent. So that a real remedy becomes the means of extending the disease.

As to this point we note some cases which have quite recently come under our observation:

Within the past year there occurred at Red Bank, in this State, an outbreak of smallpox which seemed singularly persistent. We can generally leave sporadic cases, especially in cities, to local health boards and local physicians. In this case the endemic seemed persistent notwithstanding the ordinary precautions. It even happened that there was doubt between smallpox and chickenpox in early stages, by those of tact and experience.

How this can be is something of a mystery to the physician who has only seen typical cases of each disease and regards the distinction between a vesicle and a pustule as definite. A recent case presented in letters to the *London Lancet*, Dec. 9 and Dec. 23, 1893, by Dr. J. B. H. Smyth, of London, is illustrative. The writer could not conceive how any such doubt could exist until he met with a sporadic case of varicella, (chickenpox) studding every part of the body, and confluent at parts, and attended two patients in one family with varicella which an able neighboring practitioner had pronounced variola

(smallpox) but which had been attended for that disease by myself only a few months ago. So late and so good an authority as Hebra regards them as very closely allied. In the epidemic referred to, some of the lighter cases were thus mistaken for varicella. In one case vesicles could only be found in the hair of the head.

Inquiry showed that many cases were so mild in this epidemic at Red Bank, that persons who had the disease were not confined to the house and so exposed others to the disease. The president of the health board there writes us: “One of our greatest difficulties has lain in the fact that a number of cases have been so mild that neither the persons themselves nor their physicians have known they were suffering with the disease. Only after other cases have occurred and they were traced to these people, have we been able to discover by their description of their symptoms, that they have had a mild form of varioloid. These cases while not sufficiently severe to confine the patients to the bed, or even to the house, have still been sufficient to cause the spread of the disease and it has been in this way, we think, that the disease sprang up so unexpectedly in different parts of the town. Other similar cases were reported and as re-vaccinations were made when numbers had been exposed, it was evident that in some cases the influence of the contagion was enough to cause some symptoms. It became apparent that important as re-vaccination is, it was incidentally becoming an occasion for the spread of the disease so that stricter inquiry and isolation were necessary.”

A few weeks after, similar facts were found at Carteret, a small village in Middlesex County, in this State. Here one of the men traveled to Bayonne, Hudson County, with but little feeling of ill health. One woman examined had no evidence of the disease except two small pustules in the hair. All the cases were mild.

It is a strange record that we have also from the city of Reading, Berks County, Pennsylvania. A late bulletin, January, 1894, announced 710 cases with only 18 deaths and 29 cases remaining under treatment, and several fresh cases up to February, 1894.

Another point for us to note is, that some recent movements in England and some contributions to the literature of smallpox are such as make it essential that the study of the disease, and of vaccination as related thereto, be pursued with new zeal and with minute attention to all details and all facts bearing upon it.

Opposition in England to the law of compulsory vaccination is too formidable to be ignored. It has arrayed against it a strong constituency and has given rise to a most important parliamentary commission, already spending two years in its inquiries. It has shown, as in the case of Leicester, that quick isolation, disinfection, quarantine of exposed healthy persons and thorough sanitary police are very effective in dealing with the disease, although, especially in view of the more recent epidemic in that city, it is plain that the need of vaccination, as an additional protection there, has been greatly underrated. Although it is hard to have patience with some of the wild utterances of the anti-vaccinationists, we do well to review their facts and statements in a judicial spirit.

For a time they had no strong medical support,

but the various writings of so noted a pathologist and authority as Prof. C. Creighton, of Cambridge, (see his treatise on "Cowpox and Vaccinal Syphilis" and on "Jenner and Vaccination," and especially his article on "Vaccination" in the new Encyclopædia Britannica,) has contributed much to the apparent argument against vaccination. Still more serious became the scientific position when the learned bacteriologist, Prof. Edgar M. Crookshank, M.B., of University College, London, published 1889-90, two volumes on "The History and Pathology of Vaccination." His work is a sample of great research, is executed with accuracy and is learned and ingenious in its facts and arguments. He concludes that "the inoculation of cowpox does not exercise any specific protective power against human smallpox," and that it is destined to be replaced by the "more rational and comprehensible procedures of the compulsory notification of smallpox and the isolation of all cases of this disease."

"This in the face of the almost concurrent testimony of all nations and the testimony of the great mass of the medical profession, that it is the one great prophylactic that has interrupted what was once the most serious of human contagions, has immensely limited its frequency and fatality and has shown its capacity, when fully applied, for well nigh driving this great pest from the earth."

Dr. Creighton, too, in his more recent work, a "History of Epidemics in Great Britain," shows no change of view. We have in these high authorities and in the minority of persons agreeing with them, a remarkable disregard of clinical experience and no explanation of the accumulated facts as to the mitigation and prevention of this disease.

We regard "such statements as entirely opposed to universal experience; to experiences both of prevention of smallpox and of mitigation of its attacks; to experiences which belong to every quarter of the globe and which are far more to be trusted than the theories of comparative pathology, however suggestive and however interesting these may be."

Yet it will not do, amid such contentions and such opposition, to rest upon the facts of the past and the loyal declaration of our faith.

a. We must sift and weigh in full our evidences as the years go on, increase the number and accuracy of classified experiences. We must seek to adjust and harmonize the testimony of the clinician and the biologic pathologist. We must reexamine sources of lymph supply, account for variations in effect, explain the greater apparent need of re-vaccination and so eliminate errors and fortify the truth in the spirit of scientific investigators and skilled practitioners. In the meantime we must rest boldly and strongly upon the present accepted practice and see to it that the people at large from childhood to age have protection from this marauding pestilence. As an instance of one of these cautions, at a recent meeting of the Society of Medical Officers of Health in London, Feb. 19, 1894, the President, Dr. W. T. G. Woodforde, insisted that "certificates of successful vaccination should specify the number and area of well marked cicatrices."

b. More systematic methods need to be instituted for the production and furnishing of vaccine lymph. At present the whole matter is left in the charge of single individuals, or firms, and it is often retailed by druggists, like any other commodity. This in the

face of the fact that there are many different sources of lymph, that they are not of equal reliability, that there is much variation as to freshness of material and that the question whether a person shall have smallpox, or whether there shall be an epidemic thereof, often depends upon the potency of the single point used. The case is not at all analogous to that of the sale of an ordinary drug.

Dr. Snow, so long the Health Officer of Providence, Rhode Island, was so impressed with the ultimate results of this kind of merchandize dependence, that he kept and distributed through the country a supply of what is usually spoken of as the Jenner lymph, and favored the old method of arm-to-arm vaccination. This was not because he opposed bovine lymph, but because he thought this the safer method for permanent reliance.

It has already come to pass that some of our best health officers, notably Dr. C. N. Hewitt of Minnesota, are advocating a return to arm-to-arm vaccination, the bovine lymph being used to start new supplies. It is thus not meant to supersede, or to contend with bovine lymph, but while maintaining the old source to secure also a more reliable and ready supply of virus.

If the present method is carried out we believe that vaccination will be less certain in its effects, that re-vaccination will be more frequently needed and that walking cases will so multiply as to constitute a grave source of epidemic influence.

If this plan is not adopted, bovine lymph should be produced and distributed under national or legal methods and with strict oversight as to details. Never was so much loose vaccination done as now. We hear of 200,000 vaccinations in New York city without charge and many not returning to see if the result is complete.

On the other hand, in London, return is secured and the vaccination must be authenticated. Adopting this plan and having skilled vaccinators, we have the record last year, that of primary vaccinations at the central London station, 7,529 returned, and 7,448 had been successfully vaccinated. The 81 that failed were all successful on a second vaccination. On this plan vaccination will be found to be no failure. The recent article of Dr. McVail, in the second volume of Stevenson and Murphy's "Treatise on Hygiene," together with the constant results of skilful systems of vaccination furnish a complete answer to the contentions of a few biologists and to the charges of anti-vaccination societies.

Yet we sound not too soon this note of warning, for we believe that if the present loose methods are permitted to continue, vaccination will become less and less a preventive of smallpox and its enormous value be greatly impaired.

c. Local health boards and physicians, on the basis of large series of classified facts by competent observers, need to be more in unison as to the necessity for and frequency of re-vaccination. Layet of Bordeaux, a skilled authority, was successful in about 40 per cent. of his re-vaccinations after nine years, but we have no particulars as to various points, such as number of marks, etc.

The Pennsylvania Health Board hand bill, or poster, proclamation says there should be repetition in seven years. One, who represents the New York City Board, says ten years. The Local Government Board, Great Britain, names the age of 12. Many authori-

ties name 14, or in general the age of puberty. This vagueness we believe comes largely from imperfect vaccination at the start.

Dr. McVail says that "the rule, that re-vaccination should be performed at 10 to 12 years of age, is not founded on any theory that primary vaccination has then lost its protective power. The power of infantile vaccination against attack by smallpox remains to perhaps at least one-half of its original extent at 20 years of age, and its power against death exists to very considerable extent all through life, as abundantly shown by the statistics of the great smallpox hospitals." This certainly justifies the early vaccination, but is too indefinite for us to rest upon. A series of collective investigations should be made on these points.

The cities of New York and Philadelphia, with adjacent sections of their respective States and of New Jersey, still have outbreaks of the disease. It is occurring, and likely to occur, more than usual in various sections, by reason of the great increase in the number of nationalities that choose their nests in every city and there abide.

There must be more thorough work and more exact discipline as to this whole matter of vaccination, or else the disease will stalk abroad here and there much oftener than heretofore, the number of cases in proportion to deaths will increase, and now and then a severe epidemic remind us of its previous more fatal history.

We present a few of the questions which seem to us to stand in need of such authoritative answer as comes from series of closely studied facts and not as the mere opinions of a committee.

1. What legal or professional method should be adopted to secure a more reliable supply of bovine lymph?

2. How far is the older method of arm-to-arm vaccination still to be commended for adoption?

3. What mode of insertion of vaccine lymph is to be advised?

4. What directions should health boards and physicians give as to re-vaccination?

5. What measures are practicable in order to secure a more general primary and secondary vaccination of the population?

6. What after examination should be made, and what should be the form of vaccination certificate? Should it state number of points at which the insertion of lymph produced a distinct depression or cicatrix?

7. What quarantine or other restrictions should be placed on those who have been exposed to smallpox?

We think a committee should be appointed to furnish us facts and evidence touching each of these items, and then to outline a plan for the better securing of the results sought.

At present we name not as conclusions, but as suggestions, a few tentative answers as indicating lines of direction for inquiry.

a. There should be a National vaccine and distributing establishment for bovine vaccine at Washington.

b. Arm-to-arm vaccination should not be wholly abandoned. In our large cities, at least, physicians should arrange to have at hand certified, humanized lymph of which the sources are local and fully known.

c. Vaccination direct from a charged ivory point used for scratching, or from a needle, used but for one case, should be relied on.

d. Re-vaccination should be advised for all who have not been vaccinated within ten years, and ofener where there has been special exposure, or there is any doubt as to marks or time of first vaccination.

e. Children should not be admitted to public schools until vaccinated. Provision should be made to encourage general vaccination of infants and youth.

f. A vaccination card or certificate should be given stating time and place of vaccination or of re-vaccination, whether there was subsequent examination and at how many points the lymph had taken.

g. While time of quarantine must vary somewhat according to circumstances, persons who have been fully exposed, if not quarantined at once, should be under quarantine or watch from the ninth to the fifteenth day after exposure.

TYPHOID FEVER.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY JOHN ELIOT WOODBRIDGE, M.D.
YOUNGSTOWN, OHIO.

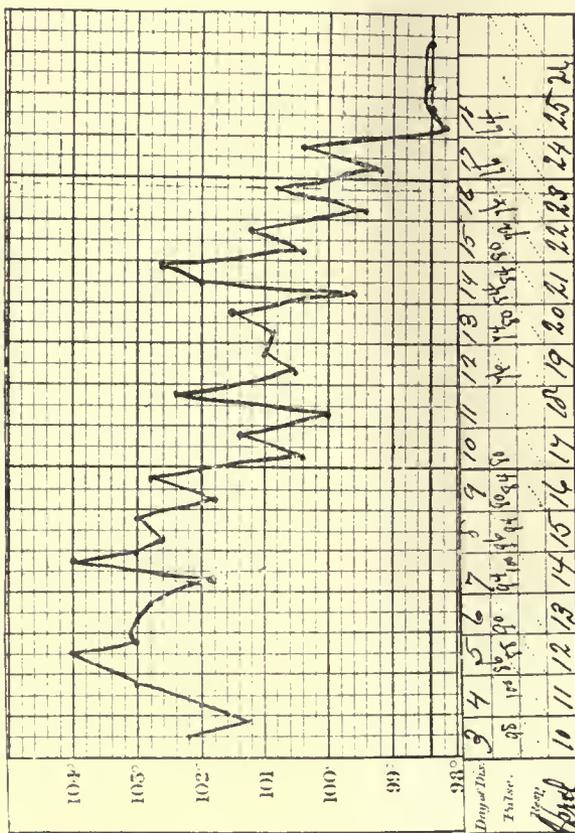
It was my intention to have made in this paper an effort to discuss from the scientist's standpoint the etiology and treatment of typhoid fever, but the positive expressions within the past few weeks of the opinions of many of the greatest thinkers of the age, that typhoid fever can not be aborted, and in fact, that the internal exhibition of drugs can have no curative effect, warns me that I have essayed enough and that this paper had better be devoted to strengthening the evidence that the claims already made are valid, and avoid as much as possible enlarging the territory which I shall have to defend. I feel that I do not owe the Section any apology for this change, because this is a disease that according to eminent authority "destroys annually the lives of 50,000 of our people, leads to the very brink of the grave more than half a million more, which during the next twelve months will inflict upon us more injury, suffering and death than any foreign foe could possibly do," and which, I believe, is rapidly increasing. A disease whose geographical distribution is limited by no boundary lines, whose germs may live indefinitely in the icebergs of the frozen North, and thrive in the torrid heat of the equator, can not be accorded too much attention by this Association, especially as the medical literature is in such a chaotic state as to be exceedingly confusing to those who place any trust in it. A literature which is not at all creditable to the medical profession as long as its recommendations for treatment form such a medley of contradictions, from "armed expectancy" to the most heroic exhibition of the most dangerous therapeutic agents, from corrosive sublimate to the coal-tar derivatives, including almost every known poison, and all having most enthusiastic devotees until finally, the *materia medica* having been taxed to the limit of endurance, a new class of enthusiasts has arisen, and now the bath-tub and sponge and the cold pack have their advocates who can see nothing but dire disaster in the use of any

therapeutic agents except cold water. And the most amusing, were it not the most tragical publication that has ever issued from any press, is the Johns Hopkins Hospital Report, Vol. iv, No. 1, on "Typhoid Fever," which I have just received, in which the learned Professor of the Principles and Practice of Medicine of the Johns Hopkins University asserts, and I quote him literally: "Since typhoid fever like a majority of the specific infections runs a course uninfluenced by any known medicines, the duty of the physician is to see that the patient is properly nursed and fed and that dangerous symptoms should they arise are combated by appropriate remedies. In hygienic and dietetic measures his activity is incessant; so far as drugs are concerned his attitude is best expressed in the term 'armed expectancy,' giving no medicine simply because the patient has a fever; nursing and diet are the supports in which we

ation in an unhonored grave, and his widow had lived long in poverty and, I fear, even in want; and which in the most enlightened capital of the Old World made the life of the discoverer of vaccination immeasurably burdensome.

These papers show that after having had, during the ten years from 1866 to 1876, about thirty deaths from typhoid fever, with an average duration of illness of those who recovered of about thirty-five days, I abandoned the symptomatic treatment now advocated by some learned professors and began in 1876 with extreme caution to treat typhoid fever under the same general principles which crudely govern my practice to-day. That after having had unusually favorable results for four years, in 1880 in my local society I condemned all known methods of treating typhoid fever and foreshadowed the brilliant results I have since obtained from the principles of treatment then laid down. That in 1882 I declared hemorrhage of the bowels would be unknown if the disease were properly treated, saying I believed that a law sending to State prison a physician having such a result would be wise and beneficent. That in 1890, to emphasize my statement that typhoid fever could be aborted, I offered to compensate any member of my society for every visit made to a patient after the tenth day of treatment. That for several years I had invariably given a favorable prognosis, and that for more than thirteen years I have had no death from typhoid, malarial or any continued fever. With each of these papers I presented up to the date of its reading the histories of the most interesting and characteristic cases, exhibiting the bedside charts of all the cases treated since June 25, 1893, when I first began to keep accurate bedside records. They were all freely discussed by many of the ablest members of both my local and State societies. The charts were verified by the members who had seen the patients and my statements were endorsed.

The criticism of my paper read recently before the Ohio State Medical Society was highly gratifying to me. The discussion was opened by Dr. Collamore in his happiest vein. The general tenor of the remarks were in favor of giving progressive ideas a warm welcome and a fair trial. There was present but one member from Youngstown—Dr. J. E. Cone—who said: "Being from Dr. Woodbridge's town and society, I wish to say that we have had several 'fights' on this subject and we have been watching his cases for several years to see if he could make his pledges good, but so far we have been unable to discover that he has made any failures or had a death from typhoid fever. And we intend to continue watching his cases in the future, and if he has a death we will report it." A little speech which read between the lines speaks volumes. Prof. Murphy, however, spoke eloquently in adverse criticism, saying in substance that there could be no curative treatment for typhoid fever and he doubted the correctness of the diagnosis and observation of any physician who asserted he was able to abort the disease. He said I shocked him when I said I allowed my patients to sit up, walk about, and even to eat solid food. I shall not attempt to quote Dr. Murphy's words or essay the hopeless task of reproducing or even describing his eloquent speech, but as I sat spell-bound listening with admiration to his brilliant oratory, I could not help wishing that he could see the subject as I see it, and were speaking for, instead of against the right; and not long since



Case No. 67.

trust, the essentials under all circumstances to which is added the cold bath, when possible, or cold sponging for the antipyretic action and stimulating effect. Medicines are not as a rule indicated. No known drug shortens by a day the course of the fever. No method of specific treatment or of antisepsis of the bowel has yet passed beyond the stage of primary laudation."

During the past year I have written papers under the title "Can Typhoid Fever be Aborted?" for the Mississippi Valley Medical Association, the Mahoning County and the Ohio State Medical Societies, in which I presented evidence that typhoid fever can be and has been aborted, which would have been accepted as absolutely conclusive in any profession save that which in America's most cultured city failed to find the discoverer of ether until he had lain for a gener-

after having read a paper before a medical organization composed largely of the teachers in one of our boasted centers of learning, the same general expressions of opinion were made, one gentleman saying: "If there is anything in medicine that is well established, it is that the course of the disease (typhoid fever) can not be interrupted." Another gentleman who, as I judged, from his special learning and ability had been given the closing argument against my theories, criticised these charts very severely, saying: "With four or five possible exceptions there was not a typhoid fever case among them;" evidently forgetting that they are presented to show the modification of the "curve" by antiseptic treatment; that most of the patients were examined and the diagnosis verified by physicians quite as cautious as himself, and that if the "curve" had remained unmodified the treatment would have been a failure.

These oracular assertions (they can not be called arguments) should never have been made. We know too little of the action of antiseptics, too little of the bacteriologic world, of the antagonisms existing between these minute denizens to warrant any gentleman, however learned, in placing his individual opinion above the evidence of years of experience, and the testimony of a score of physicians quite as competent as himself to make careful observations and exact diagnoses, especially when among these observers are included several ex-Presidents of our local Society and at least one ex-President of our State Society, or in placing himself as a stumbling block in the pathway of investigation and progress. Had they anything better to offer, their opinions ought to be carefully weighed, but when they oracularly assert that a course of treatment which they have never tried and of which they have no knowledge can do no good, they are simply lending their learning and the weight of their great names to aid in retarding the day when typhoid fever shall cease to be at once the stigma and the despair of medicine.

In you accept the theory that typhoid fever is caused by a germ, you must accept its corollary, that the germ can be destroyed, and if in one receptacle, or the alimentary canal of one patient, then as a legitimate sequence in every one, and if the physician who accepts this theory sees his patient sufficiently early and treats every suspicious case on the first appearance of suspicious symptoms, he will rarely see a typical case of typhoid fever, and never a death from the disease. Now the simple fact that I have had no death from typhoid fever for more than thirteen years is alone strong presumptive evidence that the claims I make are well founded, and when taken in connection with my previous record and with the statement of the last President of our local Society, when one of my earlier papers was under discussion, that he had no doubt that I had treated more than my full share of typhoid fever, entitle the subject to careful consideration. Since the unaided efforts of one man, however faithfully he may pursue his investigations, must be long indeed in accumulating sufficient data upon which to base a scientific discussion of the subject, and longer in giving such expression to the finished work as to command the attention and the confidence of the great body of a profession peculiarly prone to look upon anything new with a great deal of suspicion; I therefore appeal to every member of the AMERICAN MEDICAL ASSOCIATION, and to every physician who treats a case

of the disease, to aid me in the accumulation of such data as shall lead to a better knowledge of typhoid fever, and especially of the action of antiseptics in its treatment. For this purpose, and because I have been unable to find a clinical chart so arranged as to make the collection of necessary data practical and easy, I have devised one that will enable the busy practitioner to make his record valuable with the least possible loss of time.

In conclusion, I wish to call attention briefly to the treatment which has already been published, and to say that with wider experience I hope to be able to eliminate some of the ingredients which give the formula such a complex and unscientific appearance. I am still using the formula as already published, viz.:

| | |
|------------------------------|--------|
| R Podophyllin | gr. i. |
| Hydrarg. chlor. nit. | i. |
| Guaiacol carb. | vi. |
| Thymol | v. |
| Menthol. | i. |
| Sacch alb. | ʒ ii. |

alternated with the

| | |
|----------------------|-----------|
| Eucalyptol | 5 x 10 m. |
| Guaiacol | 2 x 5 m. |

No pretense is made that this is the *only* preparation which will cure typhoid fever, nor that all or any of its ingredients are necessarily essential, but because thus far it has not failed me,¹ and crude and unscientific as the mixture appears I know of nothing better, and I hope no gentleman will say he has given my treatment a trial and failed, who has not exhibited these identical mixtures, alternated as directed; nor must he interject anything calculated to interfere with their effect. As the mixture is practically harmless it may be exhibited in almost unlimited quantities. I, however, advise beginning with exceedingly small doses and thus avoid early catharsis.

As I stated in a former paper, I am ready to go wherever in the wide world typhoid fever claims a victim, whether it be across the continent or over the ocean's broad expanse, and I challenge the publication of any failure.

DISCUSSION.

THE CHAIRMAN—This is a paper upon a well-known subject, one in which you have all have had cases, and I hope it will be thoroughly discussed. It is somewhat unique in character and much can be said upon it.

DR. WASHINGTON AYER—The paper certainly commends itself to this Section as being upon a subject of great interest. That the gentleman should have been so very fortunate in the treatment of his cases is certainly noteworthy. I understand that he does not treat the disease, but rather the symptoms. Is that so? that you do not confine yourself to the treatment of the disease especially, but rather the symptoms, as they present themselves, of typhoid fever?

DR. WOODBRIDGE—I would say that the symptoms of typhoid fever could not be treated; that I pay no attention to the symptoms for that treatment, but as an evidence of the result of past treatment.

DR. AYER—In case of severe diarrhea, as the fever sometimes begins with that as one of the prominent symptoms, I suppose that a little opium or Dover's powders, or something of that kind would be admissible and not interfere with the general treatment? I have had considerable experience myself in the treatment of typhoid fever, some in

¹The accompanying chart, No. 67, shows the need of more exact knowledge in the use of antiseptics, since I twice discontinued the use of formula No. 1, only to find the temperature again going up, and to be forced again to resume it.

my very early practice, and some in California, having been practicing here for nearly forty-five years. I must say, however, that my cases in California have not been of that severe type, as a general thing, that occur in the East, and that I have been treating my cases more upon a hopeful than perhaps a thoroughly prescribed course of treatment. I would like to hear any explanation upon the matter by the author, if I have not properly understood the paper. A fever that has caused so much anxiety among physicians, and especially in districts where it has prevailed as an epidemic—with such a disease, a treatment by which it may be cut short and the terror removed from the household is certainly deserving of the most careful consideration, whether it be looked upon as a combination of remedies strictly scientific or otherwise. The treatment is certainly new to me, and I hope the gentlemen here will feel at liberty to give a careful expression of their sentiments upon this so important question. I understood the author of the paper to say he never had any hemorrhage of the bowels in typhoid fever. No appearance of blood in any of the evacuations, I would ask, or do you confine it to the more strict interpretation of a hemorrhage? In many of the severe types of typhoid fever, those which approximate that, we formerly made a distinction between typhoid and typhus fever; the type of that fever in the early days came from the ships that brought passengers from Panama here—in those more severe types, I say, that was a very severe test upon the skill of the physician, and of the effect of the remedies. A very large percentage of the cases that were treated by the physicians here at that early time were fatal. Yet, I must say, my treatment, even in those grave forms of the disease, was not formulated exactly according to the prescribed rules for treating the disease, for I used towels wrung from cold water, applied frequently over the region of the heart, and found great benefit from that method. The application of cold water afforded great relief to the patients, reducing the temperature of the body and the action of the heart; if the heart is stimulated by the decomposition of foods in the stomach, or from whatever other cause we might say, the friction, as the cold blood is thrown through the arterial system, increases the heat at the surface. My theory was that the application of cold lessened the heat of the blood, and thus afforded relief to the patient and hastened convalescence.

DR. A. W. PERRY—I have listened to this paper with a great deal of attention, and although I have been putting into practice some of the principles that the author has given in his paper, yet this paper has convinced me that my former action was to a certain extent correct, and it has given me the reason for what I have done. My experience has been, like that of Dr. Ayer, considerably in California, and here the disease is not of the severe type that it is in the East. My cases have been cases where the patient has very generally recovered from the fever within twenty days. The treatment that I adopt is principally an antiseptic treatment, although I do not use the antiseptics that are mentioned in the paper. The antiseptics that I use are hydrochloric acid, about two drops every two hours, and carbolic acid given with it, and sometimes iodine. We know that the intestinal canal is full of bacteria in health, and what keeps them from multiplying here is the germicidal action of hydrochloric acid, and by keeping the stomach in an acid condition we not only prevent the multiplication of these bacteria but we destroy their activity as well. The carbolic acid that I give has about the same effect, I suppose of the guaiacol that is in this mixture of the author's. I also use the eliminatory treatment to some extent, begin with a dose of calomel, and I have no trouble with diarrhea. I have rarely had occasion to give a remedy to stop the

bowels; I think it would be poor treatment. I pursue this antiseptic treatment steadily throughout the disease unless the temperature rises very high, and whenever the temperature rises about 103.5 in the rectum I give frequent cold baths, baths of about 80 degrees every two hours until the temperature comes down. This paper has shown me that I have been on the right track, but have not gone far enough and I shall in future use antiseptics more thoroughly.

THE CHAIRMAN—I would like to ask the author, have you in any case aborted an attack of typhoid fever?

DR. WOODBRIDGE—I have, yes. I have had cases that seemed to be typhoid fever, and that I was sure from every symptom were typhoid fever, and the fever was broken down in nine or ten days. I was rather disposed to doubt my diagnosis at first. Future investigations, however, led me to believe that I have aborted the fever, and that the cases were typhoid fever.

THE CHAIRMAN—The generally accepted doctrine as has been often stated is that we can guide the patient through the fever, but can not abort it. That has been my experience. I have had cases where for nearly a week the temperature would range from 105 to 106, but I never saw a case that I thought I had aborted. I have had one case within a year with three relapses. The patient was confined to her bed for over seventeen weeks, and I failed to make any appreciable effect upon the fever with any remedy used.

DR. COLLINS—I would like to ask the author of the paper upon what basis he diagnosed the typhoid fever in those cases reported cured in seven or eight days. In my cases the diagnosis has been based largely upon the length, the duration of the fever. I think many of us have had cases which resemble typhoid fever very closely, but in my opinion, until we have had results, we have no basis upon which we can say surely that the patient has suffered from typhoid fever. Many of us have had cases which have recovered at the end of seven or eight days, which I have always looked upon as infection cases, where we have had poisoning of the patients, where these symptoms, and symptoms very much like typhoid fever appear at the beginning. It is only after a course of three or four weeks that we are able to say at our post-mortem absolutely that it has been a case of typhoid fever. Therefore, I ask the Doctor upon what he bases his diagnosis in these cases where the fever is arrested so early.

DR. KENT—I would like to say that in the mountainous region of this State there are quite a large number of these continuous fevers which are put down very often as typhoid fever; they run a course of anywhere from three to ten weeks. I believe the only symptom upon which they make diagnosis is the temperature and the peculiar feeling of the legs that accompanies them. I believe that a great many of these cases can be cured by almost any good treatment, and I believe a great many are put down as cured of typhoid fever when they have not suffered from typhoid fever at all. Some gentleman in Colorado—Leadville, I believe it was, published in the *Philadelphia Medical News* a series of these cases in which he took the ground that these cases of continuous fever were not typhoid fever, and that with a little proper alimentation and a little common sense the patients recover in from six to seven weeks.

MR. WEIR—I was so unfortunate as not to hear the paper under discussion read. Having been only ten years in the practice of medicine I have some timidity in rising here, where I shall put myself on record as one of the profession who has faith in the abortive treatment of typhoid fever. I have been called to cases in which there was a muffled sound of the heart, in which there was a rise in temperature from the morning to the afternoon, and where all the other symptoms common to typhoid fever have existed, and my diag-

nosis was incipient typhoid fever. And I hastened at once to begin the use of intestinal antiseptics. I used the hypsulphite of soda and muriatic acid. I clear out all of the organs of elimination. And I will have to take issue with one gentleman when I say that in my experience in one or two cases I have found constipation; the rest of the cases were decidedly diarrhetic. I was then confronted by members of the profession who said: "Doctor, there is an error in your diagnosis; it is not typhoid fever in the patient, but the trouble is professional cerebral inaptitude." Mr. President, that put me on my mettle. I got down my Flint, I got down my Costa, and my Guttman, and my reference note-book, and other works, and I began the study of the abortive treatment of typhoid fever. What I discovered there was truly surprising. There were statements made by men of eminence, whose diagnostic powers have never been questioned, that I would not have believed had they not been matters of record, had they not been in black and white, and, to my knowledge never refuted. I was told there that there had been cases of typhoid fever that had been aborted that were of only three days' duration. I was told in these references that there were cases of typhoid fever that had been aborted in seven days, in nine days, in fourteen days, in twenty-one days. I was told that there were cases of typhoid fever in which there had never been a rise of temperature. Now, I didn't know I was going to get on the floor here, or I would have had my references tabulated, and give you the pages, and the statements.

Now, gentlemen of this Section, you know nothing of me; I am an entire stranger to you. Just to show you to what lengths I have gone in typhoid fever, I will state that in one case I had a condition of relapse of seventy-two hours. In that time I gave four hundred injections of brandy hypodermically; I gave one and a half ounces of carbonate of ammonia, in doses of 1 to 10 grains at a time. I rendered his blood in such a condition that he became just one entire mass of erythema. But I would rather have a live typhoid recovery than a dead therapeutic failure.

And I take my place on the floor to state emphatically, that I am an absolute believer in the efficacy of the abortive treatment of typhoid fever.

DR. WOODBRIDGE—These gentlemen will get so much for me to answer if they speak much longer that I will not remember more than half of what they say. The gentleman who has just spoken is right; that the time has already come when the profession must recognize that typhoid fever can be aborted. And I say that the time will come when it will be more of a disgrace to any member of the profession to have a death from typhoid fever than it is to-day to have a death from measles. The evidence has been before you since typhoid fever was first known. It has been a matter of record through all time that there are a very large number of cases of so-called aborted typhoid fever. They were simply cases in which the physician, unwittingly, perhaps, placed something in the stomach or alimentary canal that destroyed the germ. And, if that is the case, why not take it a step farther and use it in all cases? It seems to me that if you accept, as I say in my paper, the theory that the germ itself is present, you must accept the corollary that the germ can be destroyed. If it can be destroyed in one alimentary canal, why not universally? You do not treat typhoid fever. The physician who practices the methods of the past will not treat the patient at all. The gentleman who first spoke asked me if I would administer opium if the patient had diarrhea. I say most emphatically, no; no astringent whatever. Don't interrupt nature in her good work, but rather, if your patient has diarrhea, give him a dose of salts. But I wish to give the effect of my antiseptic. I am not a stickler for this particular formula; I only give that because it is the one that seemed to me the most useful. There are probably hundreds of others just as good; anything that will thoroughly cleanse the alimentary canal is good; plenty of hot water might do it. Even though your patient has diarrhea at the beginning, administer this preparation, which is a cathartic in large doses, and you will stop the diarrhea. One gentleman said that when the temperature got to be 103.5, he gave cold baths or sponges. I think that is wrong. I think that anything that reduces the temperature is detrimental, except as you have seen that I use euca-lyptol. I was called to one case on the sixteenth day when the temperature was 105, the abdomen was greatly distended, and when the lips were glued to the gums—and right here I wish to say that the gentleman didn't understand me rightly when he understood that I never had hemorrhage of

the bowels. I have had two. What I say is this: If the patient is properly treated from the beginning, he will never have a hemorrhage of the bowels, and I mean, too, the slightest seepage of the blood. I mean that the result of the treatment will be that there will be no hemorrhage; if you administer this or some other antiseptic the symptom will not appear, and the evidence that the germ is performing its work upon the glands will be conclusive that he is no longer doing any such work. Although I may be wrong I believe this: That the germ of typhoid fever as a germ, as a living germ, although he may have been living buried in the glands of Peyer, is harmless; the idea that he throws off a germ that produces all this is, I think, an error.

Now, it took me eight or ten years to believe that to be typhoid fever. There is no man living so learned that I would have accepted his statement fifteen years ago, that typhoid fever could be aborted. I was so strongly convinced in the matter that when a man told me he could abort typhoid fever, I would have said he has either made a mistake in diagnosis or he has not given a statement of fact. But some of my grievous mistakes taught me that typhoid fever can be aborted. I don't mean to say that because I have taken cases at the eighth or tenth day and aborted or cured the disease, that every case at that stage can be aborted; but I do say that if you will regard it as a case of typhoid fever and treat it by this method from the very start it can be cured, can be aborted. And this treatment is not only the best treatment for typhoid fever, but it is the best for any disease that is taken for typhoid fever—for diphtheria or pneumonia. I know of no better treatment for diphtheria than the use of some of these antiseptics. And I say that for the purposes of this treatment, make the diagnosis not when the rose spots appear, not when the bowels are intensely distended, but when you see the very first indications. Let not one moment of time pass.

I want to answer one question by a gentleman as to how I could diagnose a case as typhoid fever where the fever was aborted on the eighth day. If you treat typhoid fever you will often see cases where you can make a positive diagnosis. As a general thing on the charts you will find a little figure in the left hand corner, showing the number of physicians, one, two, three or four, who have confirmed the diagnosis. I would never have dared to go before the profession and state what I have here if I had not the statement of a score of physicians, and men as able as any one; men of high reputation as diagnosticians. It is one of the worst statements that was ever made that typhoid fever can not be aborted, the many men of high standing to the contrary notwithstanding, though no man appreciates more than I do the great learning and ability of many of them; they have been stumbling blocks in the way of progress in this direction beyond a doubt. But to return to the gentleman's question as to how I would make a diagnosis when the disease was aborted on the eighth day. I have in several instances had patients eating beefsteak when they were yet covered with rose spots, the other symptoms having disappeared before that. In order to reach that it is necessary that the patient should be properly treated from the beginning. I do not mean that it is wise to let every patient eat beefsteak, but, to repeat, if you will treat them as I say, they may walk and eat beefsteak, and it will do them no harm.

THE LAW OF EQUIVALENCE IN MEDICAL SCIENCE.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY R. W. MURPHY, M.D.
SAN FRANCISCO, CAL.

There is a law of exact equivalence which pervades all nature. This law while perhaps most emphatic in mathematics, in music and in chemistry, is none the less true in the evolution of mineral, vegetable and animal development. The same is also true of all the various diseases when considered in relation to their antecedents.

It was not until the germ theory attracted the attention of scientists or rather was brought to light by scientists that much attention was paid to the antecedent of diseases; the effect was only considered

and treated by our physicians. Each separate disease or ailment must be the equivalent of the producing cause, and any remedial agent that cancels or cures the disease must stand as the equivalent of the antecedent producing it. This proposition being correct, would lead us to first consider the importance and value of a prophylactic.

We all know that vaccination with a specific virus will prevent smallpox. This being true, vaccination must stand as the equivalent of the antecedent that produces it.

The French scientist, Pasteur, has given to the world a prophylactic for hydrophobia which must ever stand as the equivalent of that much dreaded malady. The world renowned Prof. Koch, of Berlin, thought he had not only found a cure but also a prophylactic for phthisis, but as yet his feet do not rest upon the sure foundation of scientific truth where he can unfurl his banner with Eureka written upon its folds. But we predict the time is near at hand when medical science will not only find a cure but a prophylactic not only for phthisis, but also for cancer, for Bright's disease, and other diseases now considered incurable which are known to be hereditary.

Examine minutely, with the best glasses, the germ cells in the broad field of biology and you detect no difference in them, but let the life germ become vitalized and development take place, as evolution proceeds we find that at a certain point a weakness, a lack of the normal strength and vitality is shown, and if not checked will soon get beyond our control, but if medical science can furnish a prophylactic, and the rising generation liable to hereditary disease receives timely treatment, we may not only ward off but soon render the lineage immune, so that heredity will not be known.

The diversity in the type of disease must ever be in strict accordance with this law of equivalence. We may not be able to tell how many bacilli are necessary to produce typhoid fever or scarlet fever or diphtheria, but as we have the mild and the severe or malignant types, everything being equal they must ever be in a ratio of exact equivalence to the antecedent.

But what claims our attention more particularly at present is the great diversity in the treatment of the same disease by our physicians.

In the January issue of the *New York Medical Times*, on page 17, the editor says: "That at present a large part of the effort at teaching materia medica is thrown away because it has no practical application in the treatment of diseases. Graduates of medicine are turned out with little idea of what to do with drugs in treating the sick, and many even doubt whether they are of any use whatever, because teachers and students are all at sea respecting their adaptation. It is time that we should have more practical text-books from which students may individualize the action of drugs according to effects produced by maximum and minimum doses, for this is the only basis upon which a decision can be reached in regard to the selection.

The primary and secondary symptoms furnish no reliable data in this direction as claimed by some. The physician in the future will be a man who recognizes the dual action of medicine and governs his practice accordingly.

The dual action of medicine upon the system,

closely observed, may lead to the dose which will be the equivalent for the error to be corrected, neither too small nor too great.

Our text-books and our teachers in medicine do not agree as to the dose of medicine to be given even in the same disease; the great range of latitude so marked among our doctors has led some to place the practice of medicine outside the pale of science.

I knew a doctor to give a patient 40 grains of calomel at one dose and in three hours repeated it; while one of our leading physicians tells me he gets very satisfactory results from one-twentieth of a grain in adults and one-fiftieth of a grain in children, given every hour or every two hours. In hepatic trouble 10 or 15 grains is very frequently given to be repeated once in four or six hours.

In the use of quinin we also find the range from the minimum to the maximum to be very great. Some will advise 2 grains, others will advise 4, others 6, and others 10 grains once in three hours. Some will advise 30 grains at a dose, to be repeated every three or four hours. We are told, in Japan and in Southern malarious districts they often give 40 and 50 grains at a dose.

Several years ago a very wealthy man in St. Louis was taken with a severe congestive chill. Three or four doctors were called, Prof. McDowell among others. The patient's jaws were set so they could not administer anything by the mouth. Dr. McDowell put an ounce of quinin into a pint of warm water, stirred it up and gave it all by enema at once. This case was reported to me by Dr. A. C. Donaldson, who was present at the time. The patient recovered but his eye-sight was not so good as it was before the attack. Whether it was due to the large dose of quinin or to the excessive congestion they could not tell.

But it is not in quinin or calomel alone, but in nearly all the drugs in use do we find this diversity of doses among our professors and teachers and doctors; until one is ready to ask the question, Do we all belong to the same school?

Should we not study the dual action of all the various medicines until we find the equivalent doses to give?

But another remedial agent of great value that is used without the slightest regard to the law of equivalence is electricity. Many of our doctors use batteries without any indicator to determine the strength or quantity given, and but few study the temperament and vitality of the patient, but place them all in the same class. Many are benefited by the treatment while others are made worse. If there is any agent that should be studied and used in strict accordance with a law of equivalence it is electricity.

It must be apparent to all that there is a lack of practical scientific unity in the medical profession. The day of experiments upon our patients should be a thing of the past. It is the scientific discoveries of our profession and their application in the healing art that has drawn the lines so sharply between the regular and irregular schools of medicine. We should not be satisfied simply because we excel all other schools of medicine; we should not be satisfied or stop short of absolute scientific perfection in all the various branches belonging to our noble profession, and with the pages thus illuminated by science our young physicians will be able to trace clearly the lines of equivalence from antecedent to subsequent, and treat their patients accordingly.

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SATURDAY, AUGUST 25, 1894.

MALIGNANT GROWTHS AND THEIR TREATMENT
BY THE ANTAGONISTIC PRINCIPLE OF
ERYSIPELAS.

Of the questions that have been brought to the attention of the medical profession within the last year, decidedly one of the most interesting is that of the effect of erysipelas and the toxic products of erysipelas upon malignant growths. We have had for many years sporadic observations and suggestions as to a remarkable effect of intercurrent attacks of erysipelas upon malignant growths; but these have been for the most part vague and uncertain, and, perhaps from lack of convincing scientific verification, have not been regarded as more than doubtful clinical curiosities. Recently, however, under careful and systematic investigation in various quarters the subject has developed unexpected interest, and equally unexpected importance. The results, indeed, of this investigation which are being published from time to time, would seem to indicate that the subject merits the wide attention that it is unquestionably receiving.

The most extensive study of the subject that has been presented is that by DR. WM. B. COLEY, of New York City, who has embodied his experience in two papers published in the *American Journal of the Medical Sciences*, the first in May, 1893, the second in July of this year. These two papers present the record of forty-four cases of malignant growth, treated either by inoculation with erysipelas or injection of its toxic products. In the first paper DR. COLEY reported ten cases—six of sarcoma and four of carcinoma—treated by inoculation with pure cultures of the streptococcus of erysipelas. Leaving out of consideration for the moment the effect of the treatment on the tumors, the immediate result of his experience was to show that the production of erysipelas by direct inoculation was an uncertain procedure and one not free from danger. More

important than this, he found that in cases in which erysipelas was not produced a definite group of symptoms followed the injection of the pure cultures, consisting of severe chill, rapid rise of temperature to 103 or 104 degrees, nausea and prostration—a group of symptoms, in fact, exactly representing the stage of invasion of erysipelas and further, he found that this constitutional reaction was accompanied by changes in the malignant growths which resembled in all essential particulars the changes produced by true attacks of erysipelas. From this he was led to the interesting inference that the active principle in the process was the toxic products of erysipelas and, following that, that in all probability the beneficial effects of the treatment could be obtained by injecting the toxic products alone, without subjecting the patients to the risks attendant upon true attacks of erysipelas. Subsequent experience has established that this is true; so that the method has now resolved itself into the injection of toxic products.

His second paper, therefore, presents us with a series of cases treated, all except one, by the injection of the toxic products of erysipelas. Some of these were treated by the injection of the toxic products of erysipelas alone, but in most of the cases these were combined with a lesser quantity of the toxins of the bacillus prodigiosus. This modification was suggested to COLEY by the experiments of ROGER in BLOUCHARD'S laboratory in Paris, who found that the presence of the bacillus prodigiosus in cultures of the erysipelas streptococcus markedly increased the latter's virulence; and the combination, by increasing the effects of the erysipelas toxins, has proven a distinct advance in the technique of treatment.

In the second paper there are recorded the histories of thirty-five cases (which includes one case counted in the first paper)—twenty-four of sarcoma, eight of carcinoma, and three of sarcoma or carcinoma; we have, therefore, including the ten cases in the first paper, a series of forty-four cases of malignant growths treated by this method. As to the carcinomata and the three cases of uncertain character perhaps, for the sake of clearness as well as brevity, we had better omit them at once from consideration; for while the effects of the erysipelas toxins upon carcinomata have been of a very favorable character, the results thus far are not conclusive.

With the sarcomata, however, the facts presented are worthy of careful consideration. Twenty-nine cases are reported that have been treated by this method; and the results in these twenty-nine cases may be put briefly as follows:

One case of recurrent sarcoma of the neck and tonsil, which had been operated on by DURANTE, of Rome, and afterwards by BULL, of New York, and

which had passed beyond the hope of successful surgical interference is well, with only a trace of tumor left and no indication of recurrence of malignancy three years since cessation of treatment.

One case, equally as desperate as the foregoing is well, with no indication of recurrence fourteen months since leaving off treatment.

Two cases are well with no indication of recurrence, twelve months and three months, respectively, since leaving off treatment.

One case, a sarcoma of iliac fossa, is well one year since beginning treatment, with the tumor one-third its original size, and with all traces of malignancy destroyed.

These cases, it may be remarked parenthetically, are not offered as inoperable sarcomata on COLEY'S own authority, but all of them have passed under the critical observation of expert pathologists and surgeons, who have decided as to their character.

Of the twenty-four cases making up the rest of the series, eleven cases, some of which are still under treatment, showed marked improvement; ten slight temporary improvement; three no effect. Of the eleven cases classed as showing marked improvement much more could be made, were it not desirable in dealing with so treacherous a subject as the curative treatment of sarcoma, to exclude as far as possible all uncertain data. But it would seem that their aid is not necessary to give interest to the subject. Five cures in thirty cases is not a high record as percentages go, but when one remembers what "inoperable sarcoma" means, is it too much to say that these results are startling? What else, besides death, has ever been known to check the course of inoperable sarcoma before?

Finally, it remains to be said that other observers are confirming in their own experience the remarkable results reported by COLEY.

QUININ IN CHOLERA.

Although it might have been reasonably hoped that the remedial treatment of Asiatic cholera had lost practical interest for the profession in this country, the steady western extension of the epidemic in Europe and the recent disturbing appearance of cases in the Thames, hint at a contingency when it may become necessary to begin again the hitherto almost fruitless task of therapeutic experiment with this disease. Such a consideration lends especial importance and timeliness to the results of the researches of DR. FULLERTON, as set forth in his paper¹ read before the Ohio State Medical Society at its meeting of May 16, ult., and in which he arrives at the conclusion that, "If there is any reasoning in therapeutics—either by analysis or by synthesis, the American method that has done so much, or the

Continental, that has promised so much—with vigilance, activity and bravery, the mortality from cholera should not in the United States exceed 5 per cent."

These be brave words to use with respect to a disease which, according to HIRSCH, levied an average toll of 54.74 per cent. in the epidemics between 1852 and 1873—the lowest mortality (Pesth, 47.15) and the highest (Bengal, 64.85) for the period, being in the latest year, 1873, thus conclusively showing no gain in its therapeutic treatment during that period. And the showing is no better since HIRSCH. Our epidemic of 1873 gave a mortality of 51.65 per cent., that of the recent epidemic in Western Europe, 52.38 per cent.

Though DR. FULLERTON begins his argument deductively, on data furnished from the laboratory of PROF. KOCH—the results of experiments to determine the agents which kill, and those that only inhibit, the growth of the cholera spirillum—the bulk of his paper is made up of empiric observations on the use of quinin in the treatment of cholera by a number of authorities between 1831 and 1873, and these are by far the most convincing and the most valuable in support of his advocacy of the salt. Reference must be made by those interested to the original paper for these details, but space is here given for the following practical conclusions:

"Ten grains (of quinin) in powder, diffused through a small quantity of water, or in acid solution, at hourly intervals, until twenty to forty grains have been given, afterward *pro re nata*, should be the ordinary instructions; the same dose at half-hourly intervals for a sufficient time in collapsed or in *foudroyant* cases; smaller doses, perhaps, at longer intervals in choleraic diarrhea. There should certainly be retained, of other treatment, appliances for the restoration of heat; saline hypodermoclyses to supply lacking serum to the blood; morphin hypodermics to allay pain and cramps, with enteroclyses of quinin where, as past experience shows rarely to have been the case, the remedy is vomited; and in the sequent enteritis or otherwise persistent diarrhea, calomel in small doses should not be lost sight of. That by so treating our patients we may hope for a mortality in collapsed and collapsing cases of about 14 to 25 per cent. only; that by earlier administration of the remedy, instead of the use of other agents that have heretofore permitted so many cases to run on into collapse and death, we may reduce the mortality in such cases to 2 to 5 per cent. only, seems a fair assumption for the best of reasons—*i.e.*, it should be so, and so far it always has been so."

CORRESPONDENCE.

LETTER FROM EUROPE.

No. IV.

MUNICH, July 21, 1894.

To the Editor:—In my last letter written several days ago, I promised to say a word concerning the work in obstetrics, gynecology and diseases of children, in Prag. I will be very brief indeed and speak only of a few points that seemed to me of special interest.

The obstetrical and gynecological department is presided over by Rosthorn, a young man in his thirties, who was called, I believe, from the position of privat-docent in Vienna

¹ Is There a Better Remedy in Cholera? By Erskine B. Fullerton, A.M., M.D., Columbus, Ohio. N. Y. Med. Jour., Aug. 18, 1894.

to a full professorship in Prag, an unusual honor, especially in the case of so young a man. He is looked upon as a man of unusual promise. His gynecological clinics and his didactic lectures are always well attended. The obstetrical cases are divided evenly between the German school, the Czechish and the school for midwives. This gives to each department about eleven hundred cases a year, as in the lying-in-hospital there are yearly about thirty-two hundred patients. I had remarked before making a visit to the maternity hospital that I had, in my three months with Chiari, seen no autopsy on a case of puerperal septicemia. On referring to this fact in my conversation with one of Rosthorn's assistants, who showed me through the wards, I was informed that in the past year, from July 1, 1893, to July 1, 1894, there had been no death from puerperal septicemia in over one thousand cases. A more practical illustration of the advantages of antiseptic midwifery could not be asked. This category of cases does not include any case entering the hospital with an already developed sepsis, or any case in labor where a vaginal examination has been made outside the hospital. Such cases known to be infected, or to be looked upon as possibly infected, are carefully isolated and kept apart from the aseptic cases. The year before there was one death from sepsis.

Students are present at all cases of labor and have the privilege of examining the patient. They come in small sections. For a week before they are to witness a childbirth, they are required to keep entirely away from the anatomic and pathologic anatomic rooms. That their presence and even their contact with the patients, where careful preparation of the hands, etc., is attended to, is not detrimental, is proven by the perfect result of last year in an experience with a thousand cases. The details of the aseptic and antiseptic precautions need not be gone into. Suffice it to say that all that modern knowledge concerning a sepsis demands, is here rigidly complied with.

The Children's Hospital is really made up of two sections, one under Epstein, really an infants' or foundlings' hospital, where there is excellent opportunity for studying the diseases of the new born and the important question of infant feeding; the other the hospital for older children, under Ganghofner.

I was interested in listening to Ganghofner's remarks on diphtheria, in which disease he has had a wide experience in this hospital. No suspicious or questionable case is pronounced diphtheria without bacteriologic examination. Naturally most cases are quite readily recognized but here a bacteriologic examination is always made. All questionable cases are kept in observation rooms until the examination of the cultures reveals the presence of the Löffler bacillus or *vice versa*. This quarantine of about twenty-four hours works as can be readily seen with a double advantage. A child with a mild, unrecognized diphtheria does not come into a ward and infect other children free from the disease, nor does a child with a simple angina, a follicular tonsillitis so-called, become exposed to diphtheria by being placed in a ward with genuine diphtheritic angina. It is certainly time that all our modern hospitals had such observation rooms for suspected diphtherias. They would prevent much harm from being wrought to innocent and comparatively healthy patients.

Ganghofner's treatment of diphtheria may be briefly summed up as follows: Locally, a strong solution of corrosive sublimate or carbolic acid or tincture of the chlorid of iron applied with a brush. If gargles are used, or if there is any possibility of the solution being swallowed much weaker solutions are necessary. He also injects a few drops of a 5 per cent. solution of carbolic acid into the tonsil. He believes that this local treatment while not checking the dis-

ease *in toto*, does modify it in that the number of virile organisms is lessened, and therefore a smaller amount of toxine produced. He is extremely cautious about the local treatment of the nose by sprays, and particularly by douches, believing that he has seen several cases in which diphtheritic otitis media has been caused by the irritation of the Eustachian tube thus produced, and the extension of the inflammation up this canal to the ear. Iron, plenty of nourishment, alcohol in moderation, are recommended internally. Blood serum he has tried and with favorable results, though not in any great number of cases. In a case of impending laryngeal and tracheal stenosis through spread and growth of the membrane downwards, the disappearance of the membrane after the blood serum injections was little short of marvelous. The patient, however, died of cardiac failure. The autopsy revealed no remnants of the laryngeal membrane but a heart markedly fatty. The cardiac failure was looked upon as the result of the disease, and as brought about in no particular by the antitoxin. Mercurial ointment is regarded favorably in cases where the glands are much enlarged.

Intubation is the common procedure in cases of laryngeal diphtheria where stenosis is imminent. In private practice, however, Ganghofner does not consider it as applicable, because of the sudden emergencies that often arise through the coughing up of the tube or the blocking of the tube, by membrane or secretion, necessitating the prompt attendance of the physician. For hospital he regards this operation as preferable to tracheotomy.

I may say that while in Berlin I went through Bergmann's hospital in company with Dr. Murphy, of Chicago. We were shown the tracheotomy room and were told that the operation was one of daily occurrence there, and that for the past two years Bergmann had not allowed intubation in cases of diphtheritic laryngitis. Just the reasons for abandoning the intubation I do not know. The assistant told us that he himself had done in two months between sixty and ninety tracheotomies. Dr. Murphy remarked that we did not see in Chicago so many cases of diphtheria demanding operative interference as ten or fifteen years ago, either because the type of the disease had changed, or because it was better treated and laryngeal complications avoided. Certainly no such number of these cases as is met with in Berlin is seen in Chicago, either in private or in hospital practice.

Saturday, a week ago, I left Prag for Carlsbad, having a great desire to see this famous watering-place. It is a beautiful spot as regards its natural surroundings and has all that could be desired in the way of delightful walks, mountain climbs, drives, etc. Twenty-five thousand patients have already visited the place this summer and among them a large number of Americans. It is really a wonderful sight to watch the crowd at one of the popular springs, such as the Sprüdel or the Mühlbrunn. From 6 A. M. to 8 A. M. there is one constant stream of people. At 7, Sunday morning I saw a double line about two blocks long waiting patiently at the Mühlbrunn.

The efficacy of the Carlsbad waters in troubles of hepatic origin and in diabetes is attested by all German physicians with whom I have spoken. The manner in which the waters work is not clearly understood. One of the Carlsbad doctors told me that absolutely nothing was known as to how the amount of sugar was lessened by the Carlsbad treatment, in cases of diabetes. But he assured me that it was the rule for diabetes to be materially improved and for the sugar to lessen or even totally disappear in the course of a few weeks' treatment. That the change is not brought about by diet alone, is proven by the fact that a rigid dietary is not prescribed and, in many instances, the patient is allowed to eat what he wishes. Permanent cure of diabetes is not claimed

by the Carlsbad physicians. In cholelithiasis the good results are attributed, not to any chemic reaction causing the absorption of the stones, but to their mechanical expulsion through the common bile-duct into the duodenum. Patients suffering from gall-stones who have had perhaps occasional attacks of hepatic colic are almost sure, when drinking the Carlsbad waters and taking the baths, to have frequent, even weekly, attacks of gall-stone colic. Some, or all of the stones may, as the result of the increased peristalsis be expelled.

The physician from whom I learned these facts criticised quite sharply the too common practice of sending absolutely incurable cases to Carlsbad, cases that should be cared for at home. This, he said, was particularly true of carcinoma. Let a patient have carcinoma of the stomach, the liver or the pancreas and, if jaundice were present, he was promptly shipped to Carlsbad because, forsooth, Carlsbad was good for jaundice. From personal observation I know this to be true, for I saw a patient who had but a few hours to live, whose physician had sent him to seek the benefit of the waters for his jaundice, and whose Carlsbad attending physician had told the family of the malignant and incurable nature of the malady, too late for the poor man to be removed to his home, about one hundred miles distant.

While stopping at Nuremberg I made an excursion to Erlangen, fifteen miles out from the city and spent a most delightful forenoon with Strümpell. I found him a most charming man, affable, and very cordial in his reception of me, a total stranger who had naught save a visiting card by way of introduction. In his clinic his evident aim is to be a teacher. There is no attempt at display of great erudition, no dramatic presentation of cases. In the clinic which I had the pleasure of attending, he exhibited a case of cardiac valvular disease, peculiar in that, while the lesion was apparently a mitral insufficiency, the consequent hypertrophy was almost exclusively of the right heart. The questions of congenital lesions and of pulmonary stenosis were discussed and the diagnosis of mitral insufficiency was guardedly made.

The second case was one of myoclonus multiplex. The patient, a young adult male, strong, well developed, had for three years, been annoyed but in no way incapacitated for work, by the involuntary contractions of various muscles or parts of muscles. The case resembled those first accurately described by Friedreich as paramyoclonus multiplex. The pathology of the disease, so Strümpell said, was still unknown, though the seat of the lesion was probably, according to his view, in the cord or its cells. The case in hand was only unusual in that the muscles of the tongue were involved. The case was made useful to bring out the differential diagnosis between this disease and chorea in its various forms, multiple sclerosis, paralysis agitans and particularly hysteria. This latter condition Strümpell believed, explained some of the remarkable reported cases of myoclonus multiplex, especially those where there had been a sudden onset or a sudden cure.

After the clinic I spent a most enjoyable two or three hours in the wards with Strümpell. His rooms are old and he is obliged to treat some cases, *e. g.* gonorrhoea, that he would probably gladly transfer to other departments. But in over one hundred beds, he always finds enough material that is interesting and instructive, and particularly as many cases of nervous diseases are sent to him from a distance. He had two cases of brain tumor in his wards, one a child *in articulo mortis*, and the other an adult where partial monoplegia with occasional spasm, headache, and choked disc were the main factors in leading to a diagnosis. In this case operation was advised. A case of Basedow's disease in which the enlarged thyroid gland had been removed, seemed at

the end of a week slightly improved as regarded tremor and exophthalmus. That permanent good in this instance, or in similar cases, would result from thyroid extirpation, Strümpell was not prepared to say. Cases of multiple sclerosis, of carcinoma of the liver, biliary cirrhosis of the liver, amyloid kidney, etc., were shown, and I left Erlangen feeling that I had spent a most pleasant and profitable day in intercourse with one of the brightest medical minds of Europe. My day with Strümpell only served to enhance in my eyes the value of his text-book which I had already regarded as surpassed by no other book of the same scope.

I have seen here in Munich, Ziemssen, Bauer, Winckel and Bollinger, and hope in Heidelberg to witness the work of Erb and of Vierordt. If I can find time to spare from my clinical work and sight-seeing I will describe in my next letter my impressions of these men.

I may say here that Winckel retains pleasant memories of his stay in Chicago last year. He was particularly shocked and surprised to learn of the death of Dr. Charles Warrington Earle, and referred especially to the jolly time they had together at the banquet given by the Chicago gynecologists to Prof. Winckel, where Dr. Earle sat by the side of the guest.

It is, I believe, true of Winckel that his reputation as a specialist is as great in his own city as it is abroad. This certainly speaks well for him. For I have observed in not a few cases, that the names known favorably abroad are not those of the men with the greatest reputation at home. "A prophet is not without honor," etc.

JAMES B. HERRICK, M.D.

Etiology of Pneumonia.

CHICAGO, Aug. 8, 1894.

To the Editor:—The elaborate and valuable paper of Dr. Richter on the "Influence of Atmospheric Pressure on the Prevalence of Pneumonia," published in the *JOURNAL* for Aug. 4, 1894, I have read with great interest. One of the statements made by this writer requires explanation, that error may not be promulgated. I refer to that on page 189, second column, where it is stated that "Wells and Hirsch and every other writer on the subject discards air pressure as a causative factor." This would lead the reader to infer that the subject had been carefully investigated by these authors and that they had arrived at the conclusion that atmospheric pressure was not a factor in the etiology of pneumonic fever. Speaking only for myself I will say that in the series of articles to which Dr. Richter refers, expression has been given to the following opinion: "It may be affirmed, as a general proposition (to which there are many exceptions), that pneumonic fever will be found to prevail to a greater extent than ordinarily, the influence of season and epidemics excepted, when the daily range of temperature, humidity of the atmosphere, velocity of the wind, range of barometer, amount of atmospheric pressure and amount of ozone present in the air are greater than the average, and that it will be less prevalent when opposite conditions prevail. Again, it will be found that an excess of cases will be met with when the range of temperature is low, the barometer falling and the ground water low."

These general and, it must be freely confessed, unsatisfactory statements are the conclusions derived, in so far as the italicized portions are concerned, from a study of the papers of Baker, Biach, Sanders, Juergensen, Purjesz, Seibert, Stortz and others and of a great mass of facts collected by myself. This last material it was found impracticable to analyze on account of its diffuse and contradictory nature and its bewildering extent. From it, therefore, only the impression above given could be extracted. It must be

clear, therefore that the influence of atmospheric pressure in the causation of the malady in question has not been totally discarded by me and that the meager consideration given it was due to a lack of knowledge rather than a lack of appreciation of the importance of the subject. On the contrary, my investigations were sufficiently extensive to profoundly impress me with the far reaching importance of the rôle played by this and other meteorological factors in the production of pneumonic fever.

Dr. Richter is to be complimented upon the general excellence of his paper and upon the industry displayed in its preparation.

EDWARD F. WELLS, M.D.

ASSOCIATION NEWS.

Section on Neurology and Medical Jurisprudence.

At a meeting of this Section during the forty-fifth annual session of the AMERICAN MEDICAL ASSOCIATION the following preamble and resolutions were introduced:

DR. CROTHERS—Now, Mr. Chairman, I have here a resolution which reads as follows:

"WHEREAS, In view of the fact that the problems concerning the care and treatment of inebriates, have become of practical interest in every part of the country; therefore

"Be it Resolved, That we earnestly wish and advise the erection of a special asylum for the care and treatment of habitual drunkards in each State of the Union; also

"Resolved, That such asylums be organized as industrial homes where each person can be placed under restraint, treatment and medical care for a sufficient length of time to promise full restoration."

DR. GAVIGAN—I thought that there would be room for such an institution, and if it was advised by this Section, those who think well of such a movement would have some support in going before a legislative body asking for the appropriation of moneys for the purchase of a site, etc. It is hardly probable though that it would materialize in this State in the next year, or the year after, or the year after that, but still it might, in time, and there is nothing like agitation.

THE CHAIRMAN—The trouble with many of the public institutions we have now is the same as with the Washingtonian Home, located in Chicago. It is not a public place or home, and there is now litigation over the funds. In that institution they take the patients and give them a few wholesome lectures and then send them out, but there is no authority sufficient to keep them there long enough to correct their neurologic or neuropathic tendencies.

DR. HEISHOLT—That is where the trouble comes in, in regard to their incorporation. Generally speaking it is necessary to have laws regulating the detention of such people in any place of restraint. So with criminals. It is a farce here, looking at it from a legal standpoint. The criminal is adjudged insane, sent to an asylum and if he is considered well at the end of three or six months, the superintendent can not keep him; and if the superintendent wants to do what is right and keep him as long as necessary, the individual will have some friends who will get him out on *habeas corpus*. In New York there is a law, I believe, requiring that they should not be kept less than a definite period. There are not many States who have such laws, but there ought to be. With regard to asylums of this kind, I think the time is ripe for it here in California. We have a home for inebriates—I don't know whether you have read much about it—but it has been discussed in the papers here and criticised severely—I see patients from there every now and then; they are kept there one or two or three days or a week, and certainly the treatment is not right or proper.

THE CHAIRMAN—We have in the State of Illinois, in our State Medical Society, a committee on legislation. We have had that committee for a good many years and we are getting the people educated up to some pretty good laws. We have had some improvement in our legislation governing the commitment of the insane and we are getting little improvements every time the Legislature meets. We are working away at it vigorously and are quite satisfied with the results. But the doctors have to do it; the lawyers never will improve the laws. The more complicated the laws are, the better it is for the lawyers. As long as a lawyer can get a fee for *habeas corpus* in the case of an insane person in an asylum the laws will be continued. You must educate the people up to the proper standard.

DR. GAVIGAN—My idea in having this presented is that although we are a small body here this morning, yet at the same time the resolution adopted by this body is official and can be embodied in a petition to the next Legislature which will assemble in January. Now by going before that body, and having a bill properly presented and introduced—accompanying that bill would be a bill amending the laws to conform to the detention of inmates or proposed inmates in insane asylums—by agitation probably, as Dr. Heisholt says, we will get it in a couple of years or three or four years. As the Doctor says, there has been considerable in the newspapers about our local home. The question has been raised as to who owns it. Nobody can tell, and it is thought by some good lawyers that if a suit were brought it would escheat to the State. It was formerly originated by a Society organized here some years ago, and well known as the Dashaway Society. That society has disincorporated and there is no head. The directors seem to be supreme, the public has lost interest in it, and it brings ridicule upon the question of inebriety—people seem to ridicule and criticize it unfavorably. So I think if we have in this State an institution under the care of the State and looked after by the State officers, as our insane asylums are, it would be advantageous to the poor inebriates within the State and would probably lead to like establishments in other States. They have an institution of that kind in Massachusetts, I believe.

DR. CROTHERS—Yes. Patients are sent there for three years. It is an industrial asylum, working on five hundred acres of land. They have 150 people there now; every one is placed there for three years, and if they run away they are obliged to return. We have in our State (Connecticut) a law by which a man can come to my institution or any other, and commit himself for four months, by simply going in and asking to be received, and we hold him the same as a man in an insane asylum; if he runs away we have simply to ask the police force of the State to arrest him and return him, but within four months he has his liberty. But if the laws or the courts choose to examine into his condition as to habitual drunkenness, and determine that he is a habitual drunkard they can send him for three years, one at the institution and two years on parole. And supposing he goes out at the end of a year and relapses in the course of a month or two. He is returned at once, and then the three years continue from the time of the last lapse, so that some men may be under the control of the law forever.

DR. GAVIGAN—In England they have something equivalent to that.

DR. CROTHERS—Yes, but you have to go before a magistrate and certify that you do this of your own free will, and there is so much voluntary requisition on the part of the patient that they rarely ever do it. However, that is to be amended very soon. The Massachusetts law is a very good one and the institution is a valuable one and has a great future before it; and the intention of that institution and of

some of these others is to take up the men who are now repeaters in jails and prisons and under sentence for a short or long period and save the expense of repeatedly sentencing them. It costs from \$25 to \$50 every sentence—court fees and admission fees, and all that sort of thing. The idea is to sentence them once for such a length of time that they are not likely to get out and repeat the offense again. In our State we have a law and an institution organized but there is no public institution—no public industrial hospital, simply because we have been opposed by the temperance people. They deny the possibility of those people being sick and diseased and say it is a moral trouble entirely.

DR. HEISHOLT—There are two classes of people who are insane; epileptics and alcoholics, and in regard to the former a great deal has been done. There is an institution in Ohio, established about two years ago, a colony so-called—an epileptic colony. And now in New York it seems the scheme of Dr. Paterson is going to be realized. Now if that has been done for epileptics why couldn't the same be done for alcoholics? The trouble is that alcoholics while in the asylum have considerable control of their faculties, and they are so restless on account of their nervous condition that they bring about a similar restlessness in the others.

THE CHAIRMAN—We are getting things in shape in Illinois for the establishing and founding of an epileptic colony, and I should not be surprised if our next Legislature would do something towards the establishment of such a colony.

DR. HEISHOLT—I think I have over fifty epileptics in our institution, and I would say that 90 percent. of all the fights are brought on by epileptics. Just as you say there is always a woman at the bottom of a scandal on the outside, there is always an epileptic at the bottom of those fights in the asylum.

DR. GAVIGAN—I suppose that if you have that many in Stockton, Napa has probably a good many also.

DR. HEISHOLT—Yes, about the same proportion but they have two hundred people less. They should have about thirty I should judge, and Agnews probably would have twenty. That would be one hundred in all.

THE CHAIRMAN—Our object for establishing this colony for epileptics in Illinois is not only to take epileptics who are called insane, but to take independent epileptics generally and see if we can not do something towards improving their condition, to take those who are in the almshouse and elsewhere throughout the State and those who are cared for in their own homes, and see if something can not be done towards their cure as well as their care. That is the idea we are to take up, and I wouldn't be surprised if your Legislature did something this winter. We are getting our people educated up towards the proper appreciation of this thing.

DR. HEISHOLT—We have an institution in this State known as the Home for Feeble-Minded Children, in Glen Ellyn. The institution there is not an epileptic colony in the proper sense, because idiots and such cases are in there, but still it is better than nothing, only that the institution is a small one. You see we have at least one hundred in our State asylums that should be up there but they haven't room for them.

DR. CROTHERS—There is one pleasant feature about this whole thing. To push a theory is one thing and to push it against public sentiment is another. Here is the fact of the tremendous losses that follow from the alcoholic habit; and the fact that the railroad companies refuse to employ a man who is a moderate drinker is doing immensely more for us than all the preachers. We are just now on the verge of a great revolution in that way, a revolution that is founded on absolute necessity. Men refuse to employ alcoholics in their business, no matter how much genius there is, and the public recognize the tremendous losses they suffer, and hence

they are going to urge that a new method or a new means be employed to restrain that terrible evil.

THE CHAIRMAN—It was that public sentiment that made Keeley's institute a success—reaching out for something to check this evil. Keeley could not have been a possibility ten years ago.

DR. HEISHOLT—Speaking about railroad companies you might speak of life insurance companies. Life insurance companies within the last few years have made a clause as to that. I insured myself in a company here recently and a friend of mine did the same. Well, I rarely touch liquor. If I do, it is once in two or three months when I am in company with some one; but I could just as well abstain altogether. But my friend is a little different, and he was going to give up the life insurance policy on account of this clause, which is that if the policy holder should at any time take to drinking and that his death should have some connection with this habit that may develop, he would lose his claim to that policy.

DR. GAVIGAN—This State in 1882 by an overwhelming vote voted against what was known as sumptuary legislation, and in the last gubernatorial contest the prohibition party got about ten thousand votes. There is something behind that. Look at the next prohibition vote and see what will be the increase of votes. It is not prohibition which is doing it, but it is the wreck of alcoholism that is doing it. They had a temperance congress here some time ago, in connection with the Midwinter Fair, and two days afterward the liquor men of the whole State met for protection.

DR. CROTHERS—I had an article in the *Public Science Monthly* for June. Dr. Appleton Morgan wrote an article in the March number entitled, "Does Prohibition Prohibit?" showing that prohibition did not decrease but rather increase the drinkers. My article was in reply. He is a very good man but evidently under the influence of the beer men. It is most extraordinary the statements he has made; for instance, that there was no prohibition until 1832. The fact is, prohibition has been going on in the country since 1640, soon after the settlement of this country, when they began the prohibition of the sale of liquor to Indians and minors, and on Sundays. I have made clear the idea that if it is true, our theories concerning alcohol are true, and are borne out by future experiments, that alcohol is a depressing agent, prohibition is bound to come whether it is urged by a party or anything else. And it won't be a question whether prohibition prohibits or anything of that kind, but we will take up the alcoholic question the same as we take up the question of polluted springs, or any other such question of public importance, and we will abolish saloons the same as we do pest-houses.

BOOK NOTICES.

Transactions of the Association of American Physicians. Ninth Session, held at Washington, D. C., May 29-30, 31 and June 1, 1894. Vol. ix. Philadelphia. Printed for the Association. 1894.

This volume, which has been issued with commendable promptness, contains the minutes of the meeting, list of officers, honorary members, and members; the constitution, and twenty-four papers read at the meeting. We learn from the minutes that there were seventy-two members present, and we are pleased to note that an examination of the list shows that about one-half of them are active members of the AMERICAN MEDICAL ASSOCIATION. The papers have, we believe, all been printed in the several medical journals during the year.

The interesting address of the President was published in this JOURNAL with editorial comments June 9, 1894.

The volume is an instructive one. Many of the papers are contributions of permanent value to the medical literature of the period, and it is a great pity they were not read to the larger audience of the great ASSOCIATION.

PUBLIC HEALTH.

A Notable Precedent.—The Toronto courts have recently had the question of the contagiousness of consumption before them. A health officer had demanded the exclusion from school of a child suffering from tuberculosis and his action led to legal proceedings. The judge sustained the action of the health officer, deciding that the disease is contagious.

Smallpox in Milwaukee.—Under date of August 18, Dr. U. O. B. Wingate, Secretary of the Wisconsin State Board of Health, thus summarizes the smallpox situation in Milwaukee: "At present the city is orderly and everything is being done that can be done to control the outbreak. There are at present about fifty-five cases in the city. There have been 31 deaths out of 121 cases reported up to this date. A large corps of physicians are vaccinating from house to house, extra barracks are being erected, in order to relieve the hospital which is now full. Two sets of inspectors are on at the depots, one for day and one for night service; also at the steamboat wharves, doing everything possible to prevent suspects, or those coming from infected districts, from leaving the city. The railroad authorities and boards of health in the adjoining towns to the city are coöperating to prevent all such persons from boarding the trains at those points."

Need of Sanitary Organization.—In a recent address before the Cleveland, Ohio, Medical Society, Prof. William Pepper recalled that when the International Medical Congress met in Philadelphia in 1876, the address on "Hygiene and Preventive Medicine," delivered by the distinguished Bowditch, himself a pioneer in sanitary science, was one of the most impressive utterances on that important occasion. The review he gave of the work of the previous century in this country in sanitary science was not flattering; but with the fine enthusiasm which marked that gifted man he predicted the immediate opening of the grandest epoch yet seen in the history of medicine. His closing appeal must be quoted: "Our present duty is organization, national, State, municipal and village. From the highest place in the national council down to the smallest village board of health we need organization. With these organizations we can study and often prevent disease." Much had been accomplished, it is true, in preventive medicine before 1876, when Bowditch spoke; but it is scarcely an exaggeration to say that the progress in the past twenty years has been greater than in the preceding twenty centuries. And yet the need of sanitary organization and of adequate sanitary legislation is still a pressing one. Sanitation by "bluff," or by tolerance, or at best by individual effort, is still too frequently the rule in many communities and commonwealths. Only thorough organization can secure the legislation necessary to make public hygiene really a science and not an intermittent and unreliable rule-o'-thumb procedure.

A Minister of Public Health.—There is a demand on the other side of the water, also, for a more signal recognition of the transcendent importance of public hygiene and State medicine, by the creation of the office of Secretary or Minister of Public Health. In his address at the recent meeting of the British Medical Association, on "Sanitary Science and the Prevention of Zymotic Disease," the veteran sanitarian, Sir Charles Alexander Cameron, regretted that medical men, even from a public health point of view, play a very subordinate part in the functions of government in Great Britain—only one, Sir Walter Foster, occupying a position which gives him a direct share in the administration of any great department; and only two of the 250 Privy Counsellors having medical qualifications, Lord Playfair and Prof.

Huxley. Prof. Cameron points out that in Germany medical men are constantly appointed Privy Counsellors; that the government of that empire is largely in the hands of those who possess the highly prized titles of Professor and Doctor; that the Prime Minister of Hungary is Dr. Alexander Wekerle; and adds that: "As the present tendency in the social world is the upheaval of the lower strata of society towards its 'upper crust'; as the working man has become a senator, and mechanics are being metamorphosed into justices of the peace, we may hope soon to find some of the members of our profession following in the wake of Sir Walter Foster and taking high places in the executive government of the country. Hitherto we have only been permitted to suggest measures for the promotion of the public health; it is time that we should have a more direct influence in sanitary legislation and in the administration of the sanitary laws. There are many medical men eminently fitted by their culture, experience, and ability to hold the office of Minister of Public Health—aye, even with a seat in the Cabinet!"

Extension of Cholera.—Recent advices of the western extension of cholera in Europe are less reassuring. There are conflicting reports as to the situation in Russia, but in the other infected countries, from which information is less trammelled and more trustworthy, the disease is known to be spreading. North-eastern Austria is completely in the grip of the epidemic and the German Cholera Commission has been again convened in order to consider the serious news that the scourge has not only spread to East and West Prussia, but that genuine cases have been found at Cologne. In East Prussia the new towns affected are Johannisburg, where there have been over fifty deaths, and Lyck and Allenstein; in West Prussia, Althof and Thorn are among the towns where cholera now exists. In the Low Countries, Holland and Belgium, the infected area is undoubtedly increasing, but the disease appears to have died out in the localities hitherto reported infected in France. Following upon Dr. Klein's confirmation of the diagnosis of Asiatic cholera on the *Balmore*, which arrived from St. Petersburg at Gravesend on the 7th, with one fatal and four other cases on board, came the discovery of the disease in London itself—eleven cases, with two deaths, being announced on the 20th in the Battersea district on the Surrey or south side of the Thames. It is learned that the disease was brought from Amsterdam by seafaring men who had arrived within the fortnight, but some of the victims were natives of the district. The Local Government Board and port sanitary authorities, it is reported, though not taken by surprise, confess to some chagrin and are exercising every precaution at exposed points. The restriction of cholera by purely sanitary preventive measures is likely to be as severely tested again in England as at any time within the previous years of the present pandemic.

Startling Propositions.—The full bench of the Massachusetts Supreme Court, in a decision rendered June 20, ult., announces certain propositions which imply a condition of statute law which can not be too soon remedied in the interest of individual and of public health. These propositions are, in effect, that a landlord is not legally bound to inform his tenants at will of sanitary defects in the drain of the house; neither is he liable to the tenant at will in a suit for damages for negligence in not acquainting such tenant of defects in the drain which arose during the course of the tenancy, even where the condition of the drain caused one of the occupants to take typhoid fever and die. The suit which developed these monstrous propositions was brought by Mrs. Julia Bertie, administratrix of the estate of John Bertie, intestate, against Hiram P. Flagg. She alleged that

the defendant was the owner of the house 76 Poplar Street, and her intestate was a tenant at will of the premises; that in the course of making other repairs the defendant discovered that the drain was in bad condition and needed certain repairs; that he neglected to repair it, covered it up, and did not inform her intestate, and that "by reason of said negligence . . . the plaintiff's intestate, being ignorant of the condition of said drain, contracted typhoid fever" from it. The Court says that "this defect was an ordinary defect in the drain in use on the premises, and the danger was the ordinary danger from that source. It was discovered in the course of a tenancy at will. We are of the opinion that the landlord was under no obligation to repair it, and if we are to take it that the plaintiff was ignorant of the defect as well as of the failure to repair it, notwithstanding the allegation that the defendant refused to make the necessary repairs, we are of the opinion that he was under no obligation to disclose it." If this be the law in Massachusetts, or elsewhere, it behooves State Boards of Health to secure prompt correction of such legal condonation of crime against the sanitary interests of tenants.

NECROLOGY.

JOHN SEATON, M.D., of Fort Wayne, Ind., August 17. He was a member of the G. A. R. and Union Veteran Legion. He was a prominent Mason and Knight of Pythias.—W. P. Foster, M.D., of Warsaw, Ind., August 17. Aged 50.—David F. Urmy, M.D., of Gowanda, N. Y., August 17. He was formerly Attorney-General for the State of Colorado.—Stephen G. Risley, M.D., of Rockville, Conn., August 2. Aged 74.

MISCELLANY.

Should be Elected.—Dr. Charles A. Wells, of Hyattsville, Md., is spoken of as a candidate for Congress to fill the unexpired term of the Hon. Barnes Compton.

Death of the Leprologist, Danielssen.—The death is announced of Dr. Daniel Cornelius Danielssen, Chief Physician to the Bergen Leper Hospital, eminent for his lifelong researches on leprosy.

Ills of Body vs. Faults of Soul.—The following ingenious illustration tends to show how more important medicine is than psychology:

"Some man says that when one reads a medical book he fancies he has every disease described, but when he reads the work of a moralist he discovers all the faults it points out in others."—*Montreal Star*.

Inexpert Dentistry.—The Dental Society of New York City has recently undertaken to prosecute an amateur dentist. A compounder of patent medicines advertised a remedy for toothache. He was consulted by a poor woman. Instead of applying his drops, Johnson undertook to extract her aching tooth and in so doing broke off two teeth. These broken teeth have been the source of much suffering to the woman. The facts in the case were not long after brought to the notice of the Society above referred to, and the counsel of that organization has been ordered to proceed against the inexpert dentist, for a violation of the laws governing dental practice.

Hygiene of Sports.—The schematic program of the division of Hygiene in the Buda-Pest Congress of Hygiene and Demography, which begins next Saturday, is very elaborate. It embraces the following sections: 1. Etiology of Infectious Diseases. 2. Prophylaxis in Epidemics. 3. Hygiene of the Tropics. 4. Hygiene of Trades and Agriculture. 5. Hygiene of Children. 6. Hygiene of Schools. 7. Articles of Food. 8. Hygiene of Towns. 9. Hygiene of Public Buildings. 10. Hygiene of Dwellings. 11. Hygiene of Communication. 12. Military Hygiene. 13. Red Cross. 14. Saving

of Life. 15. State Hygiene. 16. Hygiene of Sports. 17. Hygiene of Baths. 18. Veterinary. 19. Pharmacology. The first topic under "16. Hygiene of Sports," reads as follows: "Different kinds of traveling and their influence upon the nerves and the formation of blood. Wedding tours."

Prophylaxis of Suicide.—Are gouty and rheumatic subjects less frequently the victims of suicide than those of the opposite diathesis? Statistics on this point are needed to complement the theory that the relation of mental depression and suicide to temperature is that of the effect of temperature on urate excretion. Alexander Haig, who has devoted much time to the study of this subject, now claims that his researches show an annual fluctuation in the excretion of uric acid, with its maximum in the warm months, April to July, and its minimum in the cold months, November to March; and he had previously demonstrated that an excess of uric acid in the blood causes high arterial tension profoundly affecting the intra-cranial circulation. Applying these deductions to the recent epidemic of suicide in France, coincident with the onset of hot weather, he finds the relation very interesting—"because it is just with the onset of the heat and the first great fall in the acidity of the urine that the great rush of stored uric acid into the blood will take place. Then, again, 6 A.M. to 12 noon—the most frequent time for the fatal act—is also just the time of the largest daily excretion of uric acid—i.e., the time when there is most of it passing through the blood—and the facts I have collected will, I think, fully bear out this observation." The prophylactic lesson of which is, to those of suicidal tendencies: Keep the renal secretion acid and the blood alkaline.

Reminiscences of Hyrtl.—A correspondent of the *Lancet* furnishes some reminiscences of the late Prof. Hyrtl the famous anatomist who has just died in Vienna. His sympathy with student life is well known, and many stories in this connection are told of him. A Jewish medical student named Jerusalem was being examined, and in the hall there was waiting a small crowd of his co-religionists, when Hyrtl came out from the examination chamber. He was immediately surrounded by the crowd of young students, who asked him the fate of their comrade Jerusalem. Hyrtl, with a plaintive voice and sympathetically shaking his head, said, "Weep, O Israel; Jerusalem has fallen." Once a student was unable to reply to one single question at his examination. Hyrtl then asked him, "Perhaps you can tell me where you live?" The student named the street, of which Hyrtl professed his ignorance, and said: "You see how science is divided; you know nothing of anatomy and I do not know the locality where you live." An anecdote respecting his marriage is worth repeating. It was in the year 1866, when one day Hyrtl approached the porter of the Anatomical Institute, Andrew Swetlin by name. "Andrew, have you a prayer-book handy?" asked Prof. Hyrtl. Andrew fetched the book, and Hyrtl went away. An hour later he returned and handed to the porter the prayer-book. The porter, unable to suppress his curiosity, asked: "You do not need it any more, Sir?" Whereupon Hyrtl replied: "No, thanks; I only needed it for a moment. I have just been at my own wedding."

Man Growing Lazier.—Man grows more and more lazy every year. He is living in a machine age, when his walking and his climbing, if not his eating, are done for him by some mechanical invention too obvious to be recorded. If it were not for the athletics and gymnasiums, it is believed the race would lose the use of its legs, as scientists say it is losing its jaws and its teeth from too much civilization. Men who used to skip up the long flights of stairs of downtown buildings without a murmur now complain if they are asked to walk up one. And it isn't age, either, for boys in their teens will "wait for the elevator" an hour rather than give their legs needful exercise. The result of so much level action would be horrid was there no bicycle in existence. But the wheelman goes "up-stairs" for hours and says not a word when there is a saddle under him. It may be this universal wheel is the real cause of the present indolence. On some new principle developed by this popular motion

otherwise able-bodied citizens now refuse to live in houses with high stories and no "lifts," and kick at any "steps" over or under any railroad tracks. In short, there are people who would rather risk their lives than have the grade changed on a road they would be in the habit of crossing.—*Boston Herald.*

Non-Expert Opinions on Questions of Health.—There are many cases, says the Supreme Court of California, in the recently decided case of *Robinson v. Exempt Fire Co.*, where a witness, though not an expert, may be permitted to state the result of his observation, notwithstanding it involve in a sense his opinion or judgment, such as the apparent state of health of a person, whether a person is drunk or sober, or other characteristic or state which manifests itself to the apprehension of the common observer. It is sometimes difficult to distinguish between that which is purely matter of opinion, and so not admissible, and that which partakes of the nature of a fact by reason of being the result of personal contact and observation by the witness, but this difficulty does not in any sense militate against the rule. There are many matters of importance to the investigation of truth that could not be established or presented to the jury if this were not the rule. Here, a witness, who knew a certain person quite intimately, and saw him frequently, and had conversations with him about his health during a period when it was in question, was asked this question: "Well, now, when you saw him on these occasions walk along, when he noticed you, was he or was he not apparently well?" This the court holds was competent. True, it says, the question tended to elicit the opinion of the witness, who was not an expert; but it called at the same time for the fact of the physical appearance of the person referred to, as a result of the witness' observation, and that fact the party was entitled to lay before the jury.

Abatement of Nuisances by Boards of Health.—The Court of Chancery of New Jersey holds, in the case of *Board of Health of North Brunswick Township v. Lederer*, decided June 5, 1894, that where it appears that the odors and gases from an establishment, of the nature of one for fat-rendering, produce headache, nausea, vomiting, and compel citizens to close their doors and windows, both by day and at night, and interfere with them in the enjoyment of their meals and of sleep, such establishment is a nuisance; and it is the duty of the boards of health, in such cases, to take proper measures for their abatement. Furthermore, the board of health in the township in which a nuisance exists, or is carried on, has the authority, and it is its duty, to abate such nuisance, either on its own motion, or by the aid of the court, though it is only hazardous to the health of individuals residing in another township. Carrying on an offensive trade for twenty years in the same place, remote from buildings and public roads, does not entitle the owner to continue it in the same place after houses have been built and roads laid out in the neighborhood, to the occupants and travelers upon which it is a nuisance. In such cases, prescription, whatever the length of time, has no application. Every day's continuance is a new offense, and it is no justification that the party complaining came voluntarily within its reach. It was earnestly insisted in this case that the persons affected by the odors emitting from the establishment in question were in feeble condition of health by nature, or of abnormal physical characteristics; in other words, possessed of some idiosyncrasy which cast them beyond the protection of all laws of a general nature, or which are enacted for the public welfare. With regard to this, the judge, who delivers the opinion of the court, says that he thinks that the utmost use which can be made of this argument is in reference to persons that are peculiarly sensitive to odors or sounds, and

which affect them seriously, and in a radically different manner from which they do the great mass of individuals; it being quite difficult, if not impossible, for the law to provide adequate safeguards against all the imaginary ills which arise in the minds of eccentric or those of morbid habits or tastes. But this condition of mind or body must be established by clear proof. It can not possibly have reference to that large class, in every community, that are less robust, or are more feeble in body, or less capable of resisting deleterious influences from without, than many, or, it may be, a majority, of their neighbors. All citizens are presumed to enjoy a normal condition of mind and body, until the contrary is clearly shown.

Korean Native Medicine Atrociously Harsh.—Dr. R. S. Hall, of Séoul, has written to the *Chinese Recorder* some instances of the atrocities practiced in Korea by the native medicine man. Some of these cases have fallen directly under the writer's observation, and are not taken at "second-hand." The following is a part of Dr. Hall's statement:

"This year, for the first time, I saw one of them at his work, and I will try to tell you about it. I was called one day to the house of one of the higher class to see a child who had become very sick two or three days before, after being carried a long distance, strapped to the back of his nurse, as is their custom, his bare head and the nape of his neck exposed to the fierce heat of a July sun. I found him in convulsions, and after careful examination I told the father I feared there was little or no hope of his recovery. Both father and mother bowed before me and begged me to 'give life,' as they express it here. I told them only God could do that, but we would do all that we could, and I left them medicine and the necessary directions, with the promise to return in the morning. Now this child was the only son of these people, and their love for him was just as strong as that of fond American or English parents, and like them they wanted to leave nothing undone that could be done for their darling. They had sent for the Korean doctor before they called me, and when they saw the child surely growing worse they thought they would try the foreign doctor, but now as morning dawned and no improvement was visible they again sent for the Korean doctor, who arrived shortly after I did. It was evident that the child was moribund, and I so told the father. Then the father bade the Korean doctor to again try his skill. The first thing this doctor did was to make a little pyramid of a brownish-looking powder upon each breast of the child, and then to set it on fire; as it began to burn the tender skin I begged the father to have it removed and I said to the doctor, 'You know it can do no good,' but he only calmly smiled, as he obeyed the now almost frantic father to go on with his treatment. He then took out from its sheath a needle halfway between a darning-needle and a surgeon's probe in appearance, and this he proceeded to stick through each little foot, through the palms of the hands, the thumb joints, and through the lip into the jaw just beneath the nose. Again I tried to make him stop, but he said it was 'Korean custom.' I replied, 'It is a very bad custom,' and that though in this case it would result in no further harm, as the child was dying, yet it was exceedingly cruel, and in cases where recovery from the disease might occur inflammations of these punctured joints were sure to follow, and often supuration with death of the bones, so that amputation of the foot or hand is the only radical cure—that many such cases had come to me at the hospital. The child died not long afterwards."

Strawberries as Food and Medicine.—In *Medical Classics* we find a condensation of the wisdom of the ages, in regard to this luscious berry, the *avant courier* of all the summer fruits.

"Those persons are easily numbered who disagree with the opinion of Dr. William Butler of Suffolk, England, who stated long ago that 'doubtless God could have made a better berry than the strawberry, but doubtless God never did!' The saying is found in Walton's 'Angler,' quoted from Dr. 'Boteler' or Butler. It made the Doctor famous, and early in this century, the head of the author was painted upon the signboards of English inns.

"In the Privy Purse Expenses of Henry VII., under June 30, 1493, a woman receives *1s. 8d.* for bringing the King cherries and strawberries.

"In the time of Henry VIII. (1530) we read of the King buying a pottle of strawberries for *10d.* The pottle, in which

strawberries used to be sold, goes back to the fifteenth or even the fourteenth century.

"The great philosopher Bacon, in his 'Sylva Sylvarum' (1627), seems to prefer the white strawberry to the red, just as he does the white currant, white raspberry, and white grape. The white, or rather pink, strawberry is very common in Ireland.

"The strawberry and raspberry, the latter under the name of the hindberry, occur in the eleventh century vocabulary as an herb.

"The common word strawberry (*fragaria vesca*) is indigenous in almost all temperate climates. It grows in woods and thickets, and the fruit is small, but of a delicious flavor. The products which have been obtained by cultivation rank among the choicest and most tempting summer fruits, and afford an example of one of the greatest triumphs of the gardener's art.

"Jolly old Dr. Butler would now view with astonishment the large brilliant specimens that are produced. The wonder would not be less should he test the quality of the splendid fruit, and he might be led to exclaim: 'O delicious sweetness, where hast thou fled!' But we are not disposed to quarrel with the grower who has enlarged the proportions at the expense of the saccharin element. The whiteness of the sugar granules is a pleasing contrast to the color of the fruit, and the loss to the palate is a gain to the organs of vision, as well as the sugar trust. The flavor is diffused through a larger mass, and is not so pronounced as formerly, but, with cream, the berries are delectable enough to render their mastication a pleasure, however so many times the fruit is presented. While contour, color and aroma are unimpaired, the globose receptacles will be held in high estimation. These are not in their best estate except when fully ripened upon the vines and eaten soon after being gathered. Sugar scattered over them is destructive to form and brightness, if the added sweetness long precedes the serving.

"No method of eating strawberries can surpass that of eating them with cream.

"The Spaniards have another noble combination—moistening the strawberries with the juice of a sweet orange. There are gastronomers who go further and say that with the addition of orange-peel (by grating), the flavor with a lump of sugar is an immense improvement; and that it must have been in this fashion that the fruit was served in the banquets of Mount Ida.

"A century and a half ago the strawberry had quite a place in the *Materia Medica*. Even in more recent times it held some of its earlier prestige as a remedial agent. Abercrombie says:

"Physicians concur in placing strawberries in their small catalogue of pleasant remedies. They dissolve the tartarous incrustations of the teeth; they promote perspiration. Persons afflicted with the gout have found relief from using them; so have patients in cases of the stone; and Hoffman states that he has known consumptive people cured by them."

"The illustrious Cullen (1789), however, takes issue with the claim that they are curative in gout. He says:

"If the large annual sale of strawberries could preserve from the gout, we should seldom find the inhabitants of Edinburgh affected by that disease; but, though they use that supposed preservative very largely, we find them as often and as severely affected with the gout as the inhabitants of other places who do not use the same."

"In 'The Complete English Dispensatory' of 1729, we read that 'this plant is too well known to want description; the leaves are frequently used in gargarisms for sore mouths, quinies, and ulcers of the throat, and the fruit is moderately cooling and cleansing, chiefly by urine.'

"According to the 'Edinburgh Dispensatory' of 1769, 'The leaves are somewhat styptic and bitterish; and hence may be of service in debility and laxity of the viscera; and immoderate secretions, or a suppression of the natural evacuations, depending thereon. They are recommended in hemorrhages and fluxes; and likewise as aperients in suppression of urine, obstructions of the viscera, in the jaundice, etc. The fruit is in general very grateful both to the palate and stomach; like other fruits of the dulco-acid kind, they abate heat, general thirst, loosen the belly and promote the flow of water.'"

Hospital Notes.

REQUESTS TO HOSPITALS IN NEW YORK CITY.—Under the will of Mrs. Mary Stuart, the Presbyterian Hospital has received the sum of \$220,000. Other hospitals, dispensaries

and societies having a medical dependency receive a total sum of over one and one-half million dollars. The entire value of the estate is not far from five millions, of which four-fifths are devoted to charitable and educational objects.

HOSPITAL OF SISTERS OF MERCY, ST. LOUIS.—The Sisters of Mercy, of St. Louis, Mo., are to enlarge their hospital with a three story brick structure to cost \$15,000.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from August 11, 1894, to August 17, 1894.

Capt. WILLIAM J. WAKEMAN, Asst. Surgeon, is granted leave of absence for one month, to take effect upon the completion of his present duty at the Ft. Thomas Rifle Range, Ky.

Capt. EDGAR A. MEARNS, Asst. Surgeon, will be relieved from duty with the commission appointed for the location and marking of the boundary between Mexico and the United States, and ordered to Ft. Myer, Va., for duty, relieving Capt. JOHN L. PHILLIPS, Asst. Surgeon. Capt. PHILLIPS, on being thus relieved, is ordered to Ft. McKinney, Wyo., for duty at that post, relieving Capt. GEORGE E. BUSHNELL, Asst. Surgeon. Capt. BUSHNELL, on being thus relieved, ordered to David's Island, N. Y., for duty, relieving Capt. SAMUEL Q. ROBINSON, Asst. Surgeon. Capt. ROBINSON, on being thus relieved, ordered to Philadelphia, Pa., for duty as attending surgeon and examiner of recruits.

Major CURTIS E. PRICE, Surgeon, upon the expiration of his present leave of absence, is ordered to Ft. Supply, Oklahoma Ter., for duty at that station, relieving Capt. WILLIAM H. CORBUSIER, Asst. Surgeon. Capt. CORBUSIER, on being relieved by Major PRICE, is ordered to New York City, for duty as attending surgeon and examiner of recruits, relieving Capt. WILLIAM C. SHANNON, Asst. Surgeon. Capt. SHANNON, on being thus relieved, will report in person to Col. G. H. ALDEN, Asst. Surgeon-General, President of examining board, for examination for promotion.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending August 18, 1894.

Medical Inspector EDWARD KERSHNER, ordered as fleet surgeon, North Atlantic Station.

Surgeon L. G. HENEBERGER, ordered to Marine Rendezvous, New York. Surgeon N. H. DRAKE, from Marine Rendezvous, and to receiving ship "Franklin."

Surgeon B. S. MACKIE, from the "Franklin," and as fleet surgeon, European Station.

Asst. Surgeon C. T. KINDLEBERGER, ordered to Naval Laboratory and Department of Instruction.

Medical Inspector T. N. PENROSE, from Norfolk Hospital, and to special duty repairing and renovating New York Hospital.

Medical Director C. J. CLEBORNE, from Naval Hospital, Chelsea, and to Naval Hospital, Norfolk.

Medical Director A. A. HOCHLING, from special duty, Washington, D. C., and to Naval Hospital, Chelsea, Mass.

Medical Director B. H. KIDDER, ordered to report to chairman of Senate Committee investigating Ford Theater disaster.

LETTERS RECEIVED.

(A) Atkinson, Wm. B., Philadelphia, Pa.

(B) Bloodgood, Chas., Clinton, Iowa; Burnet, Anne, Wausau, Wis.; Barbour, L. P., Montague, Tenn.; Batten, Geo. M., Pittsburg, Pa.; Bacon, C. S., Wood's Hall, Mass.

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PAMPHLETS RECEIVED

Abdominal Surgery on the Battle-field. By N. Senn, M.D., Ph.D., LL.D., Chicago.

The Bristol (England) Medical Society. Annual Meeting, 1894.

Two Cases of Unclassified Infection. By W. F. Arnold, M.D., P. A. S., U. S. N., Sacramento.

Some Observations on Gonorrhoea in the Male. By W. F. Arnold, M.D., P. A. S., U. S. N., Sacramento.

Cremation as the only Sanitary Method of Disposing of the Dead. By W. F. McNutt, M.D., San Francisco.

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ADDRESS.

CHAIRMAN'S ADDRESS.

Read in the Section on Ophthalmology at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY ALBERT R. BAKER, M.D.

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One of the great faults of our medical societies is the occupation of the time in reading papers and participating in discussions which, for the most part, are the mere quoting of authorities and presenting of views that are not new.

The chairman is, however, a privileged individual in this respect, as he is either expected to present a *résumé* of the present status of our science, or make a few general platitudes that may serve to open the meeting of the Section, and if possible put us in good humor with ourselves and our profession. It would be fortunate if all of our old straw could be threshed out in this one address, so that the remainder of our time could be profitably spent in the presentation of original observations and participating in discussions that might prove of permanent value to each of us. And yet an occasional review of what has been done by our predecessors often proves of inestimable value, and nothing like an extensive acquaintance with the literature of the subject so effectually prevents the presentation of poorly prepared and incomplete observations as "new truths." I have had occasion to remark that it is much easier for me to prepare a paper on some other subject than those pertaining to the eye, and I suspect the reason is because I know less about what has been done in other directions. Because the thing is new to me I am tempted to present it as new to others.

A few years since when the treatment of granulated lids by "grattage" was proposed, I was reminded of the treatment recommended by St. Yves¹ for a similar condition nearly two hundred years ago. He says: "It is to be noticed that the *Spots*, the *Ulcers*, and certain *Abscesses* of the Cornea Transparent, attended with an Inflammation of the Conjunctiva are more speedily cured by Bleeding of the *Eye*, than by any other Means. Notwithstanding in some cases it is not proper as Practice evinces. This Bleeding of the *Eye* is performed in different Manners. Some take a Bundle of Beards of *Oat-blades* and make a kind of Brush with which they scrape the Conjunctiva and so scarify it: [Grattage]. Others pass a covered lancet between the Globe and the Eye-lid and scarify the Cornea [Sclerotic] with it. Others glide a *Crooked Needle* under the varicous Vessels which communicate with the *Spot*, *Ulcer* or *Abscess* and cut the Vessels which creep on the *Conjunctiva*. This last operation is the surest and least painful." Have we anything better to propose to-day?

Since Richard Banister, Master of Surgery, Oculist

and Practitioner of Physic, published his little book of twenty-three pages on the preservation of the "Eye-sight" three hundred years ago, in which our illustrious predecessor gave the *regime* he thought necessary to preserve the sight, together with the chief lotions, syrups and juices that should be applied to eye diseases, we have made wonderful progress; and yet we must confess there are many points needing elucidation, that will require the most patient study on the part of the anatomist, histologist, physiologist, pathologist and clinical observer.

Who will give us a clear and rational description of the course and termination of the intra-cerebral fibers of the optic nerve? Who will explain to us the cause of sympathetic ophthalmia? What are the relative functions of the rods and cones? Who will give us a good working theory of color perception? one that will explain color blindness. Why is it that after the canaliculus is slit and large probes passed that the tears continue to overflow? What operation for cataract extraction is the best? The last word has not been said on heterophoria and errors of refraction, as we shall doubtless learn before the close of this meeting. These and numerous other important problems require our most careful consideration. In order to solve these questions we can not be guided entirely by our own experience. Many of them can not be answered by one generation, and need not only the experience of ophthalmologists of the present, as well as the past, but that of the entire profession, including the labors of chemists, physiologists, physicists and men engaged in every department of scientific research. It will be a most unfortunate step backward if we, as ophthalmologists should permit ourselves to be segregated from the great body of the medical profession as the oculists have been in ages past, or as the dentists are now.

One of the most interesting chapters in Richard Banister's book² is devoted to the exposure of what he calls "proud quack-salving mountebanks, that would undertake all cures, and perform few." He says further: "In the methodical practice and cure of blind people, by couching of cataracts, our English oculists have always had an especial care, according to arts, to couch them within doores, out of the open aire, to prevent further danger. Yet some of these mountebanks take their patients into open markets, and there, for vain-glories sake, make them see, hurting the patient, only to make the people wonder at their rare skill. Some others make scaffolds, on purpose to execute their skill vpon, as the Frenchmen and the Irishmen did in the Strand, making a trumpet to be blown before they went about their work."

Much of the prejudice (and with justice) against oculists who treated diseases of the eye exclusively, has been handed down almost to our own day. Only a few years ago a most bitter fight was made against

¹ A New Treatise of Diseases of the Eyes by M. De St. Yves, translated from the original French by J. Stockton, M.D., London, 1741.

² A treatise of 113 Diseases of the Eyes and Eye-lids, by Richard Banister, Mr. in Chyrurgery, Oculist and Practitioner in Physicke, published for the second time in 1622.

Dr. Nettleship's appointment on the staff of the Royal London (Moorfields) Ophthalmic Hospital. The only objection of any weight urged against his appointment was that he is not a general surgeon.

An interesting parallel between the separation of the oculists from the general profession of old, and the present tendency in that direction might be drawn. The tendency at present is to make expert opticians but poor oculists. We must be something more than spectacle peddlers. We must keep in touch with the general profession. In order to do this, we must not only have an extensive knowledge of general medicine and surgery, but we must insist upon better education of medical students in eye diseases.

Because the ophthalmologist fails to relieve a headache by the use of spectacles, or a tenotomy, he has not exhausted all the resources of his art. And even though he refer the case to the general practitioner he should be able to make intelligent suggestions as to the future management of the case. It is possible to have reflex troubles originating in the eye not due to refractive errors, muscular insufficiencies and possibly not manifested by gross pathologic changes in the eye itself. On the other hand it is possible to have pain referred to the eye as the result of some constitutional disease, or it may be of some local disease in a distant portion of the body.

The tendency to supply every town and village with one or more oculists so-called, who limit their practice to the treatment of eye diseases is not for the best interests of the patient or the profession. The helplessness of the average medical practitioner in a small town when some young gosling comes to the village with his six weeks' post-graduate instructions, brand-new trial case and ophthalmoscope is pitiful indeed. The practitioner is made to feel keenly his ignorance of the subject. He knows intuitively that he is being imposed upon by a few big sounding names, but is entirely helpless in preventing this fledgling from giving myopic lenses to hypermetropes and snipping the ocular muscles of all the bright school girls in the village.

As an example of the ingenuity of these fellows I have in my possession a pair of bifocal lenses which analyzes as follows: Right eye +.25 C. axis 90 for distance, $\ominus +25$ C. $\ominus +.50$ S. for reading. Left eye +.25 S. $\ominus +.50$ C. axis 75 for distance, and +1. S. $\ominus +.50$ C. axis 75 for reading. These lenses were given to an Oberlin student aged 18, who has a simple hyperopic astigmatism of .75 D. axis 90 in each eye.

Every practitioner should possess an ophthalmoscope and a few trial lenses, and he should be able to fit spectacles much better than the jewelers and druggists who style themselves opticians, and I see no reason why he should make such ridiculous blunders as the above. That every practitioner who knows a little more about the care of eyes than his neighbor should pose as an ophthalmologist and limit his practice to eye diseases, is almost as preposterous as the claims of the jeweler optician. After an apprenticeship of ten, twenty or thirty years the ranks of the ophthalmologists should be recruited from these practitioners who have given the eye and its diseases special study.

There is a considerable amount of work which requires especial skill and experience on the part of the ophthalmologist in the diagnosis and treatment of eye diseases. It is not possible for a man to make a skilful cataract extraction who only has the op-

portunity to make the operation once or twice a year, nor is it possible to distinguish between a case of chronic glaucoma and atrophic cupping of the disk by one who sees such cases but once or twice in a lifetime. To make skilful operators and acute diagnosticians the specialist must have had a wide experience; and this can only be secured by a long apprenticeship, with exceptional opportunities for study and practical experience, in the performing of delicate manipulations and the making of difficult operations.

The specialist is the general practitioner's most valuable assistant. He supplies him with skilled hands to do that he can not do. He furnishes him with educated eyes to see that he can not see. He gives him trained ears to hear that he can not hear. And he should supply him with a well stored mind to tell him that he does not know.

When about to select an architect to build a house, if we found him ignorant and exhibiting poor judgment in matters pertaining to religion, science, literature, art and other subjects about which we knew something, we should distrust his judgment in architecture about which we know nothing. If this is true in a general way, how much more must the physician distrust the judgment of the specialist who is ignorant of general medicine and surgery.

The promptness with which the announcement of the reading of a paper on an ophthalmic subject will empty the seats in our local and State medical societies is discreditable alike to the practitioner and to the oculist; discreditable to the physician because he does not take greater interest in ophthalmic subjects as no other special study lends so much assistance in the diagnosis, prognosis and treatment of disease remotely situated. Discreditable to the ophthalmologist because he does not make his papers so interesting as to compel attention. In order to do this he must as far as possible discard technical terms. The necessity for this is largely due to the insufficient and perfunctory manner in which ophthalmology is usually taught in our medical colleges.

A gynecologist has a great advantage in teaching his specialty, because of the simplicity of the structures, and the previous studies of the medical student in anatomy, physiology, embryology and obstetrics have prepared him for an intelligent understanding of the teaching of the gynecologist. But when the average medical student enters upon his ophthalmologic studies it is a veritable *terra incognita*; he has little knowledge of the anatomy of the eye and its appendages and less of its physiology.

The nomenclature is all new, and because the subject seems difficult it is neglected. The lectures are cut, quizzes avoided, dispensaries not utilized and the practitioner is turned out with but little knowledge of the subject.

One of the principal reasons for this unsatisfactory conditions of affairs is that there is not enough time allotted to this subject in the medical curriculum. In some schools I am informed the study of ophthalmology is not compulsory. The teacher realizing the hopelessness of instilling any useful knowledge into the mind of the student in the few hours given him, is often content to call attention to the most frequent and grave ocular diseases, make a few operations and advise the student meeting such cases not to attempt their treatment but to send them to the nearest oculist.

It does not seem to me that we ought to be content to let this indifferent method of teaching this important subject continue. The use of the ophthalmoscope is not more difficult to learn than that of the stethoscope, and of much more value to the practitioner of medicine. The teachers of ophthalmic medicine and surgery ought to decide upon some definite minimum length of time in which the average senior medical student can master a good working knowledge of this subject, and then insist upon being granted this amount of time in the medical curriculum. This would require at least 100 hours; 50 of which should be devoted to didactic lectures, clinics and recitations, and 50 to practical work in the dispensary.

My experience as a teacher of ophthalmology has been that those students who leave college with some definite knowledge of eye diseases, not only treat more intelligently the cases coming under their care, but are the first to refer suitable cases to the specialist—so that the better education of the general practitioner in eye diseases does not curtail the number of cases referred to the oculist for treatment but increases the number of his consultations.

122 Euclid Avenue.

ORIGINAL ARTICLES

THE PHYSIOLOGY OF CERTAIN OCULOMOTOR PHENOMENA WITH RESPECT TO SOME RECENT THEORIES OF ASTHENOPIA.

Read in the Section on Ophthalmology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY F. B. EATON, M.D.

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That physiology is the basis of scientific medicine is generally recognized. Medical students are taught that physiologic processes and the known laws governing them, form the foundation of our knowledge of the pathologic conditions with which we have to deal,—a criterion of the value of clinical observation; the base-line from which we are to estimate every real or apparent deviation from the normal functions of the human body. More especially is this true as regards ophthalmology, in many respects the most scientific department of medicine. Nevertheless, there have appeared in our ophthalmic literature, during the past five years, a number of theories which, when critically analyzed have little or no substantial scientific foundation.

While it is true that our knowledge of ocular physiology is incomplete, yet those physicians whose educational training has disciplined their minds to act logically; to habitually analyze the evidence presented; to refer phenomena if possible to known laws, have naturally assumed a conservative attitude toward the attractive theories and sanguine assumptions of certain authors, and it is in the ophthalmological sections of our societies and congresses that a minority of the members, possessing the courage of their convictions, have opposed them. The articles of these authors indicate that though they conduct their examinations with a degree of method as regards the use of ordinary tests and apparatus, they do not employ an equal degree of scientific

method in marshalling their facts or make correct inferences from the knowledge so acquired—in fact, they do not reason scientifically. To do so as regards the phenomena of binocular vision requires, as we know, a considerable knowledge of physics and mathematics, as well as the ability to apply it; above all it requires an intimate knowledge of ocular physiology. Instead of referring their observed facts to some known natural law, or seeking an unknown law on which to ground them, some of our authors hasten to propound an hypothesis to which an inadequate number of observed facts are made to conform, thus pursuing a *deductive* rather than an *inductive* method of reasoning.

Nevertheless, while without theoretical proof and practically more or less mischievous, some of these novel and attractive hypotheses and the therapeutics based upon them have attained, to judge from some current ophthalmic literature a wide popularity, and govern the practical work of many of our colleagues. They who have the best interests of American ophthalmology at heart should not therefore take refuge in indifferent silence.

There is, as we know, a considerable difference of opinion among ophthalmologists of to-day concerning the significance of the phenomena attendant upon the function of binocular vision, which comprehends the two associated functions of the focal and axial adjustment of the eye. Especially is there a difference of opinion as to the relative influence to be attributed to each of these functions as a cause of asthenopia.

During the past five years particular attention has been directed to the oculo-motor apparatus, largely owing to the refinement of the clinical apparatus employed for the detection of errors of muscular equilibrium, and to their classification under the various forms of heterophoria.

In the discussion of papers bearing on this subject, it appears to me that those participating have too little common ground on which to meet. As an illustration of this, I may mention the remark of Dr. Stevens in a recent paper, that the half written cases with bare statements of the results of certain tests "leave in the mind of the critical reader the impression that the writer has not himself ascertained the remaining facts necessary to a just conclusion." How rarely, for instance, do we find in the report of an asthenopic case any record of the ranges of accommodation and convergence, or more important still, a record of the relative ranges of these two functions, physiologically so closely connected with normal adjustment of the eyes.

While it is not my purpose to attempt an elaborate discussion of theories, I shall endeavor to analyze certain hypotheses concerning the origin of asthenopia, so as to demonstrate wherein they are or are not tenable as correct or incorrect doctrines, according to the established principles of physiology and the facts of clinical experience.

Let us consider first the theory of "insufficiency of the oblique muscles," the discovery of which its author states he announced in 1891 as an explanation of certain cases of eye-strain. Briefly stated, the phenomenon¹ is as follows: A horizontal line being regarded at eighteen inches and seen double by one eye before which a Maddox prism is held, a third line is seen between the two parallel ones and according to the author, "with which it should be perfectly parallel." In "insufficiency," the right end of the middle line pointing toward the bottom and the left end

toward the top line, or *vice versa* depending on the nature of the individual case. As is well known, upon this phenomenon, dignified by the term cyclophoria, the theory has been erected which is held to be explanatory of a form of asthenopia, and this is supposed to be corroborated by the relief claimed to result from the gymnastic exercise of the oblique muscles by cylindrical lenses. That this phenomenon is a physiologic one and that the eyes normally rotate outward on the axis of fixation in convergence, any one can easily verify by a few simple experiments, with or without prisms. One of the simplest is a modification by Le Conte of Meissner's original experiment for the determination of the horopter: "Hold a stretched black thread parallel with the surface of the glass of an open window, and within half an inch of it. Now, with the eyes in the primary position look, not at the thread, but at some spot on the glass. It will be seen that the double images of the thread are not parallel, but make a small angle with each other, thus— \sphericalangle ." I have found a simpler experiment can be made by taking a piece of black thread about eight inches long, tying a knot midway between the ends, moistening it and then sticking it in a horizontal position on a pane of glass at the level of the eyes. Then converging the eyes upon the knot and approaching it gradually, at a distance of from four to six inches the thread will appear double toward the ends, the knot and the thread for about one-quarter of an inch on each side of it appearing



Fig. 1.

single and the divergence of the ends increasing with the convergence. The divergence is increased by inclining the head so as to converge upwards, since in the great majority of cases the inclination of the images is that resulting from an outward rotation of the eyes on the line of fixation; this rotation is decreased by looking downward, and as Le Conte and Meissner have shown, the vertical meridians of the eyes are parallel and vertical when the plane of vision is depressed 45 degrees, so that the inclination of the middle line as seen by a Maddox double prism disappears at that inclination. In some cases the rotation is in the contrary direction and all the conditions reversed.

That this phenomenon in no way disturbs binocular vision, is owing to the habitual neglect or toleration of the necessarily incoincident positions of images outside the immediate area of fixation. Meissner, who arrived at his results indirectly while investigating the question of the horopter, attributed the phenomenon to an outward rotation of the eyes on the visual axis. By far the most refined method of proving and measuring this rotation in convergence is that described by Prof. Le Conte (*loc. cit.*, p. 180): "Prepare a plane two feet long and one foot wide. Dividing this by a middle line into two equal squares, let one of the halves be painted black and the other white. Let the whole be covered with rectangular coördinates, vertical and horizontal; on the black half the lines being white and on the white half black. Near the middle of the two square halves, and at the crossing of a vertical and horizontal line, make two small circles, *c c'*. Set up this plane on the table in a perfectly vertical position, and at a

distance of two or three feet. Rest the chin on the table immediately in front of the plane, with a book or other support under the chin, so that the root of the nose shall be exactly the same height as the circles, which in this case is about six inches. Now shutting alternately one eye and the other, bring the image of the lowest part of the root of the nose coincident with the horizontal line running through the circles. The primary plane is now perfectly horizontal, and therefore at right angles to the experimental plane. Now, finally, converge the eyes until the right eye looks directly at the left circle, and the left eye at the right circle, and of course the two circles combine. If one is practiced in such experiments and observes closely, he will see that the vertical lines of the two squares (which can be readily distinguished, because those of one are white and of the other black), as they approach and pass over one another successively, are not perfectly parallel, but make a small angle, thus— \sphericalangle ; and also that the angle increases as the convergence is pushed farther and farther, so that lines even beyond the circles are brought successively together. Similarly also the

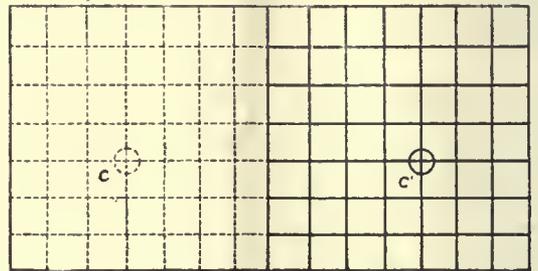


Fig. 2.—In this drawing the left half is drawn with red lines on a white background, because of the difficulty of drawing white on black background, as it should be.

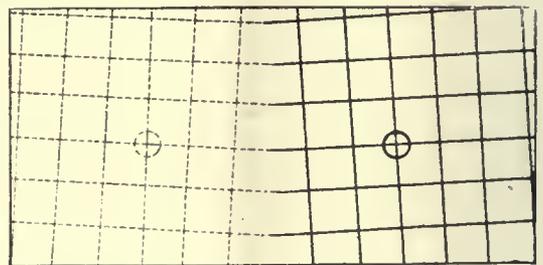


Fig. 3.—Left half should be white lines on black background.

horizontals cut each other at a small angle, but this is not so easy to observe as in the case of the verticals.

"*Experiment 3.*—A far more accurate mode of measuring the amount of rotation is by constructing diagrams on a plane similar to the one used in Experiment 1, but in which the verticals and horizontals are both inclined on the true verticals and true horizontals in a direction contrary to the rotation of the eyes, *i. e.*, inward—and then determining the degree of convergence necessary to make them come together perfectly parallel. I find that for my eyes, when the verticals are thus inclined in each square one and one-fourth degrees with the true vertical, and therefore make an angle of two and one-half degrees with each other, they come together parallel when the point of sight is seven inches from the root of the nose. When the angle of inclination in each is two and one-half degrees with the true vertical, and therefore 5 degrees with each other, the point of sight must be four inches off. When the inclination with

the true vertical is 5 degrees, and therefore 10 degrees with each other, the point of sight is two and one-fifth inches. Finally, when the inclination with the true vertical is 10 degrees, or 20 degrees with each other, then they can be brought together parallel only by the extremest convergence, the point of sight being then only a quarter of an inch in front of the root of the nose. In the diagram, Fig. 3, the lines, both vertical and horizontal, are inclined inward one and one-fourth degrees, and therefore the verticals of the two squares make an angle with each other of two and one-half degrees. It is therefore a reduced *fac simile* of the plane used. The coördinate lines coincide when the point of sight is seven inches from the root of the nose."

The evidence of Hering regarding the physiologic rotation in question is also unmistakable: "In general," he says,³ "the vertical meridians of the globe undergo, in symmetrical positions of convergence of the visual lines, a rotation in the course of the inferior oblique, so that their upper ends diverge more

careful and repeated experiments, that this outward rotation begins in some perfectly healthy eyes, free from all asthenopia, at a distance of twenty inches, when slight vertical diplopia is produced by a prism, and that an elevation of the visual plane of 20 degrees will render it appreciable when the line observed is twenty-two inches distant. The action of the oblique muscles is invoked in support of still another theory of this author, namely, that of

"The Harmonious Symmetrical Action of the Oblique Muscles in all Cases of Oblique Astigmatism." Briefly stated, this theory is based upon the assumption that the cylindrical deflection of the retinal image produced by corneal astigmatism necessarily produces a disturbing diplopia, unless this is neutralized by a compensatory rotation by the oblique muscles.

In an article published on "Binocular Metamorphosis," five years ago,⁵ Dr. J. A. Lippincott, of Pittsburg, gave a clear analysis illustrative of the action of cylindrical lens with axes oblique in deflecting the retinal image, which applies to corneal astigmatism,

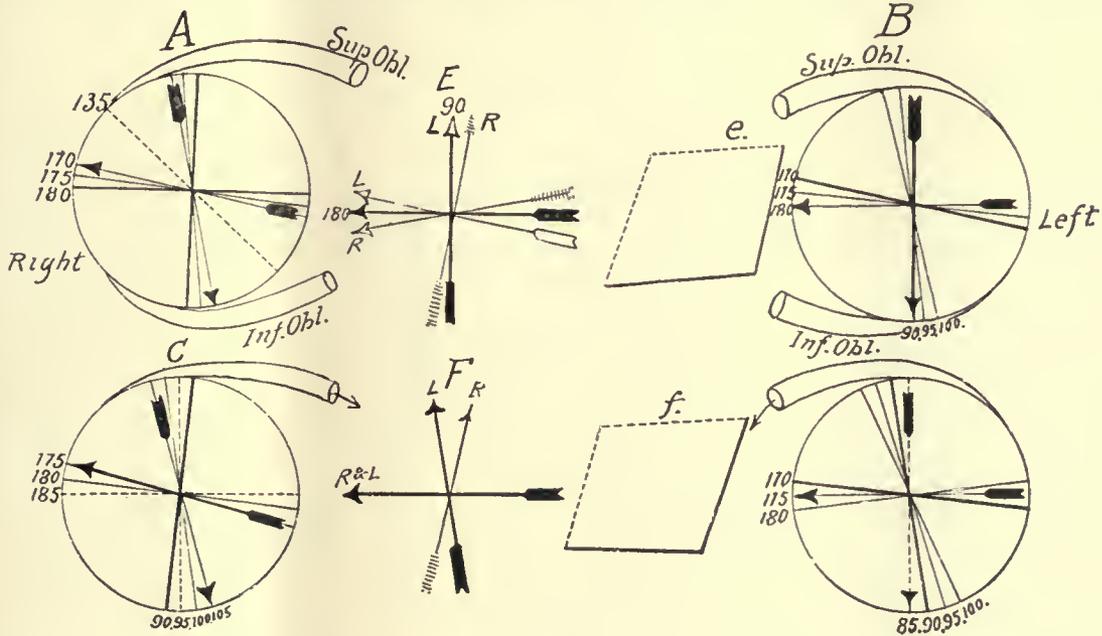


Fig. 4.

when the visual plane is elevated and converge less when it is lowered than is the case with parallel visual lines and similar positions of the visual plane."

Finally, Landois⁴ states under the head of "tertiary position," which he defines as "the position brought about by the movements of the eye, in which the lines of vision are convergent, and are at the same time inclined upwards or downwards; . . . the eye-ball is always rotated at the same time round to the line of vision and round its axis."

It will be noticed that Le Conte alone demonstrates a convergence rotation in the horizontal position of the primary visual plane.

Thus by the independent investigations of three careful and scientific observers, the outward rotation of the eyes in convergence has been for twenty years established as purely physiologic, yet as evoked by prisms it has not only been employed by Dr. Savage as the proof of a pathologic condition, but upon it he has actually based a therapeutic method, the value of which he has failed to substantiate by any adequate clinical evidence. I have satisfied myself by

in all cases of which the corneal surface is represented by a convex cylinder with its axis at the meridian of lowest refraction. Since each half of such a lens may be regarded as a prism with its base at the axis, the deflection of incident rays and the position of the resultant retinal image may be readily determined, as Dr. Lippincott has shown. Moreover the amount of deflection rapidly decreases in proportion as the lens is approached to the eye. Thus I have found that a -2.00 cylinder held before one eye at a distance of thirteen inches, deflects the horizontal line of an astigmatic test chart 6 degrees by measurement, while held close to the eye the deflection is but three-fourths of a degree. The deflection produced by the same amount of cylindrical effect at the corneal surface must be still less.

The drawings in Dr. Savage's article, (*Ophthalmic Record*, Vol. i, p. 1) illustrating the compensatory action of the oblique muscles, give with his description a plausible weight to his theory, but when closely analyzed it will be found that the supposed rotation, which would bring the retinal images of a

horizontal arrow upon corresponding portions of the retina, will at the same time not only fail to accomplish the same as regards a vertical arrow, but the images of the latter will be made to harmonize still less than before the rotation. In other words if a square card or astigmatic fan be viewed through a convex cylinder of 3 D. held about six inches from the right eye with its axis at 45 degrees, the other eye being closed, the right side or vertical line will be inclined 9 degrees to the right, and the lower side or horizontal line 9 degrees down to the left. (See Fig. 4, E and e). Now if the card or fan be rotated outward (which has the same effect as an inward rotation of the eye and lens) the horizontal line (side) will rotate to the right more rapidly than the vertical and will be horizontal; that is, its retinal image will be fused with the image of the same line as viewed by the left eye (Fig. 4, C and D). But the same rotation inclines the vertical line (side) still more from the true vertical, and its retinal image will be less parallel than before to that of the left eye. (Fig. 4, C and D). If each eye views a separate fan and each fan be rotated outward 5 degrees, the horizontal retinal images will coincide, while the vertical ones will be separated more at their tops by 10 degrees than before the rotation (see Fig. 4, F and f). Hence each rotation would defeat the very object for which it is invoked. But even if optical laws would permit of the correction claimed, it would not be necessary, for, as I have shown above, the maximum obliquity of the axis of the corneal cylindrical surface (45 degrees) produces a very slight deflection, and incoincident images lying outside the immediate area of fixation are habitually neglected. Indeed, upon the latter fact is dependent stereoscopic vision, since our conception of solidity results from the relief given to that portion of an object or scene binocularly fused in one plane, all other objects in front or behind that plane falling on non-corresponding points of the retina and producing double images which are neglected. This is very lucidly illustrated by Prof. Le Conte.⁵

As he states: "If we view in a stereoscope the fused image of the projection of a skeleton truncated cone as seen from two positions (Fig. 5, A and B) and are able to analyze our visual impressions, when the summit is fixed (Fig. 5, C) the base or larger circle is double, and *vice versa*, (Fig. 5, D) and still further that the lines a a' and b b' form a V or an inverted V or an X, according to the distance of the point of sight, which, by more or less convergence, is run back and forth, uniting different parts, and thus we acquire a distinct perception of depth of space."

In an article published two years ago by Dr. Harry Friedenwald on "Binocular Metamorphosis,"⁷ he demonstrated that if two parallelograms similar in shape to those seen by a pair of eyes with a +2D cylinder, axes symmetrically oblique (45 degrees temp.) when regarding a square card are placed in a stereoscope, "they are fused so as to give the impression of a trapezoid, narrow at the top, and which is apparently leaning forward so that the top seems to be much nearer than the base. . . . The appearance of depth points conclusively to the fusion of dissimilar images." That is, to such a fusion as illustrated by Prof. Le Conte's truncated skeleton cone. Dr. Friedenwald remarks that the above cited theories of Dr. Savage are "false in theory and dangerous in practice," and Dr. Lippincott states⁸ that for the production of binocular metamorphosis "the existence of

an astigmatic defect is not a *sine qua non*, although the phenomena are especially noticeable in cases of astigmatism of one or both eyes, in which the chief meridians are oblique." In such cases, he states further, "there ought to be an apparent inclination of one or both sides, as the case may be, of a square (so) that objects, therefore, and their retinal images do not correspond in form. Experience, however, derived especially through the sense of touch enables the mind to correct the erroneous information furnished by the sense of sight. *In other words, inaccurate retinal images are translated into more or less accurate mental impressions.*"—(Italics my own.)

As regards these theories then I conclude:

1. The phenomena included under the term, "cyclophoria," are physiological, being the result of the normal rotation of the eyes in convergence.
2. The phenomena in no way disturb binocular vision, owing to the habitual neglect or toleration of the incoincident positions of images outside the immediate area of fixation.

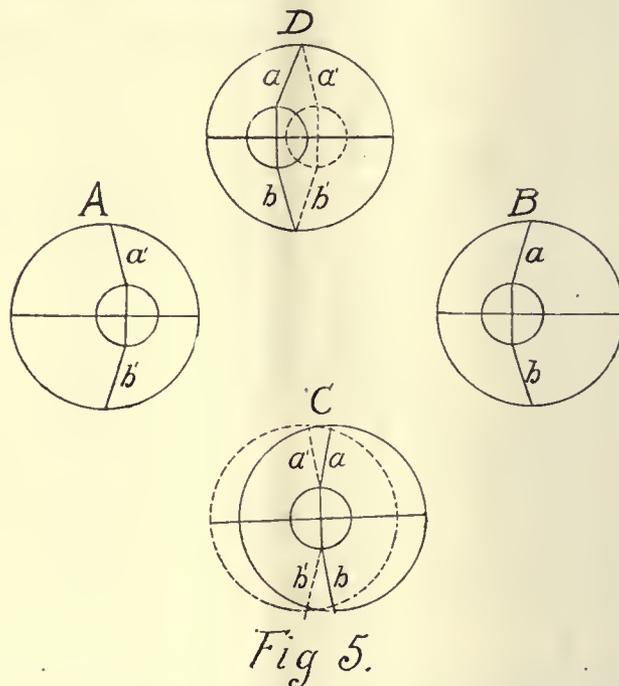


Fig 5.

3. A compensatory rotation of the eyes in cases of oblique astigmatism does not take place; if it did, it would defeat the very object for which it is invoked by the author of the theory.

4. If optical laws would permit of the alleged correction, it would not be necessary or expedient, since it would render stereoscopic vision impossible.

Another theory to which I desire to call attention, is that termed by its author, Dr. Geo. M. Gould, "Innervational Abnormalism the Cause of Heterophoria,"⁹ and which he has more particularly elaborated in regard to the etiology and treatment of exophoria, stating: "I now wish to go so far as to state that my experience shows that every case of exophoria (and possibly of divergent strabismus) is certainly and quickly curable by a rational and common method of ocular gymnastics—of a certain kind, however, mark well, and absolutely without operation." He states further:¹⁰ "It appears to me beyond question that in the vast majority of cases of exophoria, if not in all, the seat of the abnormality is purely, at

least primarily, and always principally, central and innervational. It is not at all a question of tendon insertions or of muscular strength." If therefore the seat of the difficulty lies in the innervational centers and coördinates, the treatment by tenotomy, or by gymnastic exercises (with weak prisms) seems to fall to the ground. We must instead seek to normalize innervation leaving the muscles and tendons entirely out of the count. In accordance with this, I have sought to break up the bad habit of exophoric innervation and reestablish normality in an erroneous nervous coördination, to heighten convergence stimulus, and to carry this increased stimulus, as well as the naturally heightened stimulus of convergence at near range, into distant and all-around seeing." The method he suggests is that of "weighting," or handicapping convergence by adducting prisms at the near point, "then slowly carrying the object gazed at fixedly and continuously from the near to the distant point. This is repeated until the eyes with 20 degree prisms (total) can hold objects all about the room easily. "This repetition is to continue several times daily until this adduction power is habitual, and until no diplopia is produced on first adjusting the prism fronts and looking at distant objects immediately. When this condition has been reached, the strength of the handicap prisms is to be increased say, to 25 or 30 degrees and the method resumed as before. Before an adduction of 30 degrees (total) has been reached, the symptoms of asthenopia will long have vanished, but the manifest or latent exophoria will still usually, and to some degree, be present. The treatment from 30 to 40 degree prisms should be continued until all manifest and latent exophoria has disappeared, and 2 degrees of esophoria has become manifest."

"Deficient adducting power," he emphasizes, "is the source of trouble and the thing to cure."¹¹

These views may be considered from two stand-points, viz :

1. In regard to the teachings of physiology.

2. In regard to the practical experiences of the ophthalmic surgeon.

1. The contention of Dr. Gould that the doubling or trebling by his method of the prism-adductive power at twenty feet, has nothing to do with "muscular strength or tendon insertions," is not in accordance with physiologic facts for :

a. The ocular muscles being striated muscular tissue are therefore subject to the laws of nutrition, metabolism, and the transformation of chemical into kinetic energy, in virtue of which, when made to vigorously contract, unlike other machines they are increased in strength and rendered capable of accomplishing more work.—(Du Bois-Reymond)

b. The mutual relations existing between the motor nerve-cells and the muscles, are not, however, inflexible. Physiologists tell us that "stimuli act as liberating or discharging forces."¹² "These discharging forces may themselves be very feeble, but they are capable of causing the transformation of a large amount of energy."¹³

Foster remarks that it "might be imagined that a muscle which, when loaded with a given weight and stimulated by a current of a given intensity, had contracted to a certain extent, would only contract to half that extent when loaded with twice the weight and stimulated with the same stimulus. Such, however, is not necessarily the case; the height to which

the weight is raised may be in the second instance as great or even greater than the first. That is to say, the resistance offered to the contraction actually augments the contraction; the tension of the muscular fiber increases the facility with which the explosive changes resulting in a contraction take place. And we have other evidence that anything which tends to stretch the muscular fibers; that any tension of the muscular fibers, whether during rest or during contraction, increase the metabolism of the muscle."¹⁴ That this property of healthy muscle tissue must modify the conditions and results of its innervation and coördinations, can not be doubted.

c. A strong muscle (well nourished and exercised) responds more powerfully to a given stimulus (*i. e.*, sets free more energy) than a fatigued or unexercised one, and it requires a relatively feebler stimulus to accomplish a given amount of work with the former than with the latter.

d. "Of two muscles having the same cross section, the larger can do more work; whereas if two muscles are of equal length, that which contains the greatest number of parallel fibers will do more work than the other."¹⁵

e. Congenital variations, such as assymetry of the cranium, orbit and face (Stevens, Landolt¹⁶); exaggerated distance between the centers of rotation of the eyes (Mannhardt, DeRosset¹⁶); exaggerated divergence of the orbits (Emmert,¹⁶ predispose the eyes to divergent strabismus, and much more to exophoria. "Abnormal conformation of the orbits," says Landolt, "giving rise to anomalies of origin or direction of the ocular muscles, may also cause a discordance in the direction of the eyes. Likewise defects of bulbar insertion and of the length and elasticity of these muscles upon which the most authoritative writers have strongly insisted. (Schweigger, von Hasner, Graefe and others.)"¹⁶

2. Let us now consider the innervational theory of the origin of heterophoria, and especially of simple exophoria in the light of practical clinical ophthalmology.

a. The author maintains that "deficient adducting power is the source of trouble and the thing to cure," in exophoria, and which he considers wholly central and innervational.

b. I note first that the author's device of carrying the "weighted-convergence-stimulus" from the near to the far point is of value in rapidly developing the positive portion of the patient's *relative* range of convergence for distance, and as such it is, up to a certain limit purely innervational, since with a very high maximum of convergence (power of adduction) many individuals can not, without practice, coördinate even a medium convergence while relaxing their accommodation for distance. When the distant object is brought near to a patient wearing adduction prisms beyond his immediate power of fusion at twenty feet, the displacement of the images rapidly decreases; they are seen to approach each other and are easily fused. As the object is withdrawn the prismatic effect increases in proportion. Precisely the same adduction can be accomplished at twenty feet by a revolving or variable rotary prism, but not as quickly.

c. When the patient has acquired a power of adduction at twenty feet of 20 degrees (total, = three meter-angles) which is the emmetrope's average maximum relative convergence for distance.¹⁷ the author's meth-

od becomes one of ordinary muscular gymnastics notwithstanding his emphatic contention that "with muscular gymnastics" as such, my plan has nothing in common except the mere use of the prism—very strong prisms, however, instead of weak ones." The writer has made use of prisms up to 50 degrees (total) for convergence insufficiency for the past five years. It is to be noted that the author has found that with an adductive power of 30 degrees (total) the manifest or latent exophoria is still present, but as the result of the gradual development of the interni by daily exercise with strong prisms, an adduction power of 30 to 40 degrees is attained "until all manifest and latent exophoria has disappeared and 2 degrees of esophoria becomes manifest." The pseudo-esophoria thus induced can fairly be attributed in young individuals to the habit formed of relative over-convergence and probably of over-accommodation, due to continued stimulation of both convergence and accommodation for distance.

d. The author argues that since "muscular tissue, as such, can not be made to double or treble its volume or its strength in a few hours or days, or even in a few weeks," while he can double the extreme adduction (twenty feet) of exophoric eyes in a minute or two by his device, that therefore such increase of adduction power is not muscular, but central and innervational. This is equivalent to stating that since a man who can lift 200 pounds and can not lift 400 or 600 pounds by main strength, but can balance a stick two yards long on his finger and in a minute or two can so balance one four yards or six yards long; that therefore the balancing is a matter of skill, that is, of innervational coördination, and not of muscular strength. For, a patient who at twenty feet has a maximum prism adduction of 10 degrees (5 degrees base on each eye) converges each visual line but 2.7 degrees which is the deviating angle of a prism of 5 degrees; the visual lines meeting at a distance of about twenty-six inches from the eyes. If by the author's device the adduction power for twenty feet is doubled so that 20 degrees (10 degrees prism on each eye) is overcome, the visual lines would intersect at the usual reading distance of thirteen inches or three meter-angles, representing still a very small quota of the average normal range of convergence, and requiring no unusual effort, nervous or muscular. The convergence is relatively great for distance, but small as measured by convergence after normal habit; in short, it is a feat of relative convergence. That such a degree of relative convergence may co-exist with deficient adductive power is often experienced. Thus, one of my patients who had abduction of 11 degrees and by rod orthophoria, but a maximum convergence of only seven meter-angles, obtained by Dr. Gould's method, esophoria 1 degree, abduction 7 degrees, but the maximum convergence remained at seven meter-angles. In this connection, the opinion of Schiötz is decidedly against the author's theory: "With insufficiency," he states, (*Arch. Ophth.* vol. xix, pp.178-179), "we find no limitation of the movements of the eyes in lateral rotation, while a considerable defect of convergence may exist. If the lateral movements of the eyes demanded as much muscular energy as is demanded in the movements of convergence, we should be obliged to conclude that the defective convergence could not depend upon a weakness of the muscles, which perform the whole work in the associated movements;

the insufficiency must, in this case, originate from anomalous innervation. Nevertheless, we are scarcely justified in identifying the muscular work produced by two different motions. We have found for normal eyes that the fusion near point lies about six centimeters from the rotation point of the eyes. The angle of convergence between the visual lines will then be about 60 degrees, therefore the rotation of each eye will amount to about 30 degrees. According to Alfred Graefe, the eyes in associated lateral motions can accomplish a version of from 42 to 45 degrees.

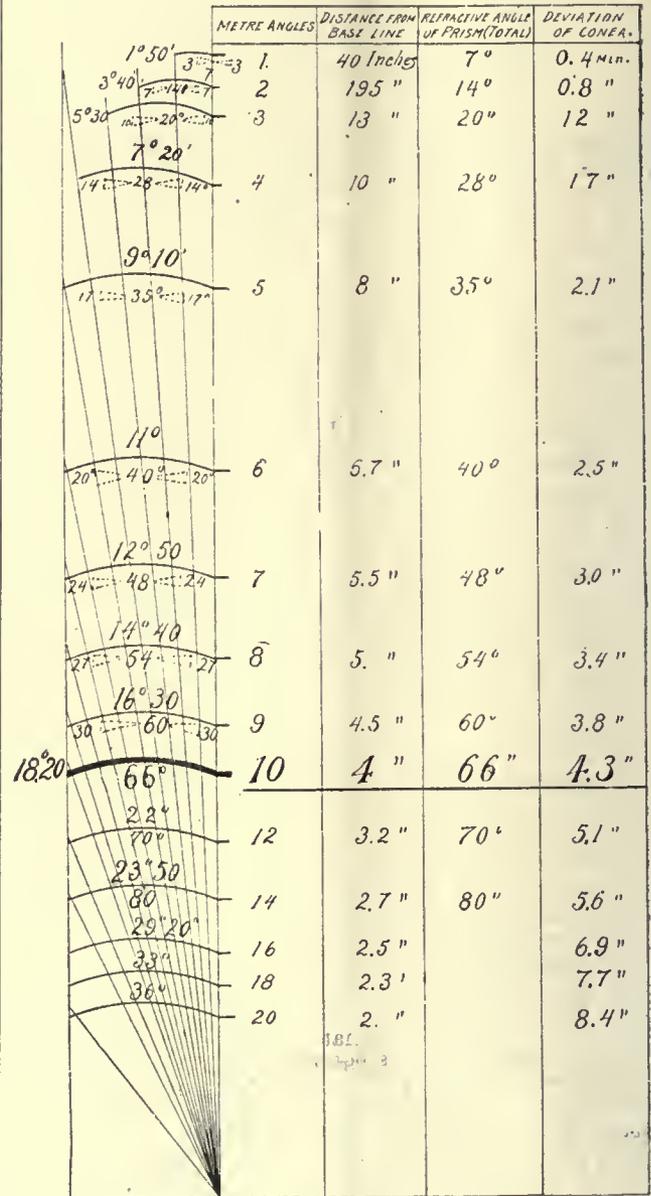


Fig. 6.

We find therefore, that the interni when normal and working in the service of convergence, accomplish only about two-thirds of the motion which they are able to give to the eyes when they act associatedly with the externi, and yet (if we grant to the sensations which we perceive in carrying out this experiment, any importance at all), we feel distinctly that the interni are stretched and exerted differently when we converge, than when we use them in associated lateral movements." I am sure that this greater

demand upon the interni in convergence is due to *contraction* of the externi, which are kept variably tense in convergence so that lateral movements may be made during convergence; indeed the eyes are rarely equally converged.

e. We may reasonably assume the average physiologic convergence (adduction) point should be as near as ten centimeters=(ten meter-angles = four inches) or a prism adduction power of 60 to 70 degrees (total) since Schiötz has found that what he terms the "fusion near point" should be no farther, this distance coinciding closely with what Landolt terms the average maximum of convergence; viz.:¹⁸ Nine and five-tenths meter-angles, and also with the point at which, according to Alfred Graefe, adduction and abduction are each 19 degrees 15 minutes and thus potentially equal.¹⁹ (See Fig. 6.) Now it is of practical importance to know whether a patient has or not this amount of positive convergence at his disposal for if he has not, at thirteen inches he will have no reserve convergence. It can not be determined, either conveniently or promptly by prisms, since as stated above, the habitual relations of convergence and accommodation are thereby disassociated, and even the author's device will not, I have found, enable it to be determined. Thus in testing a patient recently I found adduction at twenty feet was 16 degrees (total)=twenty-two meter-angles. By the author's device this was quickly increased to 26 degrees (total)=three and seven-tenths meter-angles. The direct maximum convergence upon a pin-hole in a card was ten meter-angles, nearly three times his prism convergence in meter-angles. My own prism adduction at twenty feet is 96 degrees (total)=thirteen and seven-tenths meter-angles; with concave lenses to correct the over-accommodation and properly centered (—thirteen D centers fifty millimeters,) it is 114 degrees (total)=sixteen and two-tenths meter-angles; while by direct convergence (pin-hole) it is twenty-two and two-tenths meter-angles, equal to a prism convergence of 155 degrees (total). In another experiment I fused images of a candle flame continuously with adduction prisms of 72 degrees (total) at twenty feet. At thirty inches I could hold the images momentarily with 84 degrees (total), nearer I could not fuse them. An assistant now slowly withdrew the candle and at fifteen feet fusion was easy, up to twenty feet. On approaching the candle it at first remained single, but between fifteen feet and thirty inches the effort increased until at the latter point diplopia again occurred and the images were infusible. Hence it is clear that the device is of no assistance when very strong prisms are used, since the fusion is accomplished mainly by voluntary muscular strength. Dr. Gould appears to underrate the responsive contractile power resident in the interni themselves, as well as the voluntary power of strongly contracting the interni possessed by persons whose general muscular system is vigorous. I can, for instance, strongly converge my eyes in total darkness, for when I make the effort and the room is quickly lighted, an observer finds them in that condition.

f. But Dr. Gould's reported cases²⁰ also show that while the innervational features of convergence (which he does not increase but only renders available) can be quickly brought into play, the muscular feature is more slowly developed, as he remarks: "Before an adduction power of 30 degrees has been reached the symptoms of asthenopia will long have

vanished, but the manifest or the latent exophoria will still usually, and to some degree be present." To me it seems that no decided muscular exercise begins until prisms 40 degrees (total) are used, necessitating a convergence of six meter-angles (= a point six inches distant) and 60 degrees or more may be necessary. In simple exophoria until such contraction of enfeebled interni is brought about, they are exercised little more than in reading, and until their static power reaches a certain limit through functional activity and consequent increased metabolism, any equilibrium test will show manifest or latent exophoria. The "rhythmic exercise" method of Dr. Savage appears to me the more physiologic treatment.

g. But while the development of the adductive power for distance has a certain value long ago conceded in the treatment of convergence insufficiency, that is of simple exophoria, a large percentage of cases showing a tendency to divergence are not exophorias in reality; says Dr. Stevens:²¹ "Indeed, if we select indiscriminately a considerable number of cases of even simple exophoria, and an equal number of cases of even moderate hyperphoria, we shall find that the average converging power in the cases of exophoria, is considerably greater than in the other. . . . The ability to converge is often much more considerable in cases where there is actual divergence of the optic axes than in some cases in which there is positive convergence." Dr. Hiram Woods in a late paper on heterophoria remarks:²² "I am skeptical about the adduction. In the first place, as has been pointed out by others, it is a *distance* test only so far as convergence can act independently of accommodation; *i.e.*, to the extent of the positive portion of the relative range of convergence for infinity. Dr. Randall says:²³ "Adduction can be made almost anything, if the patient and examiner have patience. It is striking how rapidly adduction increases as soon as the patient learns how to fuse images of unequal clearness. I have seen adduction of 48 degrees, while the balance test showed exophoria of 10 degrees." Practically, the experiences of the consulting room teach us that even after correction of all refraction errors, attention to the general health, to peripheral reflexes, etc., some anomalies, perhaps innervational, certainly at times abnormal tensions of the muscles of congenital origin, necessitate careful tenotomies or advancements, the results of which can only be successful when the operator's accuracy of diagnosis and technical surgical skill is approximately commensurate with the difficulties in the way of adjusting the mutual balances of twelve muscles. My own tenotomies and advancements have not disappointed me, and I have too often restored lateral equilibrium where actual exotropia existed, to doubt the efficacy of *complete* tenotomy of the superior or inferior rectus in suitable cases. Ocular gymnastics especially with the stereoscope will do much to readjust inharmonious coördinations, but the fact remains coming from no uncertain authority, that: "We may give the muscles the gymnastic exercise which may be accomplished by the overcoming of prisms. That good may be accomplished in this way I have long ago demonstrated. The fact remains that the method is but tentative. The anomalous conditions remain and the unpleasant symptoms will probably return. A vast experience with these methods enables me, I be-

lieve, to speak of them with some degree of authority, and I do not hesitate to say that while no one can afford to overlook them, they fall far short of the more rational measures of actual adjustments by means of equalizing the tensions in such a way as to establish practical orthophoria."²⁴

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DISCUSSION.

DR. EDW. JACKSON of Philadelphia—The reader of the paper has perhaps made the best use of the time of the Section in calling attention to current errors, which are frequently very misleading to those who are not especially interested in the particular subject. I quite agree with him that the rotary displacement of the image caused by oblique astigmatism is entirely insignificant, but the cylindrical lenses placed before the eye to correct such astigmatism will cause such rotation of amount sufficient to be of very practical importance for the images of all lines not parallel or perpendicular to the direction of the cylinder axis. This rotation is the cause of very serious inconvenience in the first wearing of cylindrical lenses, and this inconvenience may prevent the wearing of correcting cylinders by persons whose astigmatism has remained uncorrected until after 50 years of age. While in all cases it is the cause of inconvenience, in young persons the inconvenience always passes away in the course of two or three months at furthest. And this ability to accept the suddenly developed and much greater rotation of the cylindrical lens, argues very strongly against any continuance of inconvenience from the extremely insignificant rotation produced by corneal astigmatism.

DR. GEO. H. PRICE, Nashville, Tenn.—The paper proposes to put in a state of doubt the question of insufficiency of the obliques, and I will use his diagrams. The claim that this condition is normal, as produced by Prof. Le Conte would be sufficient evidence if he were investigating this peculiar question, but as he is not, then I must differ from his conclusions. It is essential for binocular single vision that the image must fall on corresponding portions of the retina, hence in the cyclophoria induced by oblique astigmatism, or insufficiency of the oblique muscles, you have this disturbed, and this disturbance must be compensated for by a rotation of the eye on its antero-posterior diameter. These diagrams which I hand you will illustrate these points. No. 1 shows the result of observing with each eye where there is no astigmatism, and you will observe that the figure is a rectangle; Fig. 2 shows the same rectangle when seen by astigmatic eyes, while Fig. 3 shows the resultant figure. These points can be demonstrated by the use of cylinders of 3 D. Dr. Price then gave an explanation of the diagrams.

DR. H. V. WURDEMANN, Milwaukee, Wis.—Abnormality is but a relative term and should be used in a relative sense. For instance, astigmatism of 25 D. in one person may be considered abnormal, while 2.00 D. or more in another gives rise to no inconvenience and may be ignored. There are but few persons in whom it is *not* possible to demonstrate some form of heterophoria and this alleged cataphoria is probably a physiologic phenomena, despite the fact that theoretically, insufficiency of the oblique muscles is quite as probable as those of the recti. I will pass over this and turn to a subject of practical importance which was considered in the latter portion of Dr. Eaton's paper.

There is no doubt in my mind but that the method of treating exophoria proposed by Dr. Gould, is the best of our present known means for developing the strength of the internal recti. Unfortunately, Dr. Gould has referred the condition of exophoria to insufficient innervation. This is a factor, but those of improper insertion in the recti, increased pupillary distances, actual weakening of the muscular tissue can not be well ignored. In my hands, after a year's trial, I consider that this "gymnastic exercise" (for it is but that) not only increases the prism fusing power for distance, but in a less degree does so for near; it lessens or removes the exophoria for distance as well as the near, and actually increases the convergence for the near point, thus increasing the focal angle and all of this without establishing an over-action of the accommodation. For esophoria I have had less experience, but for the more common condition of exophoria I consider that the majority of cases may be cured by the Gould method, in connection with tonic treatment, more satisfactorily than by surgical or any other known means.

DR. SOUTHARD of San Francisco said, it is undisputed that it is indispensable for binocular image that there should be a clear and well defined image upon the fovea centralis, otherwise the result will be either diplopia or a diffused image. The passage of rays of light through an astigmatic cornea causes an irregular image upon the retina. If the astigmatism is oblique, the proof that rotation takes place in the endeavor to compensate this error lies in this, that between the far point and the near point the axis in astigmatism has been frequently known to change several degrees. A word as to Dr. Gould's treatment of heterophoria by prisms. He has to say that whether the theory be that of innervation or not, the practical results of such treatment have been found of inestimable value to the patient and physician. He is willing to grant that it may be only a gymnastic exercise of the occult muscles. It is claimed by some that its only good lies in the power to preserve binocular vision for distant objects. They claim that when we consider the dynamics of the eye, that it has not the same amount of effectiveness. On the contrary, many cases thus treated have given the best results for continuous work at the near point.

DR. KASPAR FISCHL, San Francisco—As it seems to me interesting to hear the experience of those who have tried Dr. Gould's method, I would like to state that I could relieve a number of patients from asthenopia caused by exophoria at the reading range by these gymnastic exercises. In most cases after a few minutes trial, with prisms, base out, I could find an increase in the adducting power of the recti interim. I hope that the members present will give us their experience on this point.

DR. H. BERT ELLIS, Los Angeles—Dr. Southard is no doubt right when he says that inequality of the recti muscles may be found in nearly every individual; but we may also say that with every individual the amount of inequality varies from time to time. And if we acknowledge inequality in the recti, it seems to me we should not deny the same con-

dition in the oblique. A year ago I corrected astigmatism in a girl, axis 60 degrees and 120 degrees—0.50 D. Two months ago, clear vision could only be produced with the cylinders at 90 degrees, and it does not seem unreasonable to consider this the result of changes in the oblique muscles.

DR. EATON, in closing the discussion, said—In attacking the theories of Dr. Savage, I have in view the objectionable influence upon the therapeutic practice of those who accept his theories. I can not see that the arguments of Dr. Price disprove the demonstrated facts I have submitted. The attempt to asperse the evidence of LeConte and Hering as being the result of strictly scientific experiment unrelated to pathologic conditions, is not justified, since no more patient and thorough investigations could be made. Hering has anticipated every phenomenon of oculo-muscular action that has been mentioned to-day, especially as regards the transition from one secondary position to another. I must again assert that it is impossible to find a human being who has not, according to the tests of Dr. Savage, insufficiency of the oblique muscles, provided the person examined can analyze his visual impressions, which patience will enable him to do. Dr. Price remarked that when a cylinder is held before the eye with its axis vertical, there is no muscular disturbance and no distortion of the object. Yet any one regarding a square card with a plus or minus cylinder held with axis vertical before one eye, will see that while the sides are parallel, the top and bottom appear inclined. Dr. Southard remarks that a clear image must be seen by each eye; that is, undistorted; yet Dr. Friedenwald has shown that if we place in a stereoscope a representation of the image of an object, as seen by each eye, with a cylinder axis oblique, they appear as if fused into an object having solidity; which proves that distorted images are tolerated, and produce no confusion.

Dr. Price gives no data by which we can distinguish the asthenopia produced by astigmatic refraction and the alleged asthenopia of insufficiency of the obliques; nor does he explain the existence of metamorphosis of individuals who are not astigmatic. No one, in discussing the question of compensatory rotation, in cases of oblique astigmatism, has harmonized the fusion of the horizontal lines with the exaggerated incoincidence of its perpendicular lines, produced by the supposed rotation. In regard to Dr. Würdemann's statements concerning Dr. Gould's method, I quite agree with him, but would again call attention to my experiences as regards the possibility of producing esophoria for distance, while the dynamic convergence power for the near point remains deficient.

REPORT ON THE VALUE OF OBJECTIVE TESTS FOR THE DETERMINATION OF AMETROPIA, OPHTHALMOSCOPY, OPHTHALMOMETRY, SKIASCOPY.

By the Special Committee of the Section on Ophthalmology of the American Medical Association.

EDWARD JACKSON, M.D., Chairman, Philadelphia; S. M. BURNETT, M.D., Washington; H. V. WÜRDEMAN, M.D., Milwaukee; and J. A. THOMSON, M.D., Kansas City.

The members of your committee are all in accord with the view held by most ophthalmologists that the objective methods of determining ametropia can not entirely replace the subjective method with test letters and trial glasses; and that, in so far as the subjective method is applicable, it may be regarded as

a court of last resort. Determinations of the refraction by the various objective methods, however, constitute an essential portion of the complete examination of any eye. They are essential parts of the whole, and no examination is complete without their use. The subjective method can no more fill the whole bill than can any one of the objective methods alone. All should be used in every case to avoid errors common to each. Although it is obvious that if the various measurements of a definite quantity are accurate, by whatever means they are made, they will agree.

The range of application of the subjective method is strictly limited to the determination of refraction at the fixation point, for patients of sufficient intelligence and honesty, with eyes possessing sufficiently good vision. It also requires a considerable amount of time for its application, varying with the form of ametropia present; and, where relied on alone, this consumption of time is, for the more difficult cases, an extremely serious drawback and (by exhausting the patience of the surgeon and the endurance of the patient), a source of possible inaccuracy.

The objective methods of measuring ametropia are of value:

1. By effecting a saving of time; and by this, and as confirmatory tests, securing accuracy.
2. They are applicable to cases and to uses for which the subjective method is entirely inapplicable and useless.

Thus the objective methods can be applied to determine refraction in the eyes of small children, in the mentally defective and in the lower animals. Also in the eyes of malingerers, conscripts, applicants for pensions, insurance, or society benefits, plaintiffs claiming damages for injury, or in general wherever the cooperation necessary for the subjective test is lacking, because of lack of intelligence, perversity or self-interest.

Ophthalmoscopy and skiascopy are also applicable to the determination of the refraction of points outside of the macula and outside of the retina, as the prominence of a swelling or the depression of the cup in the optic disc, or the position of opacities in the vitreous.

Again, keratometry (ophthalmometry) and skiascopy are of value in determining certain facts of scientific interest and importance, as the curvature of the cornea either in the visual zone or elsewhere with the ophthalmometer; and the position and limits of the visual zone, and the total refraction of the eye outside of it by skiascopy.

The objective methods are applicable in blindness and in amblyopia of all grades.

As specified in the resolution under which this committee was appointed, our report is concerned only with ophthalmoscopy, ophthalmometry and skiascopy, and in our opinion these are the objective tests of practical importance. It is concerned, too, only with the value of these tests, not with the methods of performing them. And although their value obviously depends on their form, and the skill with which they are applied, these will only be referred to in that our estimate of their value supposes them to be applied with the skill attainable by careful training and considerable experience, and in their best form. That is, for the ophthalmoscope, we suppose the use of an instrument with a continuous lens series in a thoroughly darkened room, where the pa-

tient will have a range of vision of four meters or over, conditions that it is perhaps the exception to find fully complied with in ordinary practice.

The ophthalmometer is to be used with the light from one-eighth of a hemisphere of clear sky, or the best artificial illumination; and so far as it is possible, the eye under examination is itself to be shielded from light. There must be steadiness of the instrument with the patient and surgeon in comfortable positions.

For skiascopy, is required the use of a sharply bounded, sufficiently small source of light, adjustable to the position of greatest accuracy; and a mirror with the sight-hole of not more than three millimeters, free from reflections.

As to the question of the use or non-use of mydriatics, there is no general difference between the subjective and objective tests. Either measures the refraction as it is found at the time of measurement, whether that be the true static refraction or something different. The objective tests are, however, to this extent slightly more favorable to the determination of the true static refraction. With the ophthalmoscope, strictly under the conditions mentioned, there is without a mydriatic, a slightly greater tendency to relaxation of the accommodation than with the test lenses and test letters.¹ With the ophthalmometer, the corneal astigmatism which may be the total astigmatism of the eye (but generally is not) is entirely independent of a mydriatic. And, with skiascopy, the total astigmatism present at the time of measurement can be ascertained with more certainty and accuracy than is usually possible with the test lenses in the presence of accommodation.

VALUE OF THE INDIVIDUAL TESTS.

Ophthalmoscopy.—The measurement of refraction with the ophthalmoscope enables us to immediately assign an approximately just share to the influence of ametropia in causing imperfect vision. The first ophthalmoscopic examination will in general give us the basis for a preliminary or approximate diagnosis of the refraction; the lens required to give the clear view of the fundus informing the observer of the hyperopia or the myopia present, and the distinctness of the view that it gives indicating the presence, degree and regularity of astigmatism. And all this is accomplished in perhaps a fraction of a minute.

The ability to measure by their refraction the relative position of different points seen by ophthalmoscopy, gives it an important value very imperfectly shared by skiascopy alone.

Of the ability of the ophthalmoscopic examination to reveal latent hyperopia, there must always be some doubt, for in a certain proportion of cases it fails to accomplish it. In this matter of rendering manifest the total hyperopia, it has not, in our own experience, shown any very pronounced superiority over the subjective method. Of the exactness of the determination made with it, we accept the statement of Loring that it will measure hyperopia or myopia to within 0.5 D. or recognize the presence of 0.75 D. of astigmatism and the direction of its principal meridians.

It must be clearly understood, however, that this accuracy can not be attained by all observers, or by any observer at all times and in all cases. There are some surgeons who fail to learn how at any time to completely control their accommodation, at least until an age is reached when the accommodation

normally ceases to be a factor to be dealt with. And, what is of more importance, all observers with considerable accommodative power are, after periods of prolonged or difficult eye work, likely to find their control of accommodation impaired, and their measurement of ametropia with the ophthalmoscope unreliable. Thus after a somewhat prolonged effort to obtain a clear ophthalmoscopic view of the fundus of an eye presenting astigmatism, the subsequent ophthalmoscopic determination may vary quite notably from accuracy.

The most serious hindrances, however, to constant accuracy of the ophthalmoscopic examination of ametropia are those dependent on the eye of the patient. If the patient's pupil be unduly small, the accuracy obtainable by this method is correspondingly diminished by the diminution of the circles of diffusion on the observer's retina. On the other hand, if the pupil dilate moderately, as it does in the majority of cases in a thoroughly darkened room, portions of the dioptric media will be exposed at the margin of the pupil that differ materially in their refractive power from the visual zone, and thus the refraction which may really be obtained by the refraction ophthalmoscope will differ essentially from the refraction of the visual zone which is sought,

On these accounts, the best observers we have known have been liable at times to inaccuracies of one or two dioptries in their ophthalmoscopic determinations of moderate ametropia, especially astigmatism, and in high myopia, more especially with astigmatism, the error is even greater, sometimes amounting to four or five dioptries.

Ophthalmometry.—Ophthalmometry would be more appropriately named *keratometry*. Had it been so designated from the start, some current errors with reference to its significance and value could scarcely have arisen. It measures the curvature of the cornea and this curvature alone. Its value as a test of ametropia, is entirely dependent on the relation of the corneal curvature to the total refraction of the eye.

What we have to say, refers to the instrument of Javal, the only one that has proven of importance in ordinary practice. As commonly used, it does not measure a continuous curve, but simply the angle between the two points of the cornea from which the margins of the mires (which constitute the extremities of the test object) are reflected. Between these two points or anywhere beyond them, the curvature of the cornea may essentially differ, though as a rule this curvature in the region measured is practically regular.

By measurement of the curvature in different meridians, the existence and amount of corneal astigmatism is determined to within 0.25 D., or less if the patient be steady, the other conditions favorable and the observer's vision not impaired by irradiation.²

The directions of the principal meridians of the corneal astigmatism are also determined with an accuracy dependent somewhat on the amount of astigmatism, but even for low degrees with practical exactness. Thus for astigmatism of 1 D., the principal meridians may be determined within 5 degrees. In a few cases, the meridians of greatest and least curvature vary noticeably from a right angle with each other. In such eyes, the direction of the meridians of the part of the astigmatism that is regular, (that is, the part which can be corrected by a cylin-

drical lens), must so far as ophthalmometry goes, remain in doubt.

We do not find marked variations in the curvature of the cornea at different observations, but believe that where such variations are noted, they are usually either due to unsteadiness of the patient's eye, causing a different part of the cornea to present, or where noted at different times, may be due to changes in the adjustment of the instrument.

What the ophthalmometer reveals is entirely independent of the influence of mydriatics; the curvature it measures, remaining precisely the same in all conditions of accommodation or when the accommodation is entirely paralyzed. But the ophthalmometer being simply a keratometer, gives no information as to the degree of hyperopia or myopia present; and only indicates what may be the total astigmatism if that conforms to the corneal astigmatism. Of the conformity of the corneal to the total astigmatism, statistics now before the profession enable us to judge. From them we draw only this conclusion, that the chances of conformity between the corneal and total astigmatism are not sufficient to justify reliance upon the ophthalmometer as a means of showing the cylindrical correction required in the individual case.

The practical value of ophthalmometry, therefore, is mainly that of a method of examination that will make an important suggestion as to the presence, degree, or direction of astigmatism, which when followed up by other methods of measurement, may effect a greater saving of time.

In addition to this, it is possible that when accurate ophthalmometric records have been made of the curvature of a cornea, subsequent changes in its curvature may indicate the occurrence and amount of change in the total astigmatism.

Aside from these practical applications of the instrument, it has a scientific value, and must be regarded as offering a necessary method for the elucidation of certain important scientific problems as to the existence and change of ametropia.

Skiascopy.—Skiascopy is on the whole the most accurate and reliable objective method of estimating ametropia. It measures the total refraction of the eye, whether this be the static refraction or the refraction modified by accommodation. Applied in the direction of the macula, it measures in the visual zone exactly the refraction that is measured by the subjective method; and at the same time, it measures refraction outside of the visual zone, as it is possible to measure it in no other way.

For eyes having a distinct and sufficiently extended visual zone, it is accurate to within one-eighth of 1 D.³ In its power of detecting latent hyperopia, that is, of allowing latent hyperopia to become manifest while the measurement is being made, it does not differ materially from ophthalmoscopy or from the subjective test. But, it is, if anything, slightly inferior to them.

The accuracy which is possible with skiascopy in the individual case is limited mainly by the definiteness or indefiniteness of the visual zone. When a certain portion of the dioptric media, large enough to be readily identified and studied, has the same refraction and is definitely bounded, the degree of ametropia of this portion, its hyperopia, myopia, or astigmatism, can be determined within the limits of accuracy named. When, however, this visual zone is

too small to study at a convenient distance or the refraction passes by imperceptible gradations into entirely different refractive conditions surrounding it, the difficulty of applying the test is greatly increased and the accuracy and certainty of its results diminished.

The eyes in which a definite visual zone can be isolated and studied are the rule; those in which this is not possible the rather rare exception. The degree of accuracy attainable in these latter cases will depend almost wholly on the minuteness of the study, a minute study being only possible at a comparatively short distance with especially arranged conditions of illumination. Such a study requires great care and patience, but with it even high grades of irregular astigmatism will often yield a distinct visual zone capable of comparatively accurate correction by lenses, which the test will indicate.

Skiascopy, therefore, offers for most eyes, a method for the easy and rapid measurement of ametropia, within the limits of practical accuracy for even the subjective method, except in eyes having more than the Snellen normal standard of visual acuteness. For the exceptional eyes, in which it is less accurate, it offers a means, which, carefully used, will give confirmation of subjective results, or a better correction than may be obtained by any other method. In nearly all eyes the result of a careful skiascopic correction will give the best or very nearly the best obtainable vision.

In addition, skiascopy informs the surgeon, as does no other method, in what portion of the dioptric surfaces the visual zone is situated, and gives him definite knowledge as to what changes in the optical requirements of the eye will be brought about by a change in the size of the pupil. It may, therefore, be relied on to indicate (while the pupil is dilated) whether in the individual case a repetition of the subjective test is especially required or advisable, after the recovery from the influence of a mydriatic.

In conclusion, your Committee would urge that the accurate determination of ametropia is best accomplished by the use of all of these objective methods in each case, and usually, in the following order:⁴ The ophthalmoscopic examination, measurement of the cornea with the ophthalmometer, skiascopy—these to be followed by the subjective determination, and, if this last does not agree with the previous measurements, its findings should be submitted to re-trial by skiascopy.

Even when this plan is followed, the accuracy of results obtained will depend on the experience, habitual accuracy of observation, physical health, mental alertness, and conscientious care of the observer. But without some such plan, the best observer will fail to do his best work; while with it, the poorest will be able to make the most of such skill as he has.

¹ Ophthalmoscopy without a mydriatic is relatively of greater value in revealing latent hyperopia than the subjective tests, but when the eye is under a mydriatic, the subjective method in intelligent patients is a superior test.—H. V. W.

² As the instrument is now made with a low degree of magnifying power and from the coarse adjustment of the lines thereupon ensuing, I do not consider it reliable for the corneal measurement under 0.25 D., but as this is the usual interval of the weaker lenses, this is sufficiently accurate for practical purposes.—H. V. W.

³ May be this accurate in some instances.—S. M. B.

⁴ I prefer to use the ophthalmometer before the other two forms of objective examination, since by it at a moment the amount of the corneal astigmatism is acquired and which may be taken as a guide in ophthalmoscopy and skiascopy in the search for the total astigmatism. Especially as the final measurements by the latter test are usually made under mydriatic, and keratometry may be done during the first few moments of a preliminary examination.—H. V. W.

RETINOSCOPY AS A CRUCIAL TEST IN MEASURING ERRORS OF REFRACTION.

Read in the Section on Ophthalmology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY B. ALEX. RANDALL, M.A., M.D.

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Except in the early-demonstrated value of retinoscopy in the recognition of conical cornea, as set forth by Bowman, the claims for the method seemed decidedly exaggerated by Cignet and other early advocates; and my study of it (as practiced with the concave mirror) affording no prospect of large usefulness, I dropped it almost entirely. In the spring of 1884, however, I began to employ the plane mirror in the test, and have ever since held it to be the most delicate objective test in measuring the refraction and its anomalies. Believing it to be unequalled in certain respects by any other procedure, I desire here to define the limits within which I particularly value it; and this the more, as I believe I differ from the general practice.

In my routine examination of a patient, retinoscopy follows the subjective tests for far and near of the vision and muscle balance. In the moderately darkened room, with an argand burner shaded by a metal chimney presenting an opening an inch and a half in diameter, the light is thrown by a plane mirror from a distance of three or more meters, while the patient gazes at a dark surface behind me. Under these circumstances a medium pupil (four to six millimeters, is almost invariably obtained, in which there is rarely any difficulty in seeing and determining the motions of the shadows. M. and H. are thus readily differentiated, with the presence and axis of any astigmatism, and a rough quantitative estimate can be made from the distinctness and rapidity of movement of the shadow. Mixed astigmatism, usually the most difficult error to uncover, is by this method the easiest and most unmistakable. With very narrow pupils, hazy media or unsteady patients, some little difficulty may compel a closer approach; but if the examiner's head be a little lower than the patient's, this can generally be avoided and the test satisfactorily made at even greater distances. As the pupil is not strongly illuminated, the mirror must have an ample sight-hole, free from annoying reflections.

Having thus qualitatively determined the refraction, I then pass to the ophthalmoscopic examination in the upright method, and while investigating the media and the tunics, measure the degree of any refraction error. The corresponding glass or combination is then placed in the trial-frame before the eyes and its accuracy tested—by the test letters, if desired—or where the subjective tests can not be trusted, I proceed at once to the crucial employment of retinoscopy.

For this, some painstaking in the illumination may be required in order to give readily the desired accuracy. Theoretically, we should obtain the emmetropic appearance at a distance of four meters only when $M=.25$ is present. Practically this rarely holds good, probably because the pupil is wide enough in most cases, even when no mydriatic has been employed, to give a peripheral refraction higher by thus much than that at the pupillary center, and also because we usually compare results with the subjective

correction for six millimeters, which is slightly over-correcting for distance. I look therefore, for a central, comma-like shadow, rotating or varying with the shifting light, yet moving neither against nor with the motion of the light upon the face. If this be obtained with $+ .75$, for instance, it will be found that $+ .90$, the old 42, gives a distinct myopic shadow moving in the pupil against the mirror, while $+ .65$ is as clearly an under-correction and gives a shadow moving with the mirror. So it is fair to claim that errors as small as 0.1 in any or all meridians can be recognized by this method under favorable conditions. Indeed, I have seen cases where 1 D. was as clearly too strong as .90 was too weak; and one could assert that there was not so much as .05 D. of astigmatism. For this minuteness of measurement is as true of one meridian as of all; and the axis of any uncorrected astigmatism can generally be determined within 5 degrees with the same ease and accuracy. It seems just to say, then, that this is the most minutely exact measure at our command.

It is a tedious business to do the coarse focusing of your microscope with the fine adjustment screw; and in like manner this method is not the readiest for the work intermediate between the rough qualitative and the minutest quantitative measurement. For this Dr. Jackson's method with the artificial far-point excels it. But within its proper field the plan deserves fuller recognition and employment; and only the "too old a dog to learn new tricks" is likely to fail of satisfaction with it.

I have sometimes met the claim that special skill or exceptional sharpness of sight are requisite to succeed with this method. My possession of $V=6/IV$. is doubtless no drawback in the use of it; and practice unquestionably facilitates control of the illumination, so as promptly to throw it into the pupil four meters away, and then precisely to make the small rotations of the mirror requisite to give the play of shadow in any desired direction. But I can not perceive that I have in ten years much improved beyond the skill gained in the first few months; and I have frequently brought a doubting tyro to unhesitating recognition of errors of 0.1 D. in a demonstration a few minutes in duration. The artificial eye, especially that of Frost of London, is an excellent aid to the beginner, although in some respects work with it is more difficult than with a tractable patient.

Finally, a word as to the utilization of this hair-splitting aid to accuracy. With intelligent, sharp-sighted patients the subjective tests are doubtless the most satisfactory for deciding minute differences; and the coöperation of the patient and his subsequent loyalty to your decision, can generally be thus best secured. Yet the objective tests often greatly aid us to help a doubtful patient to a decision, and the moral effect of independence of his answers is in every way good. With patients less well endowed, as so many are, retinoscopy rises rapidly in importance; and in intractable cases it can easily guide us when nothing else but the direct method can be used. The expert in this procedure may ask for nothing better, although it is a question if one can at all times control his accommodation and precisely allow for his own refraction; and where Loring was doubtful about accuracy to fractions of a dioptre, he who would be correct to one-tenth must be an ophthalmoscopist indeed. Even to such a one, it may at times be a great gain

to be so precise when fatigue or headache has set the ciliary muscle in a worry.

It is in the public clinic, where much of the detail work must be delegated by the chief, who must yet shoulder the responsibility of it all, that this method of retinoscopy has its most striking value. In one of my services, where a dozen or more refraction measurements had to be made each day, it was easy to give by the ophthalmoscope a rough estimate of the refraction to an assistant, who might be a mere beginner; and when he had finished his subjective tests and marshalled into the dark-room his patients wearing the correcting lenses in accord with his findings, it took a very few seconds to verify or revise his work in each case and to prescribe the glasses with full assurance of the precise error of refraction. Any error in the position of a cylinder or the strength of it or of a spherical could be at once detected, rectification made, and the result verified. Some men do not desire this accuracy in their hospital work; others will not take even this small trouble to obtain it; but to the conscientious ophthalmologist it is clearly needful, and it will be readily possible by this method of retinoscopy.

THE STATUS OF SKIASCOPY.

Read in the Section on Ophthalmology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY H. V. WÜRDEMAN, M.D.
MILWAUKEE, WIS.

DIRECTOR WISCONSIN GENERAL HOSPITAL; OCUList AND AURIST TO THE CHILDREN'S HOSPITAL, AND TO THE MILWAUKEE HOSPITAL FOR CHRONIC INSANE; INSTRUCTOR IN EYE, EAR AND THROAT, ELMS HOSPITAL; AND TO THE MILWAUKEE COUNTY TRAINING SCHOOLS, ETC.

It is conceded beyond all doubt by those practiced in the objective methods for determining the ocular refraction, that skiascopy holds the first place as regards accuracy and minuteness of measurement. This you have learned from the special committee appointed last year and empowered to report at this meeting. The sum of our report may be put in one sentence: *The objective tests are essential to the proper examination of the ocular refraction and, although but preliminary to the subjective method, reduce the latter to simple proving of lenses found by the former, eliminating in a great measure dependence on the faltering judgment of the untrained patient, substituting therefor the skill of the expert who, reasoning from scientific data, is thus able to fit glasses in less time and more accurately with consequent satisfaction to himself and his patient.* Keratometry, ophthalmoscopy and skiascopy; "the greatest of these is" skiascopy. Thus in a few words you have the standing of the method designated by those familiar with the same.

This paper is not written for these, but for those on the outside who, either through ultra-conservatism, laziness or inability to master its minutiae, have not yet taken up the shadow test. It is a painful fact that there are men, in other respects good ophthalmologists, whose refraction work is but on a par with that of the glass-selling jeweler and the average optician. They pin their faith to the trial set and to the patient, whose hesitating replies are a constant source of error. As refraction examination forms fully one-half of the oculist's work, such must give way to those skilled in *measuring the eye*.

The estimation in which skiascopy is held by our eastern confrères is shown by the fact that a whole

week is given up to the teaching and application of *this method alone* at the Philadelphia Polyclinic, in a series of twenty-seven lectures and clinics by a large corps of professors, instructors and clinical assistants.¹

From the perusal of recent English and German literature, it would seem that even though the shadow test has been in common use in this country and France for a decade, the profession on the other side has not taken up the method to the extent that we have. In this country, I think that it may be said all of the progressive workers use it and do not consider the refracting of any case complete unless skiascopy has been called into service. Within a couple of years the acquisition of this method will be deemed as necessary by the foremost specialists of all the world as it is here. Six years ago I was astonished by the ignorance of the German oculists regarding skiascopy, as it was then, as now, foremost in my mind as being the principal objective method of measuring the eye. It is different now, and I understand that the shadow test is being generally taken up even in the clinics of Germany. Personally, I voice the opinion of its value given by your committee, and use it a number of times a day in my private practice.

In what cases should the shadow test be used? I should say in *all* patients for whom lenses are to be prescribed. I hold it to be an absolute necessity for the scientific refractionist to know in every instance the total refraction of the eye before putting on lenses. I would no more think of fitting spectacles to a presbyopic patient, by trying lenses at the near point alone without knowing his refraction, than I would of prescribing glasses in ametropia by one or more of the objective tests without recourse to the subjective method for confirmation.

The few instances in which skiascopy is unreliable or inapplicable are limited to those cases in which a definite visual zone can not be isolated. These eyes are the exception and yet where carefully used, in irregular corneal curvature, in conical cornea, in partial lenticular or corneal opacities and in very high grades of astigmatism, skiascopy is of value as a confirmatory test. "In nearly all eyes the result of careful skiascopic examination will give the best obtainable vision."²

For skiascopic results to agree with those elicited by prolonged subjective tests, the examination should be conducted in the visual line, the refraction of the macula only being measured. Skiascopy measures the static refraction of the eye when applied in the visual zone, exactly as it is at the time of the examination, whether modified by the accommodation or not. Thus, in young persons, as a rule, a mydriatic should be used. Skiascopy is of value in proving of measurements found by the other methods, just like the proving of an example in vulgar fractions: By again applying the shadow test with the combination of lenses decided upon from the trial case. It may thus be used as a check upon the other methods and upon itself.

Aside from the difficulty of acquiring the technique, (although not nearly so much time is taken by the tyro in learning it as is necessary for accurate ophthalmoscopic measurement), I would consider that the want of proper facilities for placing correcting lenses before the patient has been one of the greatest obstacles to the general adoption of the method. If

it be remembered that but one meridian can be considered at a time, and that the neutralization or reversal of the shadow movement by spherical lenses accomplishes the same purpose for the meridian under observation as cylindrical lenses, much of the difficulty is done away with. The placing and replacing of lenses in a trial frame is very consumptive of time, and the test case itself occupies too much space in the ophthalmoscopic dark room, which is usually but a closet.



To obviate these disadvantages, Doynne,³ of Oxford, Eng., in the Ophthalmic Section of the International Congress held in Washington in 1887, exhibited a large rotary disk containing many plus and minus lenses. Burnett's⁴ and my own⁵ rotary disks, modifications of this, were more simple, but mine at least has been laid on the shelf for several years, as being too cumbersome. The simple hand skiascope,⁶ here shown has all their advantages and the model I present has been used in my work several times a day for nearly four years, and I understand has been given a place by a number of our colleagues. This you see is a simple blade of hard rubber which contains twelve plus and twelve minus lenses. The patient raises and lowers the instrument at the word of the examiner until the neutralizing lens is found, the strength of which is always plus .75 D. greater than that of the actual ocular refraction in this meridian, and this over-correction should be allowed. The sphericals found by direct ophthalmoscopic examination are

usually worn by the patient in a separate frame behind the instrument. I find it convenient to have a couple of pairs of reversible spectacle frames in my dark room containing the one a + 1. D. and + 2. D. lens, and the other a + 3. D. and a + 4. D. lens; the strength of which when used for higher degrees of hyperopia is added to that of the instrument.

This simple instrument overcomes the principal difficulty in the use of the method. Thus skiascopic examination as practiced by myself and colleagues takes but a minute or two, the test itself giving mathematical data from which scientific conclusions are reached.

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Sewage Disposal by Crocodiles.—One of the representatives of Ceylon at the Columbian Exposition is said to have proposed a plan for the "destruction of the offensive matter now passing into and festering in the river and imperiling the health and lives of the citizens, without necessitating any alteration of the existing system of sewerage." The plan of the Ceylonese "sanitarian" is to construct at the sewer outfalls, suitable enclosures in which to rear and keep "crocodiles and alligators to serve as scavengers—a service which, from the fact of their being omnivorous, I am convinced they are eminently well qualified to render." The veracious chronicler in which this precious plan was published is said to have viewed the matter seriously.

THE VISUAL ZONE OF THE DIOPTRIC MEDIA AND ITS STUDY BY SKIASCOPY.

Read in the Section on Ophthalmology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY EDWARD JACKSON, A.M., M.D.

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One is liable to get the impression that, in eyes with perfect vision, only focused light reaches the retina, although the incorrectness of such an impression is readily demonstrated in various ways.

If we close the lids in any strong light, we can demonstrate that sufficient light reaches the retina through them to give quite accurate quantitative perception; and about the same amount of this light reaches the retina through the lids and the sclera when the eyes are open and in use for distinct vision. The ability to light up the interior of the eye by oblique illumination through the sclera or iris, we have all demonstrated. But skiascopy has shown that even through the pupil, always in the dilated pupil, often in the pupil as contracted by the ordinary daylight, a considerable part of the light entering, often the greater portion of it, reaches the retina unfocused.

While a flood of such unfocused light renders very accurate vision slightly more difficult and tiresome, it does not prevent it. The conditions may be likened to those that are obtained when a convex lens is held so as to form an image on a piece of paper in a well lighted room. A large part of the light reaching the paper is not focused light, and the image formed is on that account less vivid, yet more careful examination shows that it is comparatively distinct and quite complete. When the mixture of diffused and focused light falls on the retina, the former seems to interfere still less with the perception of the image formed by the latter, so that a comparatively small proportion of accurately focused light with a much larger amount of uniformly diffused light will still enable one to see distinctly.

The portions of the dioptric media through which the light is perfectly focused upon the retina I have termed the visual zone. Existence in the pupil of a visual and extra-visual zone, with some of the facts dependent thereon, have been impressed on me by prolonged use of the shadow-test, and I am conscious of having very slowly come to some realization of their full significance and importance. They have a most important influence upon the practical application of all methods for the measurement of ametropia, but the exact nature and significance of that influence is only revealed by skiascopy.

The fact that we are able to see by the focused light in the presence of much that is unfocused, enables us to use the subjective method; and the fact that only the focused light impresses consciousness by recognizable sensations has, in a large proportion of cases removed the subjective test from the inaccuracies and uncertainties that would otherwise be due to the admission of light through the extra-visual zone.

The existence of an extra-visual zone presenting refractive conditions entirely different from those of the visual zone, is a great obstacle to accuracy with the direct method of ophthalmoscopy. With skia-

scopy, however, the observer has spread before him, as it were in a complete map, the pupil in each portion of which the refractive conditions may be separately studied, and it is this opportunity offered for isolating and studying alone the different refractive conditions that occur in the same eye, that is the supreme advantage that skiascopy has given to the ophthalmologist. All else that it does can be done by other methods, and in other respects it is only the time-saver or confirmer of other methods. In this it stands entirely alone, and the information that it gives is just that which was needed to make practical physiologic optics an exact science.

The practical importance of the study of the visual zone, and the relation of its refraction to that of other parts of the dilated pupil is very great, and the facts revealed by such a study will powerfully influence the prescription of correcting lenses. How great this importance is and how much the practice of lens prescribing is likely to be influenced will only be appreciated by one has made at least a few careful studies of this kind. Leaving it aside for some future communication, I wish simply to speak now of essential methods for such study.

The area of the pupil that may be regarded as having the same refraction depends on the exactness or minuteness of discrimination that it is desired to make. If one says roughly a certain eye is hyperopic or a certain eye is highly myopic, this may apply to the whole dilated pupil. If he says the eye has so many dioptres of hyperopia or so many dioptres of myopia, and is willing to ignore variations of less than 1 D., what he says may apply to the whole of the pupillary area as it exists under conditions of ordinary illumination. But, if he desires to be more discriminating, to recognize the smallest differences of refraction that can be recognized by skiascopy, he will find in almost all cases that such a pupillary area presents marked variations. And, in a certain number of cases of eyes that would not ordinarily be regarded as exhibiting conical cornea, or marked irregular astigmatism, the area of the pupil even contracted by strong light and for near work will show variations in refraction of the greater part or a whole dioptre.

From these facts, it follows that the accurate application of skiascopy, the careful study of the visual zone and the relation of its refraction to that of the surrounding portions of the pupil is a study of the *movement of light and shadow in small areas* of the pupil, not across the pupil as a whole.

To study a small object one must bring it near the eyes; hence such studies of the pupil must be made within a comparatively short distance. Distinct movements in an area three millimeters in diameter can not be conveniently studied beyond the distance of a meter and can be most readily studied at a considerably shorter distance. There are not a few eyes capable of visual acuteness quite up to the normal standard, in which the light that goes to form definite images enters through a smaller area of the pupil than this, and the true refraction of the eye, therefore, can be studied only at a shorter distance; a distance of one-half or even one-third of a meter.

Again, to have a distinct area of light in such a limited space, it becomes highly important that the source of light be small. Such a study can not be made unless the ordinary lamp flame be covered with an opaque chimney with a small aperture. For my

own work, with the plane mirror, I have for the last year found an aperture giving a circle of light five millimeters in diameter most satisfactory. With such a source of light, properly placed close to the mirror, and the sight-hole of the mirror not more than two and a half or three millimeters in diameter, the study of the movement of light and shadow is as easily made at one-half meter, revealing the differences of refraction in different parts of the pupil, as is the rough study at one millimeter distance or more, by the methods ordinarily described which have so frequently misled the surgeon.

Recently, some of the best skiascopists have spoken of the test as being in some cases misleading. I am sure that it is misleading only when the movement of light and shadow is studied in the wrong part of the pupil. If one recognizes the true visual zone, and goes close enough to study the movement within it, the movement of light and shadow can no more mislead him as to the condition of refraction than a convex lens can have the effect of a concave.

We are dealing with simple physical facts. The misleading, I believe, invariably comes about by the surgeon's watching the movement of light and shadow in the extra-visual zone, and the chances of falling into the error are directly proportioned to the distance of the surgeon's eye from that of the patient and the consequent apparent smallness of the pupil.

With great variations in the state of refraction present in almost every eye, with the most of ophthalmic surgeons applying skiascopy in such a way that it was impossible to discriminate between the visual and the extra-visual portions of the pupil, it was no wonder that the test was regarded as one of uncertain value and not to be entirely relied upon. With the recognition of the real optical conditions to be dealt with, this uncertainty and distrust will disappear and the test will take its place for certainty and accuracy along side of the subjective test for intelligent, honest patients with perfect vision, and as distinctly superior to the subjective test in all other cases.

Such an application of the test is a very different matter from its use for a rough approximate determination of the refraction in which it has heretofore rendered most service. The phenomena to be dealt with opens an opportunity for the exercise of the highest skill in observation and the application of the most considerable experience. In my judgment, no other method of studying the refraction of the eye compares with the full application of the shadow test, either as to the possible value of the results to be attained or in the difficulty of the *complete* mastery of the method.

To demonstrate roughly the general refraction of of the eye, skiascopy is the easiest objective method. It may be grasped even by the tyro in a single lesson. But to reveal its full possibilities of delicacy and accuracy it will always require years of careful and intelligent application.

DISCUSSION.

DR. F. B. EATON—In the employment of the several objective tests under discussion without mydriatic, I prefer to begin with skiascopy, since a certain amount of accommodative adjustment is brought about by the subjective tests and by the fixation by the patient of the tube of the ophthalmometer.

I employ the ophthalmoscopic mirror with Dr. Würdemann's skiascope and without a mydriatic. If the pupil is

small, the patient must fix some object considerably to the right or left that a reflex may be secured; hence the importance of a very dark room and covered flame. I occupy a middle ground between the extreme views of those who eulogize and those who take as partial only the findings of Javal's ophthalmometer. I believe that many of the discrepancies between its findings and those under mydriasis result from imperfect illumination, and because the patient's head is not level. This latter defect can be remedied best by the American model, which provides a horizontal slit through which the observer can insure the levelness of the patient's brows with the top edge of the slit. Again, the patient must fix a point on the anterior lens of the instrument, which is in its axis, since then the observer measures the cornea at that portion cut by the visual line.

DR. S. B. DAVIS, Stockton, Cal.—In my use of the ophthalmometer, I have found that I had better results in most cases by placing the axis at 90 degrees, if the instrument showed it to be near 90.

DR. SIMONSON, San José—While the objective methods mentioned are theoretically within certain limits correct, yet it is a fact in practice that many mistakes are made by those relying almost wholly on these methods. Many of these cases require refitting, and ordinarily by use of the old trial case. Inasmuch as the various objective methods afford latitude for the exercise of much judgment, it is evident that all ophthalmologists are not equally endowed with skill and acuteness of judgment and this, accompanied by usual haste, results in many mistakes.

DR. R. D. GIBSON, Youngstown, Ohio—The results are not always the same in the same eye. A case showing plus .50 D. astigmatism may, after some months of over-taxation in school, return with conjunctivitis and an increase of the corneal astigmatism. This increase I have seen reach as high as 4. D. and after relieving the conjunctivitis and blepharospasm, the high degree of astigmatism vanishes and the results of the first examination found to be correct. Again, I have found astigmatism for which I have prescribed correcting lenses with great comfort and satisfaction, and after some months or a year, find no astigmatism, and only a spherical correction necessary.

DR. FRED BAKER, San Diego, Cal.—To repeat much that has been said, I wish to plead for greater charity in our treatment of our brother practitioners when we are called upon to overhaul their work. I have grown more charitable since finding that as large a share of my own cases show slight changes in a second test made after six months or a year, as of those which come to me from other practitioners, though I know that the first tests of my own patients were carefully made. Every one must find that certain patients show these changes after a time, which must be due to the relief of strain given to the ciliary muscles by the wearing of the first pair of glasses.

As to objective tests, while it must be true that all of us in the rush of business neglect to give sufficient time to all patients, still it must be admitted that the oculist who combines most methods of testing will do more accurate work than he who uses only one. I have yet to meet personally any ophthalmologist who has given any of the objective methods a full and careful trial, who has not admitted the practical value of the method.

DR. W. E. BRIGGS, Sacramento, Cal.—I agree with Dr. Riley in the statement that the trial test case will be our last and most important means of ordering glasses; but the more the profession uses the objective methods the more general they will become. I believe in time all ophthalmologists will use both skiascopy and Javal's ophthalmometer. These methods of testing are not always necessary, but cases are common in which we can not readily obtain a

result without some objective test. As for myself, I would feel quite at a loss to make my examinations without the ophthalmometer and skiascopy.

DR. ALBERT R. BAKER, Cleveland, Ohio—I am pleased with the report of the committee in that they have given great prominence to skiascopy as an objective test for the determination of ametropia. In 1891-'92 I spent considerable time in the Royal London Ophthalmic Hospital (Moorfields) about the time skiascopy was first introduced in that institution. Probably one-half of the patients applying for relief could not read and we found this objective test of great value in these cases. Upon returning to this country in 1883, I published several papers on this subject but as they received but little consideration I became somewhat discouraged in attempting to secure a hearing. I was greatly pleased when Dr. Jackson took up the subject and succeeded in placing this objective test where it belongs as one of the most valuable. No doubt the present excellent report will serve to make the use of skiascopy more general.

DR. J. R. RYAN, Galesburg, Ill.—The use of the old trial lens should not be discarded. The thoughtful physician and progressive man will use all the methods at his command. It is in the majority of cases a matter of personal preference. The man who studies skiascopy carefully and uses it extensively can do better work than one who devotes little time to it. The same might be said of the other methods of refraction. When we consider that the majority of cases of refraction are simple; that is, the axis of astigmatism are regular either 180 degrees or 90 degrees, and that the patients are people of average intelligence and perception, by the use of the trial case we can fit glasses more rapidly and accurately. We have all the benefit of the patient's intelligence as to clearness of outline and ease of glasses. By a careful study of subjective symptoms one can tell almost by intuition what the refractive error is, and in the vast majority of cases can make a rapid fit. In suitable cases, however, skiascopy and all the other methods are excellent, and should be used, but the old trial frame still has a place and an important one.

DR. H. V. WÜRDEMANN—Our branch of therapeutics is the most scientific of all the branches of medicine and this refractive work is or should be the most accurate, as it is based upon physical and mathematical data. The physician who bases his glass fitting upon such ground necessarily does better work than those who depend entirely upon unskilled testimony of the patient. In the opening sentence of the report of your Committee, the fact was stated that the objective tests were a necessary preliminary to the subjective method, and the latter is not to be done away with, but is the court of last resort. We may even go further with the subjective method, and say that the final judgment of the patient himself after he has had our prescription filled, is a highly important point. Thus we can not do without the trial case. The advantages of the objective method have been set forth in your committee's report and I need not repeat them here.

One of the most important offices of the objective method is the clearing up of doubtful points excited by the subjective examination. Thus at the trial case a patient may accept equally well one or any of the following combinations:

Plus .50 sph. \ominus plus 1.25 cyl.

Plus .75 sph. \ominus plus 1.00 cyl.

Plus 1.00 sph. \ominus .75 cyl.

Without repeated sittings, by the trial set alone it would be difficult for the operator to decide which would most nearly neutralize the patient's error of refraction. Skiascopy settles the question immediately to the skilled operator. There has been some question raised as to the fixation

of the patient's eyes. The examination should be conducted as nearly as possible in the visual line of the patient. Fixing the aperture of the mirror would do this, yet reflection of the same on the anterior surface of the cornea would confuse the operator, and when used without a mydriatic, the bright light falling most directly upon the fovea would tend to produce iritic and ciliary contraction. For general purposes it is better to have the patient look over the operator's shoulder at some distant object. I accomplish this purpose by having curtains at the door of my dark room, through which, when slightly opened the patient looks at a wall four meters distant. This method secures relaxation of the subject's accommodation.

In regard to the order in which the tests should be taken up, I consider it advisable to go from the coarser to the finer tests, as the former give valuable hints as to the finer measurements to be expected from the latter; taking up the examination in the following order:

Visual acuteness and astigmatic lines, keratometry, direct ophthalmoscopy, skiascopy, the subjective methods and then skiascopy again for corroboration of the whole test. Naturally, as in any other skilled work, much depends upon the observer, but even to those who either by reason of physical disability or mental hebetude have not been able to acquire sufficient skill for the finest work, these objective tests prove of material benefit.

DR. LEWIS H. TAYLOR, Wilkes-Barre, Pa.—In regard to the use of the ophthalmometer, I can say that I have recently come to regard it as a most useful aid to the rapid determination of astigmatism. A few years ago in a discussion of this subject we heard the ophthalmometer referred to as an instrument that might be regarded as an interesting toy, and which would soon be relegated to the lumber room as something too useless to occupy the busy oculist's valuable time. Now, Mr. Chairman, I do not so regard it, but I find it daily of more and more value. We mistake greatly if we regard it as an accurate determiner, if I may use the word, of the exact refraction; it is only an aid, but a most valuable aid. I formerly regarded the subjective test with atropia, as the only method worthy of serious consideration, but now I am free to say that I use atropia far less than formerly. Ophthalmometry will not entirely take the place of subjective tests, nor will any other method, but I have frequently had patients return who had been wearing glasses with reasonable comfort for whom I could get a much more satisfactory correction than by the old method. The difficulty too often lies in the fact that some one devotes exclusive attention to one method, and claims too much for it, another tries it superficially and does not get such good results; he denounces the method and discards it. Both are in error; the middle ground here as elsewhere is the safest.

DR. A. J. ERWIN, Mansfield, Ohio—I do not believe it important what instrument, or which of the methods in use be employed in working refraction, so that we are only expert in our method, and expertness is necessary in any method in order to have good work. In regard to the varying of the degree of astigmatism, in any case it is doubtless due to the power of the accommodation at the time of the examination.

DR. JACKSON, in closing the discussion, said:—Dr. Randall, in using skiascopy to obtain his extremely accurate results at greater distance than I have advised, worked with the undilated pupil, thus excluding the extra-visual zone. Yet even then he did not find it necessary to make the theoretical allowance for distance. Now it is a fact that in the majority of cases the refraction of the extra-visual zone shows higher hyperopia or lower myopia than the visual zone, so that for this extra-visual zone such an allowance is out of place. Evidently under these conditions, the results

have been appreciably affected by the refraction of this extra-visual zone.

In regard to the illumination of the ophthalmometer, it should be remembered that we are studying the reflection from a transparent membrane, and that its distinctness will depend both on the illumination of the reflected object and on the absence of light transmitted from behind the cornea, and for this reason it is almost as important to keep the eye shaded so as to illuminate the disc and mires.

In reply to the question as to the percentage of cases in which the ophthalmometer can be relied on for the prescription of lenses, I have recently, in 500 eyes, found that the corneal corresponded exactly with the total astigmatism in only 6 per cent. In about 20 per cent. the amount was almost exactly the same; in 60 per cent. the difference was not over 0.5 D.; in 52 per cent. the direction of the meridian corresponded exactly, and in 80 per cent. within fifteen degrees.

As to variations in astigmatism from time to time, it must be recognized that these do occur. They might be expected in progressive myopia, but they occur with hyperopic astigmatism as well. My attention was first called to this in my own case where the astigmatism has increased from 0.50 D. to 1.75 D., and some years ago I published seventeen cases that I had been able to follow from year to year, with determination under mydriatics.

THE MENOPAUSE.

BYRON ROBINSON.

CHICAGO.

Menstruation belongs distinctly to the tubes and uterus. It is a regular rhythmic action. It is controlled by the automatic menstrual ganglia situated in the walls of the tubes and uterus. These rhythmic little brains manifest themselves to the observer by circulatory change and increased motion. Menstruation might be named tubal motion. By direct observation in man and animals, I have noted the following midway between the monthly, or at times far remote from œstrus or rutting. The tubes and uterus are of quite a pale pink color. In short they are not congested, and still. But at the menstrual period or the season of œstrus the tubes and uterus are congested and in active peristaltic motion. The tubes are of a dark blue color from their dilated vessels being full of blood. The congestion of the uterus is intense but not so manifest as the tubes. The tubes are swollen, thickened and edematous. They are soft and pliable.

At this time a slight irritation while removing them soon excites them into active peristaltic motion. After removing such tubes and placing them in warm (salt) water they will keep up vermicular movements for half an hour by gently irritating them. I make these observations in women because I operate at any time in laparotomy, after careful preparation, whether it be in the midst of a menstrual period or remote from it. As regards animals I have examined several hundred genitals of recently butchered sows and the tubal congestion at the œstrus is more apparent in them than women. The sow's uterus is also probably more congested than woman's. Observation and experiments indicate that menstruation is a regular, periodical rhythm of a blood wave in the tubes and uterus induced by the automatic menstrual ganglia. The continually moving wave rises to a maximum and sinks to a minimum. The menstrual wave con-

tinues from puberty to menopause. It is a nervous phenomenon.

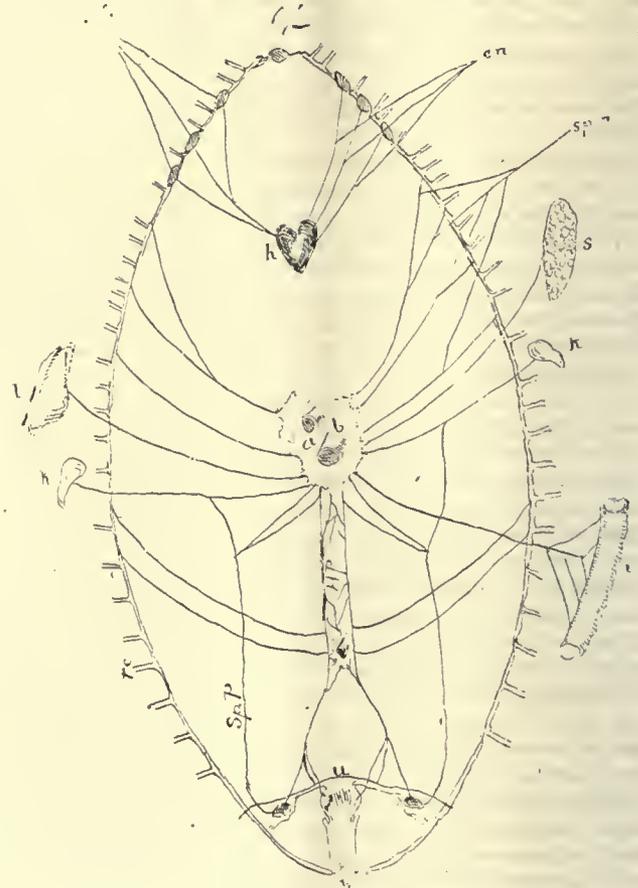
Ovulation is a progressive non-periodical process. It begins before birth and continues until the ovarian tissue is atrophied or worn out. It is liable to occur at menstruation or œstrus because of the vast blood supply at that time which hastens the follicle to ripen and burst. In the lower animals, so far as I can decide, menstruation and ovulation seem to be coincident, *i.e.*, they occur at the same time. I examined the cow, dog and sheep but my observation is especially based on the ovular and menstrual process as seen in the sow. By the examination of some two hundred and fifty specimens of sow's genitals in all conditions it seems to me that the œstrus of this animal embraced both menstruation and ovulation in one physiologic process at the same time. But as the scale of animal life ascends, the process of menstruation and ovulation seems to become more and more divorced. To my mind the best animal to begin with is the cow. In the cow one can see more and more distinct processes with the ovaries and tubes. Their separate workings become more apparent. In the calf, before and after birth, ovulation is very manifest. But the tubes and uterus before birth and for a considerable time after, are manifestly quiet and pale and rudimentary, non-functional. In woman it is my observation that menstruation and ovulation are found distinctly separate from each other. It is true that ovulation and menstruation may occur together, may be coincident but that is an accident. The processes are physiologically separate. In woman one can see ovulation before birth, and I have seen ovulation in a woman of 70, the specimens of which were presented to me by Dr. Burgess, of Milwaukee. Now, of these two great physiologic functions, ovulation is a life-long process. It begins before birth and ends with ovarian atrophy. But menstruation is a periodical process beginning with puberty and ending with menopause.

The menopause ends slowly, as puberty begins. It is frequently difficult to decide which produces the most profound impression on the general system. The popular belief is that the period of menopause is a time of danger to the woman. It is claimed that she is more liable to malignant growths of the genital organs or the breasts, and the average woman expects evils to arise in her, either bodily or mentally. Popular belief that woman is more liable to disease at the menopause is probably correct.

The symptoms of the menopause are: *a*, cessation of the monthly flow; *b*, flashes of heat; *c*, flushes of circulation; *d*, irregular perspiration. The cessation of the flow is a very irregular and indefinite matter, but generally occurs at about 45 years of age. It requires an average of eighteen months for a girl to become regular in menstruation; besides the genitals were being prepared for several years. It requires two and a half years for the monthly flow to cease, on an average. The flow ceases very irregularly even in normally physiologic cases. The flow may be scant one month, not appear at all the next and the third or fourth a flooding may occur. Should the flow cease without pathologic manifestations? I would answer, "No." Many no doubt will oppose this view and say that it is a purely physiologic process and if the woman is normally healthy she should have no manifest disturbance. So is labor a physio-

logic process, but it is frequently accompanied by pain and other disturbances. The cessation of menstruation means the death of a great function, the atrophy of a dominating organ which has the greatest nerve supply of all the viscera.

The nervous apparatus of the visceral organs may well be compared to the equalizers on the horse-power of a threshing machine. When the ten horses all pull evenly the gearing works uniformly, but the neglect of one team puts the gearing awry, and though the machine may run, its working is not of such fine



EXPLANATION OF FIGURE. A SCHEMATIC DRAWING OF THE SYMPATHETIC NERVE.

- X. Ganglion of Ribes.
 - Y. Coccygeal ganglion (Impar.)
 - L. Liver.
 - K. Kidney.
 - S. Spleen.
 - Sp.P. (Spermatic) ovarian plexus.
 - I. Intestine.
 - A.B. Abdominal brain (center of reorganizatiou).
 - Sp.N. Splanchnic nerves.
 - C.N. Cardiac nerves.
 - H.P. Hypogastric (aortic) plexus (coming from three sources).
 - U. Uterus, tubes and ovaries.
 - H. Heart.
 - C.G. The three cervical ganglia (secondary center of reorganization).
- The sides of the ellipse represent the lateral chain of the sympathetic. One nerve strand goes from the abdominal brain (a.b.) to each viscus to represent its plexus. Observe that the spermatic (sp.p.) arises from the abdominal brain, renal plexus and aortic plexus. Any irritation starting in any viscus will pass to the abdominal brain, where reorganization occurs, and the forces are redistributed over the plexuses to every viscus.

balance. The destruction of one function in a well balanced nervous system is sure to destroy the well established balance in the others. So that in my opinion pathologic disturbances may be looked for in the menopause. In order to make my views clear and reasonable, let us construct a diagram of the sympathetic system. Fig. 1, page 346, represents the sympathetic nerves. It is drawn in the form of an

elongated ellipse. At the upper end of the ellipse begins on the cerebral communicating artery at the so-called ganglion of Ribes. The lower end the ellipse ends at the coccyx or ganglion Impar. R. C. shows the connection of this ellipse to the cerebro-spinal axis. The interior of this ellipse is what gives us special interest, for here lies the vast and complicated network of this nervous ring. A. B. indicates the abdominal brain, solar plexus or semilunar ganglia—the center or reorganizing locality of the sympathetic system. From the abdominal brain, renal ganglia and the lateral sympathetic chain, passes off a large plexus of nerves, down to the aorta to the uterus, tubes and ovaries. This is known as the hypogastric plexus. (H. P.)

The observation which I note in the dissection of quite a number of old women, is that after the menopause the genitals not only atrophy, but the hypogastric plexus also shrinks away. It becomes smaller, finer, and no doubt some strands disappear on the entrance of the menopause. On this fact must be based the pathologic symptoms accompanying the cessation of the menstrual function. In dissecting infants which have lain in alcohol for some six weeks, the very opposite condition of the hypogastric plexus may be observed, for in the young child the hypogastric (sympathetic) plexus is disproportionately large and can be very plainly dissected out. The explanations of the disturbances of the menopause may be shown as follows: For thirty years, monthly rhythmic impulses have passed over the hypogastric plexus to the uterus and tube. A fixed habit has been established and the genital organs lie in the assimilating and motor grasp of the hypogastric plexus. The importance of the genital organs is shown by the vast nerve supply sent to them and also because the hypogastric originates in great central sources. It arises plainly out of the abdominal brain, the renal plexus and sympathetic lateral chain. It is intimately and closely associated with the whole sympathetic ellipse. Now, when this great nerve tract, known as the hypogastric plexus, will not transmit the higher physiologic orders it will unbalance all other parts of the ellipse. If the nervous forces can not go over an old established line they will go over the next lines of least resistance. The hypogastric plexus can not carry the orders as it is atrophied and destroyed for the old work. Thirty years of monthly rhythm established in the abdominal brain is not to die without a struggle. This explanation will enable us to understand the many pathologic manifestations of every viscus at the menopause. The irritation which arose by trying to pass more nervous impulses over plexuses than normal, gives origin to what is unfortunately known as "functional disease." It is just as organic as any disease, only we are not able to detect it. Acute atrophy is a pathologic condition and no doubt this is the condition of the hypogastric plexus at menopause.

After the cessation of the flow the most prominent symptom is what is called flushes. Over 80 per cent. of women will experience this peculiar phenomenon at the menopause. I shall include two distinct ideas in this subject. I shall define flushes as a disturbance of the vasomotor centers, and flashes as a disturbance of the heat center. Heat and circulative disturbances are so intimate and go together so frequently that I shall not attempt to separately describe them. Suffice it to say that the heart and vasomotor centers

are unbalanced by irritation at the menopause. They may come on rapidly and irregularly for a short period and then remain away for days. The patient would indicate that the disturbances were first manifest to them near the stomach and then rapidly spread over the head and chest. It would seem from carefully watching these women in menopause and listening to their description, that wave after wave succeeds each other. I have watched them under attacks and they seem to be under a desperate struggle to control themselves. The blood vessels of the head and neck seem to be the most affected, yet the skin of the whole body shares in the disturbance. The nerve impulse, *e.g.*, which should be emitted along the hypogastric plexus is abnormally forced over other plexuses and the vasomotor center becomes irritated, resulting in dilatation and contraction of the peripheral vessels. All molecular action generates heat, and it may be that much of the heat experienced is due to the rapid dilatation of the vast number of vessels and the rapid flow of fresh blood in them. As the cheeks glow the woman says she feels hot and the more the skin glows, red with flushing blood the more she claims she is hot. Besides the vasomotor and the heat center being disturbed the sweat center is irritated. The flushes and flashes are followed by various degrees of sweating. The sweating is just as irregular and uncertain. The quantities of sweat vary from a fine moisture to great drops.

The theory of disease at the menopause must rest on the unbalancing of the nervous system by changing the old established nerve channel through which they have carried impulses for a generation. It must rest on actually diseased genitals, or atrophy of the organs on the plexuses which transmit controlling forces to them. Disease at the menopause must rest on some irritating center which is chiefly the genitals and their nerves. Like many old gynecologists we need not look for the sole cause in the ovaries but her trouble is due to reflex irritation. Eighty per cent. of such women suffer in general from nervous irritability. Fifty per cent. suffer from flushes and flashes, which means simply disturbed heat and circulatory centers. Probably 50 per cent. suffer deranged sensations, hyperesthesia and anesthesia. Perhaps 40 per cent. suffer from headache, abdominal pain and perspiration. About 25 per cent. of women at the menopause suffer from leucorrhœa, sudden flooding and sweats. This means that all the secretory apparatuses of skin, mucous membrane and centers are deranged. The first thing I search for in such women is diseased genitals, *e.g.*, endometritis is an arch fiend.

Inflammation of some kind may be found in the uterus, tubes and ovaries. Acute atrophy—a form of malnutrition—must be recorded among diseases. If no pelvic trouble be found, examine the whole abdomen and chest for any disorder. I have found that the glycerin tampon twice weekly, and the hot douche gradually increased up to ten quarts twice daily, often cures such patients at least symptomatically. Curetting may be required. Radical disturbances in the menopause mean disease, and generally it is located in the pelvis. Women are expected to suffer from neuralgias at this time, nerve irritation, but their intellect is also often disturbed, especially in the will power. General treatment is right and reasonable. Baths, attention to food and evacuations. The

patients fret and worry and do not rest or sleep well. The bromids act well, especially given at night. I make over half the dose sodium bromid, as that does not irritate the stomach and skin so much as potassium bromid. The bowels are best regulated by having the patient drink a glass of water each night at bedtime in which there is from a half to a drachm of epsom salts with the additional advice to go to stool every morning immediately after breakfast, *i.e.*, after the hot coffee has stimulated peristalsis of the bowel.

Women take on fat at the menopause. This is a form of low grade nutrition. I have examined some half a dozen of this kind of patients who were considered subjects of tumors or pregnancy. But a little experience and patience will soon teach the physician that the tumor is simply abnormally thick, fat, belly walls.

Most of the pains arise around the stomach, *i.e.*, in the abdominal brain—the solar plexus. The pains that arise in the epigastric region are innumerable, indefinable, and baffle all systematic description. We must, however, have charity sufficient to allow the patient the doubt that such numberless disturbances are real. The “something moving in the stomach” may be abnormal peristalsis, induced by some diseased focus as in the globus hystericus. Whatever opinion is held by the physician a reasonable treatment should be introduced. Such patients have so much lack of confidence in themselves, their physician and their friends that they have not will power to keep up a systematic course of treatment. Hence they go around from one physician to another.

The duty of the physician is to locate the disease and remove it, or to attempt to restore order in a disordered nervous system which becomes unbalanced by reason of some irritation arising from atrophy, senility or inflammation. A thorough anatomic and physiologic knowledge of the sympathetic nervous system is required for intelligent practice in gynecology. The pathologic condition must be found in order to show skill in removing it. It must be remembered that a stormy puberty generally means a stormy menopause. The intimate and wide connection of the nervous system and genitals is phenomenal. The nervous connections of the genitals is profound and any genital trouble deeply impresses the whole being. It would not be strange, also, if one woman's uterus were found with vastly more nervous connections than another, or at least being much more sensitive than others. My experience in the dead-house and otherwise is that viscera vary much in size. In some a uterus is small, in others large without regard to the individual statural size.

Menstruation must be looked upon as arising and subsiding in the nervous system, especially in the sympathetic system. I would like to make a plea for more study of the nervous system, and particularly the visceral nervous system. From the lack of this knowledge physicians are mistaking nervous diseases for uterine diseases. A great evil is going on to-day in regard to misunderstanding, that a little nervousness does not always belong to the ovaries or uterus. The nervous system is a vast, finely ordered, nicely balanced machine which can be easily disordered without the least need of removing ovary, tube or uterus. Some general or local treatment may be amply sufficient. Too many laparotomies are being done to-day by unskilled men without proper facil-

ities. Sweeping removal of organs is a backward step in surgery, and the general disapprobation of the leading gynecologic surgeons must cry it down. It must be insisted on that he who would work on the peritoneal cavity must be trained. Training and skill, coupled with a decent sense of right, will alone stand the test of time in any branch of surgery. The colleges must begin with chairs of visceral anatomy and abdominal experiments for small classes.

A pathologic state is one manifesting abnormal conditions, whether it be recognizable changes in structure, or simple deranged functions without perceptible disordered structure. There are reflex neuroses, by which I mean disturbances in distant parts produced by irritation of some sensory or motor-peripheral area. It is easy to note that a woman is irritable and nervous, without in the least being able to locate the pathology from which the disturbance originated. One of the most marked features of a woman in the menopause is the kind of nervous irritability. It may be easily observed, if one will note quite a number of women in the menopause, that they do not suffer from tumors and malignant diseases so much as they do from disturbance in the sympathetic system and cerebral-spinal axis. Nervous irritability characterizes four women out of five during the menopause. How does this come about? Two ideas explain the complicated but slow course of the disease, *viz*: Reflex irritation and malnutrition. Any one can easily see that the nervous system is out of balance in the menopause. The beginning and end of menstruation is in the sympathetic nerves. Puberty is heralded by ganglionic rhythm, and the menopause comes in at the cessation of the rhythm. The entrance and disappearance of menstruation is a nervous phenomenon. The genitals then become a point of new irritation as puberty begins, and the genitals are again the focus of irritation as the rhythm departs forever. Menstrual starting chafes the system profoundly, but its cessation irritates the system notably with its dying struggles. By the figure it is plain that any genital irritation can be easily carried to the abdominal brain where re-organization occurs. This newly organized force will go to every viscus in the sympathetic ellipse and damage the rhythm. Now the visceral rhythm is for the purpose of nutrition, and pursues its even tenor in a kind of orderly manner. But irritation from a focus never comes or goes by rule. It goes at all times and any time, while the viscera are performing their nutritive rhythm. The irritation from the diseased focus forces itself up the hypogastric plexus to the organizing center and is emitted to all viscera, in addition to the normal nutrition and rhythm and disorders natural to visceral rhythm.

A few weeks or months of irritation gradually produces deranged visceral rhythm and consequent indigestion. The addition of indigestion to a diseased visceral focus makes a double burden on the whole system. The nerves become more irritable. The focus of irritation (the genitals) and indigestion persist and soon bring on distinct malnutrition—another burden to the ganglionic system of nerves. All this continues until anemia arises—waste-laden blood. Now it is apparent to all when waste-laden blood bathes all the thousands of ganglia and nerve strands in the body that the patient may be nervous or irritable. She is neurotic. The sympathetic

ellipse is unbalanced and its centers are disordered. It is a slow process for the woman to pass from a single focus of visceral disease to a neurotic condition. The whole disturbance become intelligent by comprehension of the nervous system and a knowledge of the condition of the diseased genitals. The intelligent practitioner always examines the genitals in a diseased menopause. A stormy menopause means diseased genitals. It means a focus of pathology which is nearly always situated in the pelvis. The effects on individual viscera may be described by noting how the irritation can pass up the hypogastric plexus to the abdominal brain and being reorganized be emitted to the digestive tract. The irritation goes on day and night; when it reaches the digestive canal by way of the gastric, superior and inferior mesenteric plexuses it first affects Auerbach's ganglionic plexus of nerves which lie between the muscular layers of the gut wall. This simply disturbs peristalsis and induces perhaps some colic. But as the irritation passes on to Meissner's plexus it disorders secretion. Meissner's ganglia control secretion, and irritation of this plexus may induce excessive secretion (diarrhea), deficient secretion (constipation), or disproportionate secretion (fermentation). Thus the great assimilating laboratory of life is deranged. Digestive disorders are common in the menopause. Liver disturbances are not uncommon. The irritation passes through the abdominal brain to the liver, inducing excessive, deficient or disproportionate bile, glycogen and urea. The rhythm of the liver is deranged. Its rhythmical activity and quiet repose is continually disturbed by reflex irritation. It is easy to observe disease of the liver from the condition of the patient in menopause,—skin and bowel abnormalities. The route from the genitals to the heart is plain from the diagram. The irritation from the diseased genitals passes to the abdominal brain, thence up the splanchnics to the three cervical ganglia, whence the re-organized irritation passes to the heart over the three cardiac nerves. The result is that the heart goes rapidly or irregularly—it palpitates.

After nervous irritability the woman in menopause probably suffers most frequently from flushes and flashes, *i. e.*, irritation of the vasomotor and heat centers. Her skin glows with fresh red blood or burns prickling heat. This seems to me to be merely an unbalanced condition of the nervous system due to a disordered focus. The transmission of nervous energy goes pellmell, or in a tumultuous manner, over roads which are not accustomed to so much commerce and the centers are not able to orderly reorganize it. The circulation floods or depletes the vasomotor centers.

One may observe that some women enter puberty with many indescribable pains, and they continue to complain of peculiar abdominal pains during the reproductive period, and at menopause they simply become chronic grumblers and complain more and more bitterly. What must be said of such women? We must not consider them as fabricating untruths for a whole generation; we must attempt to study the ganglionic system of the sympathetic in order to unravel all the trouble. We may say that women with these abdominal pains are in a poor state of nourishment. Debility characterizes the ganglionic disease, while irritability is the feature of cere-

bro-spinal axis troubles. Women with ganglionic disease are weak ill-nourished creatures, often unable to do a little housework. Can we not consider that such patients have hyperesthesia or anesthesia of the visceral ganglia? These ganglia are little brains, for they have all the elements of the cranial cerebrum,—nerve cells and process. In short every nerve cell is a unit in itself. It is an isolated anatomic unit, a neuron, a brain, a re-organizing center. The essential of the cell is the nucleus because it has the power of nutrition, hence reproduction. Hence each ganglia is a little brain, a re-organizing center. Now, a brain or ganglion cell receives sensation, sends out motion and controls nutrition. It reproduces itself, it controls secretion and lives in balanced relations with its environments. Can we not think that such patients have an over-sensitive or irritable abdominal brain? Their visceral nerve apparatus is abnormal, it is out of order. But this center holds in abeyance nerve energy and nerve force. It holds all the assimilating and circulatory laboratory in living tension. Such patients have not a perfect machine to work with. Such are generally congenital or made so by the acquisition of some profound function as menstruation. The female visceral nerves seem to be peculiarly liable to rapid derangement. Women faint frequently and slight occurrences disorder their viscera. The flying of a bird will make the heart palpitate. A sudden noise deranges respiration or circulation. A change of locality either puts in order or puts out of order the nervous system. The female nervous system is much more unstable than man's. And no doubt that this is the reason that so many physicians mistake nervous diseases for uterine diseases. Such physicians are either ignorant of the delicate nerve mechanism or are over-zealous operators.

The pathologic condition of the genital organs in the natural menopause is general atrophy. Absorption of fat and consequent shrinkage, lessened vascular supply and consequent smaller organs. It is a pure senile atrophy. The organs assumed action, served their purpose and subsided forever. Even in a natural menopause the distinct dying struggle may be expected in the hypogastric plexus. Puberty increases the volume of the organs while menopause lessens it. Puberty is the real birth while menopause is the real death, of the female genitals. The appearance of the individual organs at the menopause are peculiar. The vulva wrinkles and shrivels through the absorption of fat and other tissue. In dissecting senile genitals the pudendal sac of Bichat and Savage become more apparent than ever. One can push the index finger into it and the great labia will appear and feel very thin while the sac seems disproportionately large. The fat rounded form of youth obscures this peculiar pudendal sac even in dissecting. In old women the vulva flattens out and exposes the clitoris and small labia. The clitoris becomes smaller and blends with the surrounding parts so much that it is occasionally difficult to find its location. The vagina becomes smoother in its folds. It contracts in every direction and frequently it may seem to thicken but that is probably a delusion of blending with other tissue. The cervix gets smaller and may appear entirely absent, from the excessive shrinking and contracting of the vagina. The uterus becomes smaller and harder. It has a peculiar tough, elastic feeling from the atrophy of muscular

tissue. It assumes to some extent the form it had before puberty, except that the neck is more prominent before puberty. It straightens out. Its nerves and vessels shrink. The tubes are notably thinner and shorter. The circular muscular layers seem to suffer the most.

The ovaries shrink very much and resemble a peach-stone on the surface. In quite a number of old female cadavers I have found them the size of beans and in some it required considerable searching to find and recognize them. Then we found in the contracted and shrunken broad ligament the sheaths and nerves themselves atrophied.

In examining women with a stormy menopause it is not infrequent to observe subinvolution. While a pupil of Mr. Lawson Tait, several years ago, I gained some knowledge in regard to a disease of the vulva which may not infrequently be seen in women from 40 to 50, or about the menopause. It is a trouble that one would easily pronounce on a glance, eczema of the vulva. Mr. Tait remarked that it was due to a kind of climacteric diabetes; that it is a kind of eczema of the menopause. Dr. Martin, Mr. Tait's assistant, was very kind in displaying to me these unfortunate cases. The labia were swollen and edematous and the red flaming eczema extended far and wide beyond the vulva. The disease made the patient's life almost intolerable. Mr. Tait's treatment for such cases was a solution of hypophosphites of soda (an ounce to a pint of water). The solution should be applied every two to five hours as required, to destroy the germ which induced the itching. He then gave heavy doses of opium. Mr. Tait claims that there is a kind of diabetes mellitis during the menopause. Mr. Tait thinks it is a limited diabetes as they all finally recovered. The distress of the patient with this climacteric diabetes is due to the sugar urine on the vulva. Peculiar crusts form on the vulva, due to the multiplication of the vegetable germ known as *torula cerevisiæ*. The eczema due to this cause will spread over the buttocks, up over the abdomen and even down the thighs. In one case I saw the eczema extend so wide that the patient could walk only with difficulty. The hyposulphite of sodium arrests the formation of this germ. Mr. Tait would sometimes give as high as 1 grain of opium three times daily and then 2 grains at night. After a few months of such treatment the opium was lessened, and in from five to ten months such patients fairly recovered. They are liable to short relapses. Mr. Lecorche, of Paris, has also made researches independently of Mr. Tait and curiously enough they agree in many ways. Mr. Tait carried his views into more definite plans of treatment. This climacteric form of diabetes is then a disease which begins at the menstrual cessation and lasts a few years. Menstruation seems to give immunity to it. Nature appears to finally overcome it. If the hyposulphite of sodium is inefficient to arrest the trouble, on account of the fluid quickly running off the parts, an ointment of sulphur will remain on the vulva for hours. Any substance which will arrest the fermenting changes in sugar is an effective remedy. I have noted no special form of climacteric vaginitis, but one form is liable to arise which is due to laying bare of some peripheral nerves in the vaginal wall. The spots are red and most exquisitely tender; they occur mainly at the vulvar orifice and are very persistent. The treatment consists in applying cocain

and then sufficient caustic or Paquelin to entirely destroy the exposed nerves. These neuromatic patches are apt to arise in women at other times also. In severe cases it is best to anesthetize the patient and destroy the exposed nerves widely by the Paquelin.

The especial diseases of the uterus in menopause which I have observed are endometritis and subinvolution. Chronic endometritis with an excoriating discharge I have not infrequently noted. The uterus is generally slightly large. The mouth is red, bleeds easily and out of it runs muco-purulent substance of varied color. The hot douche (10 quarts) twice daily and the additional use of glycerin tampons cures most cases. Occasionally a curetting is required, followed by the thorough application of 95 per cent. of carbolic acid on gauze wound on a sound. I apply the 95 per cent. carbolic acid to the endometrium three times, so that it will destroy the old inflamed endometrium and drain with a little rubber tube or pack in gauze and remove it in twenty-four to thirty-six hours. Fortunately the senile endometritis is generally cured with one curetting unlike the stubborn endometritis of youth. Mild forms of endometritis in the menopause I have frequently noted. The subinvolution or suspended involution is a much graver matter to health. It has had a more evil and wide effect on health and especially the nervous system. It consists essentially of a metritis, and so far as I can observe rests on an old endometritis. Whether Klob or Rokitansky is correct, I will not at present attempt to decide. Whether the hypertrophic uterus is due to excess of connective tissue or muscle, or whether it is due to a natural proportionate increase of both is still undecided. It may be often observed that such women have a lax pelvic floor in addition. So far as my limited experience goes, the tampon and douche are insufficient or are too slow for satisfactory effects. Thorough curetting is the best means at command, with the application of 95 per cent. of carbolic acid to the whole endometrium. The cure is slow at best but finally quite satisfactory. The pathology of the climacteric or senile endometritis must not be lost sight of. At first the leucorrhœa is more abundant. It may be mucous, muco-purulent and finally pus. The explanation of the changes of the fluid secreted from the endometrium rests on the endometritic glands. At first the glands are able to be increased in their function; with time they atrophy, but the inflammation proceeds and finally only sero-purulent substance or chiefly pus from the glandular destruction and only now and then a glandular endometrium itself. The remnants only of the endometrium remain and these are involved in a state of low vitality. Low and wild forms of granulation are visible at the neck and can be scraped out of the uterus. Slow necrosis, local death, gradually proceeds until raw ulcerative surfaces are exposed and only pus will be secreted. The glands have disappeared. We must observe that cervical laceration frequently exists with this trouble. The reason such conditions do not heal well is because the blood supply and nerve supply to the uterus is now being cut off, curtailed, and it is imperfect so that nutrition is very deficient in the uterus. For thirty years the uterus has had high feeding from fresh blood and the fine control of a complicated nerve apparatus, but suddenly the high feeding is curtailed and the delicately balanced

nerve apparatus is impaired by the atrophy of the menopause. Hence low granulations, imperfect reproduction of cells, ulcerative surfaces may be expected. It must be remembered that there are other troubles than cancer in the uterus at the menopause. The essential feature of climacteric uterine trouble is imperfect nutrition. This will not astonish one so much after he has carefully examined and dissected or post-mortemed a dozen female cadavers above 50 years of age. In them he will note atrophy, shrinkage, contraction and pale white tissue.

The differential diagnosis between cancer and uterine trouble (endometritis) may be looked for in the case of cancer by infiltration, thickening and peculiar watery, sanaceous discharges. As regards ovarian tumors at the menopause they grow more rapidly. The vital power of the patient is at a lower ebb, and besides the nutrition of the ovary is degraded by curtailing its blood supply and atrophying its nerve supply.

It would appear that the branches of the hypogastric plexus which are sent to the bladder and rectum are not atrophied to the same degree as the branches sent to the genitals (uterus, tubes and ovaries). Yet in my post-mortems and dissections it appears to me that the vesical and rectal branches do atrophy sufficiently to be plain to the observer. The present idea of medicine is that there is an anatomic structure disordered somewhere to account for disease. A portion of a man only is diseased and pathologic anatomy could always indicate the origin had we sufficient acumen.

Now in the menopause the cerebro-spinal axis is disturbed through the means of the vasomotor nerves, and the circulation by some form of reflex neurosis. A woman's mind is often disturbed. She has lost her old will-power, her memory is impaired. She can not concentrate effort. She is liable to do damage from inability to control her own action. The law recognizes any deviation from rectitude during the menopause with leniency. The treatment of women during the menopause must be local, general and moral. The cog in the wheel which disturbs even physical existence must be remedied. General debility and irritability must be allayed by anodynes with both tonics and good nourishment. While the unhinged moral views must be removed by changing the life from the old ruts which caused it.

CONCLUSIONS.

1. The average menopause lasts two and one half years.
2. It comes on slowly as puberty does.
3. A stormy puberty means a stormy menopause generally.
4. The general rule is that an early puberty means a late menopause. In my opinion it simply means that early puberty and late menopause rest on a largely developed abdominal brain and hypogastric plexus. A vast nerve supply means also a large blood supply. Precocious puberty means well developed genitals and ganglionic nerves.
5. The disturbance at the beginning of puberty is profound, but since it is an active (depletive) physiologic process it quickly fits the growing and adaptive nervous system. But the menopause is a destructive process. It breaks up the harmony of the previous processes and unbalances the even distribution of nervous energy and circulation.

6. It is probable that every viscus receives an equal or greater shock at menopause than at puberty.

7. The changes at menopause consist in menstrual cessation, atrophy of the genitals and the hypogastric plexus.

8. Women do not suffer at the menopause so much from malignant diseases as they do from nervous troubles, neuralgias, mental deviations, disturbed visceral rhythm, disordered circulation, indigestion and above all neurosis.

9. The heat center (flashes), the vasomotor center (flushes) and the sweat center (perspiration) are the especial centers disturbed. Excessive, deficient or disproportionate blood supply characterizes the disturbed phenomena of these centers.

10. The etiology and pathology of the menopause lies in the sympathetic or ganglionic nervous system.

11. The systematic pathologic stages in menopause are: *a*, a focus of disease, or irritation (the genitals); *b*, indigestion; *c*, malnutrition; *d*, anemia; *e*, neurosis. It is a slow progressive process.

12. Atrophy is a disease just as much as hyper-trophy or inflammation.

13. Chief among the actual diseases in the menopause is endometritis. The peculiar floodings doubtless depend on this inflammation.

14. The menopause is characterized by various discharges (mucous membrane), leucorrhœa, bronchitis, hemorrhages from the bowels, epistaxis (skin) perspiration.

15. Circulatory, perspiratory and caloric changes are the common heritages of the menopause.

16. A characteristic phenomenon of the menopause is an unbalanced, unstable nervous system, cerebro-spinal (irritable); sympathetic (debility).

17. Debility characterizes the trouble in the ganglionic system, while irritability characterizes the cerebro-spinal axis.

18. The explanation of the various phenomena is only possible through the nervous and circulatory systems.

19. Excessive sexual desire at the menopause is indicative of disease.

20. In the menopause the nutrition is impaired as is shown by the occurrence of malignant disease in the sexual organs which are in a state of retrogression.

21. A chief feature characteristic of uterine disease is malnutrition from atrophy, curtailing blood supply suddenly, from the sudden degeneration of the genital nerve apparatus and consequent impaired control of tissue by a defective nourishment. Ulcerative surfaces, local death and purulent secretions arise from low granular cell formations.

22. In the menopause a disturbed point has arisen in the harmony of visceral rhythm. This pathologic focus must be looked on as the cause of the innumerable reflex neuroses at this time of life.

23. A reflex neurosis is a disturbance in distant organs caused by the irritation of a peripheral sensory or motor area.

Louisiana State Board of Medical Examiners.—Gov. Foster, of Louisiana, has announced the following appointments: Members of the Board of Medical Examiners on the part of the Louisiana State Medical Society: Drs. T. S. Kennedy, H. S. Cocram, T. Y. Aby, F. J. Kearney and A. F. Barrow; on the part of the Hahnemann State Medical Society: Drs. E. A. Murphy, O. J. Lopez, C. R. Mayer, Robert A. Bagley and J. W. Belden; Board of Control of Lepers Home: E. M. Hopper, Isidore Dyer, H. J. Schenck, Allen Jumel, A. A. Wood and C. J. Edwards.

BASSINI AND HALSTED OPERATIONS FOR INGUINAL HERNIA.

LIGATION OF FEMORAL FOR TRAUMATIC ANEURISM—
MASTOID DISEASE—PELVIC ABSCESS ESCAPING
THROUGH GREAT SACRO SCIATIC NOTCH
—HEMOPHILITIC KNEE JOINT.

(Surgical notes Presbyterian Hospital, June 10, 1894.)

BY ARTHUR DEAN BEVAN, M.D.

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Case 1.—The first case which I present to you is one of double inguinal hernia. This patient is 30 years of age, is a laborer; general health and history good. Has had this double rupture for twelve years. Examination demonstrates that they are oblique inguinal herniæ; from long existence the internal ring has been dragged down until it is opposite the external ring, thus simulating direct hernia. The term, straight hernia, is used to designate this condition. This man has continuously worn a truss, but even with the truss the condition has been a source of constant annoyance to him. My personal experience with the operation for radical cure of hernia, something more than thirty cases, has been so gratifying both with regard to permanence of cure and freedom from mortality that I feel warranted in advising this man to submit to operation.

On the right side I shall do a Bassini operation and on the left a Halsted, so that you may have an opportunity of comparing these two methods.

The Bassini.—I now make an incision through the integument and superficial fascia over the inguinal canal, about three inches in length, extending above the internal ring and down into the scrotum. This exposes the intercolumnar fascial covering of the hernia; this is the most superficial of the three coverings common to the cord and the hernial sac, the other two being the cremasteric fascia and the transversalis fascia. These three coverings must be divided before we can expose the peritoneal sac and separate it from the tissues of the cord. Many surgeons will tell you that it is difficult or impossible to distinguish these layers. I tell you that in almost all cases these coverings can be more readily demonstrated in an operation for radical cure of hernia than they can be on a cadaver in the dissecting room, and further that it is very desirable to be able to do this. It is only occasionally that we run across an old complicated hernia in which this is difficult or impossible. I shall give you a rule which will make it easy for you to identify these structures:

1. The intercolumnar fascia is exposed after the division of the skin and superficial fascia; it is the strongest, firmest, most fibrous covering of a hernia; this should be divided the entire length of the sac and as high up as the internal ring. The division of this layer exposes the second covering, the cremasteric fascia, which can be recognized from this fact and by the looped muscular fibers running through it. The division of this layer exposed the third, the transversalis fascia, which is recognized simply from its position. It has no distinguishing feature, beyond the fact that it is situated between the cremasteric fascia and the peritoneum.

It is at this point of the dissection that a layer of fascia sometimes presents itself which may confuse the inexperienced anatomist and operator, *i. e.*, the subperitoneal fatty layer which intervenes between the transversalis fascia and the peritoneum. This is often mistaken for the omentum. Its position, the ease with which it tears, its lack of large vessels and lack of peritoneal lustre enable the experienced operator to distinguish it from the omentum. I now expose the sac, separate it from the cord with fingers and forceps as high up as the internal ring. In this case the sac is very transparent. I can see that it contains neither omentum nor intestine and I shall not open it. I ligate the sac as high as possible and cut away the redundant portions. I now lift the spermatic cord out of its bed, separate the aponeurosis of the external oblique from the conjoined tendon with forceps and blunt dissector, free Poupart's ligament from the adjacent tissues, that is the superficial fascia and the cremasteric fascia. With silk sutures, seven in number, I close the entire inguinal canal by sewing together the transversalis fascia and conjoined tendon on the inner side to Poupart's ligament on the outer side. The spermatic cord is now laid over this closed canal and covered, by sewing over it the aponeurosis of the external oblique. The external incision is closed, without

drainage, by silkworm gut sutures placed an inch apart, acting as tension sutures, and a fine continuous catgut suture placed an eighth of an inch from the margin of the skin and one-fourth of an inch apart.

We shall now do a Halsted on the other side. The external incision is the same as before, except that it is carried nearer the anterior superior spine of the ilium. I separate the sac as before, but instead of ligating it I cut it open with scissors parallel to the external incision; this incision extends above the internal ring and divides the neck of the sac. This exposes the general peritoneal cavity. The opening in the peritoneum is closed with mattress sutures and the redundant portion of sac cut away. The next step in the operation is the ligation of the great mass of the spermatic veins as high up as possible and at a second point below the external ring. The portion between the ligatures is cut away leaving the vas deferens and a few vessels. The canal is now closed with sutures which pass through the conjoined tendon, transversalis fascia and external oblique internally, and Poupart's ligament externally. The cord is then laid over this closed canal and the external incision closed as before. An aseptic compress is applied and retained by means of a double spica. One little point in the dressing of these cases is to sling the scrotum up over the abdomen with a silk or gauze handkerchief to prevent the gravitating into the loose tissues of the scrotum, of the blood and wound secretions, an accident which I have had occur several times when this precaution has been omitted. Subsequent history: Case ran a normal aseptic course with perfect closure of canals.

The second case operated upon was shown later at a meeting of the Chicago Medical Society:

Case 2.—A young man of 20; four weeks ago cut himself with a bit of glass over the inner and upper aspect of the left thigh at a point near the apex of Scarpa's triangle and in a line with the femoral artery. Profuse hemorrhage occurred but was readily controlled by bandage. He was taken to Cook County Hospital; the case treated as an incised wound; discharged at the end of two weeks with small suppurating sinus. A few days ago noticed an enlargement at the seat of injury and was brought to the Presbyterian Hospital. The condition, that of traumatic aneurism of femoral is evident. The operation which I shall do is the old operation of Antyllus, *i. e.*, cutting into the aneurism, turning out contents of sac, ligating both proximal and distal ends of vessel.

Cutting directly into the aneurism I find the sac composed of the deep fascia, sheath of femoral vessels and intermuscular septa. Turning out the blood clot I find a wound three-fourths of an inch in length in the anterior wall of the femoral artery; the vein is to the outer side, the internal saphenous nerve between the two vessels. The artery is ligated above and below the wound in vessel and vessel divided between the ligatures. The sac is very thin and does not demand removal. Subsequent history: No interference with circulation of limb. Patient discharged at end of two weeks cured.

Case 3.—The third case which I now present is one of mastoid disease. History: Measles, inflammation of middle ear, later involvement of the mastoid. This last occurred about a year ago. He now has a sinus about two inches behind the external auditory meatus; this suppurates freely at times, at times closes and then the pus escapes from the ear. Opening up the sinus an opening into the cranial cavity is found which is in the line of suture between the mastoid portion of the temporal and the occipital bone. It is evident that in this case the pus has worked its way from the mastoid process or middle ear into the inferior fossa at base of skull between the bone and dura, or else that we have a case of suppuration of the lateral sinus to deal with, and fortunately for the patient the suppuration has found a means of exit through the temporo-occipital suture; following this sinus with a chisel it is found to lead into the mastoid antrum; this is carefully scraped out, great care being necessary because of the proximity of the lateral sinus, if indeed the suppurating tract is not the lateral sinus itself.

Subsequent history: No uncomfortable symptoms; patient about on second day; still under observation.

Case 4.—This woman was confined five weeks ago; had septic inflammation following confinement. She presents herself to us with this huge swelling over the buttock covered evidently by the gluteus maximus muscle; temperature 103.5; fluctuation is distinctly felt. Upon opening the abscess I find that I can insert my index finger easily into the great sacro-sciatic notch; this is evidently a case of pelvic suppuration escaping through the great sacro sciatic notch

It is the second case of the kind which has come under my observation. Subsequent history: Disappearance of symptoms; five weeks after operation there is still a small discharging sinus.

Case 5.—The last case which I present to you is one of great interest. This man 40 years of age has been complaining for some weeks of rheumatic pains. He comes to us with this great swelling in and around the left knee joint; this swelling extends half way up the thigh and half way down the leg; the surface is covered with patches of ecchymosis. Examining the man's body I find multiple patches of ecchymosis on his arms and other thigh. He tells me that these ecchymosed patches occur from the slightest injury; that whenever he cuts himself he bleeds very profusely; that once he had a tooth extracted with alarming hemorrhage following. He does not know that any member of his family is similarly affected. This is evidently a case of hemophilia. The joint is a hemophilic knee joint. The treatment we shall advise is rest, compression with a flannel bandage, careful avoidance in the future of injury. These cases sometimes after repeated attacks have ankylosis result. The subsequent history: Patient was seen at end of two weeks; had improved greatly. He then passed out of observation.

GRAFTING FOR THE CURE OF EPITHELIOMA.

BY P. D. KEYSER, M.D.

PHILADELPHIA.

The removal of epithelioma by the knife or caustic has so far, been seldom, if ever a permanent cure, and as this disease appears mostly on the face especially near the eyes or mouth and in persons advancing in years, it becomes a source of distress and pain as well as a blemish, and in the removal by knife or caustic often a very defective scar is left with contractions of the lids and mouth which interfere with the natural and proper use of those parts. Transplanting from neighboring parts creates a greater defect, really defacing two parts; that where the epithelioma was, and that from which the piece of skin transplanted was taken. The drawing of the edges of the wound together where the disease is cut out causes very much contraction, interfering with the opening of the eyes or mouth. Even after such an operation, return of the disease occurs in a very short time, no doubt caused in very many cases by the not complete and thorough removal of the growth in the first place.

Knowing now from the latest studies that epithelioma is entirely a local disease of bacteriologic origin its thorough removal is necessary to insure a cure; and in doing this the gap in the skin must be filled up in some way, and lately grafting has been suggested instead of transplanting, so as to leave as little defect as possible; it is also claimed that the placing of healthy integument in the wound creates a healthy condition of all the surrounding parts and removes the tendency to a return of the disease.

To test the efficacy of this procedure I have during the past winter operated upon a very interesting case which is presented in this paper.

Mr. M., age 54, of Virginia, has been suffering with a slow growing epithelioma in the inner canthus of the right eye for over twelve years. It commenced in a small spot on the lower lid just below the line of the canaliculus. It gradually grew up towards the canthus, when four years ago he underwent an operation for its removal by the electric cautery. It was reported that it had all been removed; the wound, however, never healed properly, but instead, it seemed as if the growth was increased in vitality and started to

grow rapidly, presenting the appearance of Fig. 1 as first seen by me.

Under an anesthetic I removed the disease completely with knife and scissors, and after stopping the hemorrhage, (which is always very free in such cases) by application of hot water sponges, I shaved a very thin graft from his upper arm, in size and shape so as to fit in freely and exactly the gap made by the removal of the diseased part.

Everything was done under thorough antiseptic preparation and influences. The solution of bichlorid of mercury being used 1 to 4000 on the eye and arm. The graft as soon as removed from the arm being



Fig. 1.

placed in a warm saturated solution of salt water, and then carefully transferred and fitted to the wound. The wound was covered with a piece of antiseptic oiled silk, over which were carefully laid and bound moist hot sublimate cloths and antiseptic cotton wool. As soon as the eye was bound up, applications of cloths steeped in hot water were constantly laid over the whole for an hour, and renewed after two hours. This being done to start up vitality in and around the graft. The latter applications I have always found a great adjuvant in the adherency and life of the graft in all such operations. After the



Fig. 2.

second day the oiled silk was removed and dry dressing applied for five days, after which the air was permitted to reach the graft through a thin dry gauze cloth laid over the part.

This operation has now been six months and the eye is as perfect as can be, there being no irritation or sign of the return of the growth.

Fig. 1. shows the case as first presented and Fig. 2 one month after the operation and as it is at present.

The success of this case recommends without doubt, this method of treatment of all cases of epithelioma on any part of the body if taken in time and before too large or deep and attacking vital parts.

A CASE OF ACUTE INFLAMMATION OF THE BRAIN IN A CHILD.

Read at a meeting of the Kalamazoo Academy of Medicine, May 15, 1894.

BY C. VAN ZWALUWENBURG, M.D.,

AND

I. H. NEFF, M.D.

In stating the following case, our attention is directed to the etiology and diagnosis of acute diseases of the brain; especially with reference to the effects of injuries; to the medico legal question involved; to the relation of infection to brain disease, and to the question of trephining after an injury.

The subject of the paper was a boy of Holland parentage, with an excellent family history, both as regards bodily and mental disease. He was a well developed child and the picture of health. No history of physical illness excepting a few attacks of gastro-intestinal trouble.

On March 20, 1894, he complained of headache and vomited considerably. The following day he fell, or rather slipped off the steps of a porch in a faint, as described by his parents. On this day or the day preceding, the exact date could not be determined, he was hit on the head by a stone thrown by a playmate. This produced a slight bruise on the right frontal prominence. He immediately complained of its causing him great pain. There was, however, but slight evidence of the injury and it was not thought to be serious. The headache persisted and increased in severity.

A week after the boy was injured I was called to see him. I found him sitting in a chair playing and talking with his playmates, but evidently suffering considerably; his head bent a little forward; his brows contracted; and his breathing irregular and shallow, each respiration being accompanied with a sigh. Every few minutes he would cry out, complaining of sharp pain in the head, indicating the position of the bruise as the seat of the pain. He maintained that any noise distressed him and apparently his pain was increased by this. At this time there were no symptoms of ocular trouble. After a few days he kept his eyes tightly closed, although not admitting that light caused any pain. However, when his eye-lids were forcibly opened, his actions indicated that light was distressing. Pulse 80, full and regular; temperature 99 F.; appetite capricious but no difficulty in swallowing; bowels obstinately constipated; vomiting had been repeated a few times but now, at the end of the first week, was absent. The left knee jerk could not be obtained and there was but little response on the right side; cutaneous reflexes normal. When asked to walk, he complied reluctantly. All his movements were slow, gait was very unsteady and he held out his hands as if afraid of falling. The walk was slightly ataxic, every step appeared to increase the pain in the head, his breathing was more "catchy," and all the symptoms were more exaggerated after any exertion. This was apparent when he was told to close his eyes when in an erect position. He then had extreme difficulty in maintaining his equilibrium and complained of acute pain. In the recumbent position there was marked abatement in the symptoms. The pupil of the right eye was at this time markedly dilated while the left was contracted. This peculiarity of the pupils was transient, and occurred when he was irritated or when there was any exaggeration in the symptoms. There was also slight ptosis of the right eye. Sensation was apparently perfect. The meningeal streak could easily be produced.

A diagnosis was made of meningitis and in consultation this was confirmed and was thought to be basal in situation.

The tongue now deviated distinctly to the left, there was lack of tonicity of the muscles of the left side, and movement was limited. During the next ten days, all these symptoms became increased and he continued to complain of intense pain in head, always indicating the frontal region as the seat of it. Delirium was present and became quite active. He talked incoherently on many subjects, was irritable and resistant. Ptosis of the right eye, dilatation of the right pupil, and the deviation of the tongue to the left side became very marked. The paralysis of the left side was now distinctly declared. Pulse varied but little, usually about 100, and was full, regular and about normal in character. He irritated the original bruise and there was now evidences of localized suppuration, although this was not connected in any way with the bone. Stupor was present

and he could only be aroused with difficulty. Ophthalmostic examination disclosed intense neuro-retinitis in both eyes.¹ Breathing was irregular and assumed the character of the Cheyne-Stokes respiration. There was considerable emaciation. Constipation continued but there was no vomiting. The stuporous condition rapidly deepened and coma was declared with the usual symptoms. It was now extremely difficult to get response to any external stimulation, the temperature continued about 99 and pulse was not much accelerated. Cheyne-Stokes respiration was now present in its characteristic form.

After remaining in this condition for two or three days, he began to rally and a remission developed, lasting for five days. All the serious symptoms disappeared and pulse and respiration assumed the normal character. For the next four days there was but little change in his condition. The temperature would occasionally rise to 101, but was extremely irregular. He continued to complain of intense pain in the original seat, varying in intensity, but there was noticed a gradual decline in his general condition; he became quite anemic and emaciation developed.

On the thirtieth day of his illness, he had a severe chill which was repeated on each of the four succeeding days. At this time he coughed a great deal but no disease of the lungs could be determined, although a hacking cough was present, unaccompanied with expectoration. There was now present a slight exophthalmos of the right eye—the day following the lids of both eyes were edematous and there was marked chemosis of both conjunctivæ. The protrusion of the eyeballs continued for about a week and then entirely disappeared. Although the paralysis of the left side was quite well declared, he would at times apparently recover power but never regained the normal motion either in the hand or foot.

In the fifth week of his illness, an exacerbation in the symptoms was pronounced but, owing to the comatose condition, they were not well declared. He rapidly lost strength, the original symptoms became prominent, and he died from cardiac asthenia.

Autopsy, twenty-six hours after death. Body emaciated; rigor mortis well developed; post-mortem lividity in usual situation; pupils dilated. Permission was only granted to examine the brain. Scalp thin and anemic; calvarium thin; no evidence of displacement, disease or fracture of bones of skull. Dura mater normal, except in region of right occipital convolutions, where there was adhesion of the membrane to the bone and marked bulging in this region—also pronounced asymmetry. Gentle traction was unavoidably made, a rupture occurred and there was a flow of fetid pus to the extent of three ounces, resulting from the solution of continuity of convolutions in this region. The brain was then lifted from its situation. Externally there was no abnormality except in region indicated above. No disease of the sinuses could be determined. The lesion on convexity occupied an area of two to three inches in circumference and was localized, namely: At the posterior part of the first temporal sphenoidal convolution. There was marked thinning and softening of gray matter in this region and an external communication, as above mentioned, produced by manipulation.

The brain was thoroughly hardened and transverse sections were made. Nothing unusual except indications of anemia was noticed anterior to the Rolandic convolutions. The right hemisphere, posterior to the Rolandic fissure, was extensively diseased and gave evidences of intense suppurative inflammation involving the entire white matter posterior to the fissure noted above. The lateral ventricle on same side was dilated and contained a small amount of pus extending to the opposite ventricle. The white matter of left hemisphere in corresponding region was considerably disintegrated and pus was irregularly distributed, but the inflammation was not so well declared. An examination of the base showed no abnormality. Pons, cerebellum, medulla and upper portion of the spinal cord appeared normal.

The difficulty of diagnosing acute brain disease in children is well illustrated in the description of the above case. The multiplicity of the symptoms, their transitory character, and the passive resistance offered by patients in this condition, often renders an accurate diagnosis impossible. In the case reported there was never any symptoms which would accurately localize the disease, and for this reason an operation was not deemed justifiable. The treatment was entirely palliative. The prognosis was thought to be grave during the entire course of the malady.

¹ Dr. O. A. LaCrosse.

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SATURDAY, SEPTEMBER 1, 1894.

THE HODGKINS FUND PRIZE.

In October, 1891, THOMAS GEORGE HODGKINS, of New York, made a donation of \$200,000 to the Smithsonian Institution, the income from a part of which was to be devoted to "the increase and diffusion of more exact knowledge in regard to the nature and properties of atmospheric air in connection with the welfare of man." The atmosphere in its hygienic relations, its influence upon the public health, and upon individual health, comfort and well being was MR. HODGKINS' hobby; he believed that good air was of prime importance to good health and thence to good morals. The study became his life work, and before he died last year he had the satisfaction of approving the initiatory steps taken in administering the Hodgkins Fund by the Smithsonian Institution. These steps consisted in establishing a number of prizes, the most important of which is one of \$10,000 for any new and important discovery in regard to the nature and properties of atmospheric air—these properties to be considered not alone in their bearing upon meteorology or other branch of physical knowledge, but also in relation to biology and especially to hygiene and public health.

At the recent meeting of the British Association for the Advancement of Science an announcement was made which is now construed as a claim for this prize. LORD RAYLEIGH, Secretary of the Royal Society, and PROFESSOR RAMSEY, F. R. S., claim to have separated a hitherto unidentified gas, probably elementary, from the nitrogen of the air. They obtained this gas by passing sparks from a Ruhmkorff coil through a vessel full of air; after the resulting oxides of nitrogen are absorbed in caustic potash, a residue is left which is neither oxygen or nitrogen. It is believed by the discoverers that this is the *tertium quid* needed to explain the discrepancy, long recognized in the atomic weight of nitrogen obtained

from the air and of that obtained from other sources—the density of the former being about one-half per cent. higher; no satisfactory explanation has ever been offered to account for this difference, but the discovery of another gas, previously unknown, may solve the mystery. This new gas answers to no chemical test yet applied, but possesses a very distinctive spectrum, consisting of a single blue line, much more intense than the line of the same wavelength in the nitrogen spectrum; it is present in the air to the extent of only 1 per cent., and up to the date of the announcement only a small quantity—about 100 cubic centimeters had been obtained.

Since the receipt of the information of the discovery in this country it has aroused considerable skepticism. The general ground for disbelief seeming to be that the many experiments in atmospheric research which have been made within the past few years would certainly have revealed, if not the new element itself, at least some trace by means of which its existence might have been previously discovered. Other critics point to the sensational conditions under which the discovery was exploited—*i. e.*, at a stated meeting of the foremost scientists of Great Britain, without previous intimation of an event of such interest to scientists; while the *farceurs* suggest that English chemists have the advantage of American in the possession of an atmosphere about London in which anything might be found.

So far as this skepticism is seriously and honestly entertained, it might be answered—as to the objection that the new element had hitherto eluded detection—by referring to the recent discoveries of gallium, germanium and scandium, elements whose existence PROFESSOR MANDELÉEFF had predicated upon his law of the grouping of the elements into families whose members resemble each other in weight, volume, heat and laws of combination, and in which plan of families there are blanks because all the elements thus defined have not yet been discovered; there are three such blanks between the atomic weights of 19 and 23, fluorine and sodium, and it is surmised that RAYLEIGH and RAMSEY'S new element may fill one of them.

If it be urged that the discovery of an element forming only 1 per cent. of the atmosphere is of little practical importance it may be well to recall FARADAY'S Yankee-like reply to the Gradgrind visitor to his laboratory, who queried as to the use of some of his experiments: "Of what use is a baby?"

MEDICAL TRAINING.

Questions of medical education that occupy so much attention in journals and medical meetings, are often treated from a very narrow and erroneous point of view. The school that teaches such a great variety of subjects, with enormous faculties,

and almost wonderful system of division of topics, may fail to graduate successful men. Its students may have what PROF. GROSS used to designate as "photographic memories, and microscopic brains," and be storehouses of medical matters, and yet pass through a long life without ever contributing a single fact to science. Many teachers and even writers use the term medical education, as if it was something complete and finished. Diplomas are considered as evidences of this, and are offered as guarantees of scientific skill.

These are sad delusions; a medical education is never finished and no one can be called educated in any true sense. The true aim of medical schools is to train men to observe and think for themselves, not to load them with facts and theories. The facts of anatomy, physiology and chemistry, are of no value except as they teach one to observe and accurately note the relations to other things. The use of the microscope requires a constant observation and comparison of things, to eliminate sources of error, and to arrive at conclusions which appear to be accurate. To-morrow observations may bring new facts and new differences that were not seen yesterday. To be proficient here requires long practical training of all our powers of observation and comparison. The memorizing of the facts which are seen by the microscope would never make a practical microscopist. The same with anatomy; the facts must be sought for, and examined, and compared. One of the obvious reasons for the failures of medical men is this want of practical training. The assumption of truths without personal examination, and the inability and want of training to examine independently the various questions which come up in every day life are apparent to all. Many medical men turn to text-books and journals for help, where the facts could be ascertained by accurate study and comparison.

The college that will train students to be explorers, and how to examine and accurately study the various phenomena of health and disease is the ideal one. The teacher who can inspire the student to be a discoverer, ever on the alert for new facts and new truths, and new conceptions of old truths, who is never learned, but always learning is the ideal scientist. The blunders, inaccuracies, the dogmatism and errors of statement seen in medical journalism alone, are a sad reflection on the failures of colleges to graduate trained men. Even text-books are examples of bad training, in the use of language and statistics that are open to a great variety of meanings and widely different conclusions. The details of treatment and operations often give evidence of this looseness of expression and failure of accuracy in both comparison and observation. On the other hand, the most minute differences of symptoms and

diseased states are often given, plainly indicating imagination more clearly than accurate observation. The explorer in the Arctic regions describes the appearance of the country as he sees it, never assuming that his view comprises the entire field, or that some other observer may not point out many new facts which have escaped his attention. In like manner the trained physician describes the facts as they appear to him, with the reasons, fully realizing that other observers may reach different and more accurate conclusions.

Now that medical teaching has been placed on a more uniform and broader scale, the profession should require something more than recitations and memorizing of facts. The student should train his senses to observe and his brain to constantly compare, and understand not only the fact, but its relations to other facts; and this training must continue through a long lifetime. No college can educate a man in the true sense; all they can do is to prepare him to use his powers of observation and reason, and to be accurate and true. When the student realizes his limitations of sense and reason, and the personal equation of error that is liable to complicate his observations, he becomes a scientist in the highest meaning of that word, and his life work is a search for truth, that is constantly being verified by other observers. The medical fads and theories that for a time attract attention, then die away, would not be possible if medical men were accurately trained observers. New operations, new drugs, new methods of treatment, that after a short period of popularity are forgotten are the result of inaccurate observations and faulty reasoning. If they had been truths of science they would have lived, and no opposition or neglect could have killed them.

An English college has recently adopted a plan requiring all senior students to spend the last year exclusively observing and writing up cases, the notes of which are corrected by the teachers. In this the senses and reason are trained to observe and compare the relation of facts. Often the difference between a successful quack and a physician, is that the former is a closer observer and reasoner. If the physician had the powers of observation of the quack, the latter would have no place in his neighborhood. There is clearly a very wide field here for change and improvement. Our excellent colleges have not covered the field in their elaborate curriculums; the subjects left out are still extensive and very important. The matter taught is open to change and wide variation, but the manner of teaching concerns the failure and success of every student. No gathering of medical knowledge can make a medical man; he must be a student, an explorer, who will observe and examine for himself continuously through all his life. Such men are with us, but we want more of them.

DISTRACTION IN THE TREATMENT OF HIP DISEASE.

The subject of traction in the treatment of hip disease has again been studied by BRADFORD and LOVETT (*New York Medical Journal*, Aug. 4, 1894). Seven healthy hip joints in children between the age of 6 and 16 years were tested with a traction force of ten and twenty pounds; eighteen experiments were made. In three instances these resulted in one-eighth inch shortening; in five there was no change; and in the remaining ten there was lengthening, from one-eighth to one-fourth inch. From this it would appear that in the majority of instances traction of ten to twenty pounds will distract the healthy hip joint in children from one-eighth to one-fourth inch; but that in a certain number of cases this traction force appears to have no influence, and in a few instances it stimulates muscular contraction to an extent sufficient to actually shorten the limb one-eighth inch.

Twenty-four experiments were made upon diseased hip joints in twelve children between the ages of 4½ and 16 years. A traction force of ten and twenty pounds was applied. In no instance was there shortening; in five there was no change; and in the remaining nineteen there was lengthening of one-eighth to three-eighths inch. In one patient the tests at ten and twenty pounds were not verified on account of the pain produced. The five instances where there was no change were to the ten-pound force in four cases, and the twenty-pound force in a boy 16 years old. From this it appears that in the vast majority of instances a traction force of ten to twenty pounds distracts a diseased hip joint from one-eighth to three-eighths inch.

In all these tests the patient was recumbent; no tests were made with the patient walking; no tests were made to show how long these patients would tolerate a traction force sufficient to distract; and none to show how long the adhesive plasters applied to the limb would remain in place, or how long the skin would remain sound under the adhesive plasters. Thirteen cases are reported in detail where good results were obtained by the use of traction in their treatment, but in none of these is there any evidence that the joints were distracted; nor is it shown how many pounds traction were employed, nor whether the traction was maintained without interruption; in a word, the thirteen cases reported have no connection whatever with the experiments in distraction, although they appear to have, being placed between the records of experiments with distraction and the conclusions drawn therefrom.

It appears that diseased acetabuli heal more quickly after excision of the head of the femur, and that those parts of the acetabulum upon which the femoral head does not impinge show less distraction than other parts; also that these cases treated by

traction have less displacement upward of the greater trochanter than those not treated at all. But these observations appear to us to have no bearing upon the question of distraction in the treatment of diseased joints. The curative effect of surgical procedures upon tubercular tissues, of rest in bed, and of immobilization of the diseased joint are not taken into account in considering the results in the cases treated.

There is no question that certain joints, the metacarpo-phalangeal for instance, can be distracted, but there is still some question in the minds of some orthopedic surgeons whether the elongation of the limb obtained in these experiments is due to the separation of one articular surface from the other or the sliding of one surface upon the other. It would therefore have rendered the argument more conclusive had the experiments been made upon a joint where there was no doubt about the possibility of actual distraction.

These experiments in distraction are interesting in so far as they have bearing upon the anatomic conditions, but they should not be confused with treatment by traction splint or any other form of traction, for no one has yet even claimed to maintain the hip joint in the condition of distraction during any considerable period of time.

MASSAGE IN SURGERY.

The value of massage in certain surgical cases seems but imperfectly understood, and yet there are few expedients in surgical therapeutics that have a better defined place. In sprains, contusions and tendon adhesions, massage is nearly always indicated. In sprains after the primary swelling has subsided, or even at its maximum, no special treatment seems to unload the vessels more promptly than gentle massage; under this practice the plastic obstruction of the lymphatics gives way, absorption of the exudate commences, and venous engorgement disappears.

In the after treatment of dislocations, whenever passive motion is indicated, we find massage of great utility, and it is absolutely indispensable in the treatment of fractures of the lower end of the radius and of the leg. When these fractures take place in aged persons, especially in old women who are thin, there is an uncomfortable tendency toward contraction of the flexor tendons and adhesion of flexor sheaths. The statement has been made by some surgeons who are not very careful of their expressions, that well adjusted fractures are not liable to contract adhesions. This is certainly an error, for there are many perfectly adjusted fractures where, owing to exuberant callus, or other mechanical irritation a copious exudate is thrown out from the tendon sheaths; this exudate left to itself causes per-

manent thickening by consolidation of the exudate. Proper massage may prevent this by favoring absorption.

Contraction of tendons, that *bête noir* of the aged, may follow a fracture without a great amount of exudate, and this too requires massage for its prevention.

We have mentioned massage in general terms; it should be applied in a proper way to be of the greatest service. Mere rubbing will not answer; the tendons separately must each be gently manipulated from its insertion to the belly of the muscle, by the thumb and finger of the masseur, and gentle friction applied to the whole limb. All joints in the vicinity must be alternately flexed and extended. Should much swelling follow these movements, the treatment should be suspended for a day or two; although usually in the hands of a careful masseur the daily application of massage is better than to perform it on alternate days, but there are cases that will not bear it more frequently.

It is in such cases that the trained masseur may show his skill and ability to the greatest advantage. The true masseur should combine great muscular power with extreme delicacy of touch, therefore every man can not become a good masseur; thus, while much may be learned by practice, yet the fact remains that the best manipulators have natural qualifications for the absence of which, no training can compensate.

"SMALLPOX STILL LINGERS."

If there were no higher motive, the *argumentum ad pecuniam* alone should impel every member of the profession to do all that in him lies to delete smallpox from the list of current diseases. There's "nothing in it," as a source of professional income; one variolous patient will ruin, for the time being, a good paying general practice. An epidemic of the disease seriously impairs the commercial prosperity of a community, and the reflex is seen in the returns of the bill collector. Aside from this, the disease is a loathsome one to treat, and even the best results of treatment are too often unsightly and unsatisfactory.

For these, among other reasons, it is cause for regret that "smallpox still lingers" in many parts of the country to such an extent as to excite serious forebodings for the approaching cold weather. Besides its existence at many smaller places, the situation is especially grave in Newark, N. J., in Detroit, Milwaukee and Chicago; in some the health departments are demoralized; in others efforts at prevention and suppression are met with opposition in which, by turns, appeals to the courts and to arms, to injunction and riots, are resorted to; in all there is a dangerous ignorance or suppression of facts, either by officers, on the one hand, who report that

"smallpox has practically disappeared," or that "the disease is well under control," or, on the other hand, by the "antis" who oppose vaccination, conceal cases, resist restrictive measures and in other ways assist in the spread of the disease.

Concerted action by the profession—as well by public expressions of its organized bodies as by individual effort with the families of each member's *clientèle*—would do much to remedy this threatening state of affairs. The community still needs to be educated in the protective virtue of vaccination, in the necessity for inspection and for the fullest publicity, not alone of the whereabouts of actual cases but of those who have been exposed and remain unprotected. Health officers need the moral support which only the profession can secure for them; and municipal authorities in too many instances require to be told their duties in the premises with all the force and impressiveness which the professional dictum may command.

Such concerted action taken now, while there is yet time to "stamp out" existing contagion and to perfect the work already done in the line of securing vaccinal protection, should abolish the stereotyped phrase—"smallpox still lingers"—and enable the country to face the coming winter without apprehension of another smallpox epidemic.

CORRESPONDENCE.

Cataract Extraction as an Office Operation.

CHARLESTON, S. C., August, 1894.

To the Editor:—I have read with surprise three communications on this subject in the August number of the *Ophthalmic Record*, by Drs. T.E. Murrell, W. Cheatam and Robert Fields LeMond. Dr. Murrell's advocacy of this proceeding has been well known for several years, and I did not for a moment think that any one else would try to usurp his position as prime mover or would even wish to share such an honor(?) with him. Dr. Murrell is a progressive and intelligent ophthalmologist and as every man is apt to have a hobby or to be peculiar in certain views, I think but little attention was paid to this vagary of advocating the removal of cataract in his office or at a dispensary, and sending a patient to his home immediately afterward; but all thought that sooner or later he would sober down and tread the well-beaten path that all conservative surgeons desire to follow and which leads to the best interests of the patient. But poisonous germs will increase when planted in fertile soil, and now we see two more advocates of the proceeding, and there is no telling how many may spring up and how many eyes may be lost before these gentlemen realize that the proceeding is not an advance in eye surgery, is not scientific treatment, is not difficult in technique, does not conserve the best interests of the patient, is not necessary, but is rash—and therefore shows poor judgment—may cause loss of vision, and therefore should receive from every conscientious ophthalmic surgeon unqualified condemnation.

I ask if any ophthalmic surgeon thinks that he has honestly done his best for his patient when he extracts cataract in his office or dispensary, and immediately afterward allows the patient to walk or ride several blocks to his

home? If not, there are but two reasons for the proceeding and they do not concern the patient. They are: 1, it is more convenient and time saving for the surgeon; and 2, it gives him the reputation of being a bold and skilful operator who scorns the conservatism of the old fogies. I was taught, and believe, that the chief object of the physician is to heal the sick by the safest, surest and most available means at his command, and that in accomplishing this he gains the respect and confidence of the world. Every one must admire the bold and skilful surgeon who in an emergency does not hesitate to make use of any means that may save his patient, but the extraction of cataract is not an emergency operation and delay does not cause loss of the eye. No one will contend that it is as safe for a patient after removal of cataract to walk, or ride to his home as it is to remain quietly in bed, or seated in a chair. Would any of the gentlemen named take this risk with a patient from whom they expected to receive a fee of \$500 or \$1,000? Would they permit the operation to be performed upon their own eyes as they advise for others? It may be said that a physician's time is too precious for him to waste it in running around after the poor—then he should give up such practice to those who will and can attend to it. I contend that if but *one* eye out of a thousand is lost by accident occurring on the way home after cataract operation performed in an office, or dispensary, it is sufficient to condemn the practice and to render the operator liable to suit for mal-practice. If it were *necessary* to remove cataract in our offices, or at a dispensary, I should offer no protest.

CHARLES W. KOLLOCK, M.D.

ASSOCIATION NEWS.

American Medical Association. Section on Ophthalmology.

*Forty-fifth Annual Meeting, held at San Francisco, Cal.,
June 5-8, 1894.*

FIRST REGULAR SESSION, TUESDAY AFTERNOON, JUNE 5.

The Section was called to order at 3 P.M.

Address by the Chairman, DR. ALBERT R. BAKER, of Cleveland, Ohio.

The first paper read was by DR. F. B. EATON, of Portland, Oregon, on "The Physiology of Certain Oculo-motor Phenomena, with respect to Some Recent Theories of Asthenopia."

Discussed by Drs. Edw. Jackson, Geo. H. Price, H. V. Würdemann, W. F. Southard, Kaspar Pischl, H. Bert Ellis and discussion closed by Dr. Eaton. Drs. Hobby and Lydston were absent and Dr. Voorhees unavoidably prevented from preparing his paper.

The general meeting of the ASSOCIATION having directed the Sections to appoint alternates in place of absent members of Executive Committees, the chair appointed Drs. Edw. Jackson, W. E. Briggs and H. V. Würdemann. The same committee to act as nominating committee for the Section. As Dr. Jackson could not serve owing to other duties, Dr. A. R. Baker was by vote appointed Chairman of the Committee. Adjourned.

MORNING SESSION.—JUNE 6.

Called to order at 9:30 A.M. Minutes of the previous meeting were read and approved.

The first order was the reading of the report of the committee appointed in 1893, to report upon "The Value of Objective Tests for the Determination of Ametropia—Ophthalmoscopy, Ophthalmometry and Skiascopy." Committee: Dr. Edw. Jackson, Chairman, Philadelphia, Pa.; S. M. Burnett, Washington, D. C.; H. V. Würdemann, Milwaukee, Wis.; J. L. Thompson, Indianapolis, Ind.

As other papers were to be read, bearing upon the same subject, discussion was deferred until the same were read.

DR. B. A. RANDALL being unavoidably absent and having sent his paper to the Secretary, the latter on vote of the Section was directed to read Dr. Randall's paper on "The Value of Retinoscopy as a Crucial Test in Measuring Errors of Refraction."

The next paper on "Status of Skiascopy" was read by DR. H. V. WÜRDEMANN, of Milwaukee, Wis.

DR. JACKSON, of Philadelphia, then read a paper on "The Visual Zone of the Dioptric Media and its Study by Skiascopy."

The report and papers read were then discussed by Drs. F. B. Eaton, of Portland, Oregon; S. B. Davis, Stockton, Cal.; A. C. Simonton, San José, Cal.; R. D. Gibson, Youngstown, Ohio; Fred Baker, San Diego, Cal.; W. E. Briggs, Sacramento, Cal.; A. R. Baker, Cleveland, Ohio; L. R. Ryan, Galesburg, Ill.; H. V. Würdemann, Milwaukee, Wis.; Lewis H. Taylor, Wilkesbarre, Pa.; A. J. Erwin, Mansfield, Ohio; and discussion closed by Dr. Jackson.

The Secretary read a communication from the Secretary of the ASSOCIATION, calling attention to the fact that all papers read before the Sections and to be referred for publication, with all plates, etc., are regarded as the exclusive property of the ASSOCIATION.

On motion the afternoon session was fixed at 3 P.M., instead of 2 P.M., in order to allow members to attend the general session of the ASSOCIATION.

WEDNESDAY, JUNE 6.—AFTERNOON SESSION.

The report of the Nominating Committee not being ready, Dr. A. H. Voorhees, San Francisco, presented a patient on whom he had performed double cataract simple extraction; also instruments, cataract knife with double cutting edge and bulb apparatus for irrigating the anterior chamber.

The Nominating Committee reported as follows: President, Dr. Edward Jackson, of Philadelphia, and for Secretary Dr. H. V. Würdemann, of Milwaukee.

The Secretary was directed to cast the ballot in favor of the above named and they were declared unanimously elected.

DR. S. D. RISLEY listed for the next paper being absent, DR. H. M. STARKEY, of Chicago, followed with a paper entitled, "Are Low Degree Lenses of Purely Mythical Value?"

DR. C. M. HOBBY's paper on "Asthenopia" was here presented and the Secretary by vote of the Section directed to read the same.

Discussion on the two papers followed, participated in by Drs. H. Isaac Jones, San Francisco; H. B. Ellis, Los Angeles; A. C. Simonton, San José; H. B. Young, Burlington, Iowa; Fred Baker, San Diego, Cal.; L. R. Ryan, Galesburg, Ill.; Geo. H. Price, Nashville; Tenn.; S. B. Davis, Stockton, Cal., and closed by Dr. Starkey.

The next paper, "Cyclophoria; Its Detection and Treatment," was read by DR. GEO. H. PRICE, Nashville, Tenn.

Discussion by Drs. F. B. Eaton, Portland, Oregon; A. J. Erwin, Mansfield, Ohio; A. C. Simonton, San Diego; and closed by Dr. Price. The time for adjournment having arrived, the chairman announced that the next paper, "School Children's Eyes," would be deferred until the first order of business on Thursday morning. Adjourned.

MORNING SESSION—JUNE 7.

Called to order at 9:30 A.M. Dr. Baker, Chairman, being detained by a meeting of the Medical College Association, Dr. Edward Jackson, of Philadelphia, was appointed chairman *pro tem*. Minutes of June 6 were read and approved.

DR. W. F. SOUTHARD, of San Francisco, then read a paper on "School Children's Eyes; A Plea for the Examination of Every Child's Eyes when Commencing to Attend School."

As DR. KASPAR PISCHL's paper was upon a similar subject, it was here called for, but as his charts had not arrived it was deferred.

Discussion upon Dr. Southard's paper followed, participated in by Drs. R. N. Miller, Los Angeles; L. R. Ryan, Galesburg, Ill.; F. B. Eaton, Portland, Oregon; H. M. Starkey, Chicago, Ill.; H. B. Young, Burlington, Iowa; Edward Jackson, Philadelphia, and closed by Dr. Southard.

DR. W. E. BRIGGS, of Sacramento, Cal., then read two papers: 1. "Sub-conjunctival Injections in the Treatment of Eye Diseases." 2. Optico-Ciliary Neurotomy, with Exhibition of Scissors."

Discussion by Drs. Edward Jackson and Kaspar Pischl, and closed by Dr. Briggs.

The hour fixed for special order of business in the general session of the ASSOCIATION having arrived, the remaining papers were deferred and the Section adjourned to meet at 2 P.M.

AFTERNOON SESSION—JUNE 7.

Section called to order at 2:40 P.M. Dr. Baker in the chair. The first paper was read by DR. X. C. SCOTT, of Cleveland, Ohio, on "Treatment of Purulent Ophthalmia."

Discussed by Drs. A. Barkan, San Francisco, Cal.; H. M. Starkey, Chicago, Ill.; Kaspar Pischl, San Francisco; H. V. Würdemann, Milwaukee, Wis.; J. Dennis Arnold, and discussion closed by Dr. Scott.

The next paper was read by DR. LEWIS H. TAYLOR, of Wilkes-Barre, Pa., on "Conservative Treatment of Wounds of the Eye-ball," and discussed by Drs. A. R. Baker, Cleveland, Ohio; W. E. Briggs, Sacramento, Cal.; X. C. Scott, Cleveland; H. H. Weer, Bluffton, Ind.; L. R. Ryan, Galesburg, Ill., and closed by Dr. Taylor.

DR. LE MOND being absent, the next paper, "Some Unusual Reflexes from Pathologic Conditions," by DR. GEO. H. POWERS, San Francisco, was read by title and referred to Committee on Publication.

The same with paper by DR. A. G. HOBBS, of Atlanta, Ga., on "The Treatment of Pterygia with the Galvano-Cautery," the paper having been sent to the Chairman, and Dr. Hobbs detained on account of illness in his family.

DR. KASPAR PISCHL read the next paper on "Report of the Examination of the Eyes of 1,900 Children of the Public Schools of San Francisco."

Discussed by Drs. S. B. Davis, H. H. Weer, H. B. Young, W. F. Southard, H. L. Burrell and closed by Dr. Pischl.

"Fractures of the Orbit," by DR. J. F. FULTON, of St. Paul, was read by title and referred for publication, as the writer was engaged as Secretary of the Otological Section.

DA. H. ISAAC JONES, of San Francisco, then read a paper entitled, "Eye Symptoms in Locomotor Ataxia—With Presentation of a Patient."

Discussion by Dr. H. B. Young and closed by Dr. Jones.

A paper by DR. EDWARD J. BROWN, of Minneapolis, on "A New and Convenient Arrangement of Rotary Prisms," was read by title, as was also one by DR. W. E. HOPKINS, of San Francisco, on "Deposit of Cholesterin Within the Anterior Chamber from Non-Traumatic Causes."

DR. W. T. MONTGOMERY'S paper on "Progressive Hypermetropic Astigmatism," was called for, but as the writer was not present this ended the reading of formal papers.

Miscellaneous business being in order, Dr. H. B. Young referred to legislation on prevention of blindness, and Dr. Southard asked the coöperation of all workers in ophthalmology in securing legislation in this direction.

DR. H. M. STARKEY presented the following, seconded by Dr. Southard, which was carried:

Resolved, "That it is the sense of the Section on Ophthalmology of the AMERICAN MEDICAL ASSOCIATION that the eyes of all children should be carefully tested by competent persons before entering upon school life."

Discussed by Dr. Ellis and Simonton.

The Executive Committee report as the topic for special discussion at next year's meeting, "The Examination and Care of the Eyes during School Life—Instruction of Teachers and School Authorities and Legal Provisions," and appointed the following Committee to prepare the report:

Drs. B. A. Randall, Philadelphia, Chairman; W. F. Southard, San Francisco, Cal.; H. B. Young, Burlington, Iowa; A. R. Baker, Cleveland, Ohio; George H. Price, Nashville, Tenn.

The Secretary read a communication from Dr. Savage, of Nashville, asking the Section to invite the International Ophthalmological Congress to hold its next session in this country, and suggested the appointment of a delegate or delegates to attend the meeting of the Congress to be held in Edinburgh in August next.

It was, however, the sense of the Section that as the Congress was not a representative body we could not properly send delegates to the same.

It was also deemed inadvisable for the Section to extend an invitation to the Congress to hold its next meeting in this country.

DR. R. D. GIBSON moved that the Section extend to its retiring officers a hearty vote of thanks for their labors in securing and carrying out the excellent program of the sessions. Carried by a rising vote.

The meeting for 1894 was then adjourned.

The Executive Committee of the Section on Ophthalmology for the ensuing year, according to the resolution adopted in 1891, will consist of Dr. J. L. Thompson, 20 West Ohio Street, Indianapolis, Ind.; Dr. S. D. Risley, 1722 Walnut Street, Philadelphia, Pa., and Dr. Albert R. Baker, 122 Euclid Avenue, Cleveland, Ohio.

A. R. BAKER, Chairman.

LEWIS H. TAYLOR, Secretary.

To Medical Societies:

OFFICE OF THE PERMANENT SECRETARY,
1400 PINE STREET, PHILADELPHIA, PA.

The Secretary of each Medical Society in the United States is earnestly requested to send to the undersigned the following information:

Name of Society——. Place and time of meeting——. Officers, with address of each——.

WM. B. ATKINSON, Permanent Secretary.

SOCIETY NEWS.

Mississippi Valley Medical Association.—The Secretary of the Mississippi Valley Medical Association has issued the following:

INDIANAPOLIS, IND., Aug. 25, 1894.

Dear Doctor:—The Twentieth Annual Meeting of the Mississippi Valley Medical Association will occur in Hot Springs, Ark., Nov. 20, 21, 22 and 23, 1894.

The Association is now in a more prosperous condition than ever before, and no efforts will be spared to make the meeting at Hot Springs not only the largest but the most interesting and profitable ever held. Indeed, its success is already assured, many valuable papers by most excellent authors having been promised.

Hot Springs is an ideal place of meeting, and November in that charming Southern health resort is the most delightful month of the year.

Socially, the visit will be enjoyable in the extreme, as the physicians and citizens with their characteristic hospitality are united and enthusiastic in their endeavors to make the sojourn of their guests pleasant.

The railroad rates will be very low and will be announced later.

You are cordially invited to be present at this meeting.

Respectfully,

FREDERICK C. WOODBURN, Sec'y.

SELECTIONS.

A New Method for the Treatment of Tuberculosis Pulmonalis.—Following a preliminary communication upon this subject (*Cent. f. Bakter. u. Parasitenk.*, Bd. XIV, p. 719) Carasso, of Genoa, now gives full particulars of his method of treating tuberculosis pulmonalis (*Cent. f. Bakter. u. Parasitenk.*, Bd. XV, No. 25, and Bd. XVI, No. 1, 1894).

He first reviews the work that has been done with tuberculin, and demonstrates its unsatisfactory therapeutic application. The clinical results of the creasote, guaiacol, and benzo-guaiacol treatments are reviewed, and while the author admits their successful application in cases of beginning consumption, he regards them as unreliable, and powerless in advanced cases of the disease. The experiments with the toxins, blood serum, and thyroid implantation are dismissed with a few words.

The author refers to the numerous unsuccessful attempts at inhalation treatment. Among the agents employed in inhalation therapeutics, Carasso discards carbolic acid, creasote, and the various gases, on account of their irritant and uncontrollable actions; and finally directs attention to the ethereal oils, as the most desirable drugs for this method of treatment. The investigations of Chamberland, Champonnière, and Koch have proven that many of the essential oils possess decided germicidal properties. Koch, for instance, has shown that the essence of peppermint (*menthæ piperita*) prevents the development of the anthrax bacillus in dilutions of 10 parts to 300; and that the vapor of the oil was fatal to the bacilli and spores of anthrax.

In 1888 Braddon reported the results of his clinical application of peppermint inhalations, and Kersch gave his experience with inhalations of various ethereal oils. These reports induced Carasso to begin his experiments with these remedies.

The author believes that *mentha* exerts a direct bactericidal action upon the bacilli in the respiratory tract, and that, by absorption into the circulation, it acts as a general disinfectant. Creasote acts beneficially in pulmonary tuberculosis by increasing the appetite and favoring nutrition. It also possesses some action on the secondary inflammatory exudates, favoring their absorption.

Carasso's method of treatment is, in detail, as follows: A piece of linen cloth, ten centimeters square, is folded to make a pad, five centimeters by two centimeters. By means of tapes this pad is secured in contact with nostrils. The tapes may be tied around the head, about the ears, or to the frames of a pair of spectacles. The pad is to be worn day and night, and only to be removed at meal times. In the case of patients with out-door occupations, who object to wearing this inhaler for cosmetic reasons, a quill toothpick, or a cigarette-holder may be stuffed with cotton and, after saturation with the mint essence may be used as mouth inhalers. The inhaling pad is to be moistened with five or six drops of peppermint essence, four or five times a day. The nostrils are to be greased with vaselin for the first few days to prevent irritation. The patient is instructed to take eight or ten deep inspirations with closed mouth; retaining the air as long as possible. After ten or fifteen minutes' rest, this procedure is repeated, and so on through the day. In case difficulty is experienced in keeping the pads in position at night, the bed pillow may be impregnated with ten or fifteen drops of the mint essence.

The following mixture is given internally:

| | |
|--------------------------------------|-------|
| Creasote, pure (beechwood) | 8.0 |
| Alcohol | 550.0 |
| Glycerin | 250.0 |
| Chloroform | 20.0 |
| Essentiæ menthæ | 8.0 |

A teaspoonful every three hours, in a half-glassful of water.

In certain cases the mixture may be further diluted with sweetened water, or the dose may be reduced. The nutrition is favored by the method of over-feeding. Two or three liters of sterilized or boiled milk are given daily; together with plenty of meat, cooked to taste; and with the addition of 400 or 500 grams of good wine.

All hygienic precautions are to be observed. The patients are instructed to carefully disinfect their expectoration, thus preventing reinfection.

The remarkable feature of Carasso's communication is the clinical report of the cases subjected to this treatment. In all cases the physical diagnosis was confirmed by finding the tubercle bacilli in the sputum. A careful weekly record was kept of each case, involving a complete physical examination. Many of the cases were well advanced in the disease, though no record is made of cases in which the lung destruction had advanced to the formation of cavities, recognizable by physical examination.

In all, forty-four cases are recorded. Of these there were six deaths, and thirty-eight recoveries. Of the fatal cases, five were subjected to autopsy, and four exhibited either general miliary tuberculosis, or intestinal and peritoneal tuberculosis, along with the lung disease. In one fatal case, the patient after once having the disease subdued, returned to her poor surroundings, and suffered a fatal relapse without again submitting to treatment. In another case of well advanced phthisis the patient died of capillary bronchitis soon after the beginning of the treatment.

From his record it appears that every case of primary pulmonary tuberculosis, treated by the inhalation method of Carasso's recovered; and that the fatal cases, with two exceptions, were ones in which secondary tubercular lesions produced death. The average duration of the treatment in these cases was *sixty days*.

The regularity of the improvement in these recorded cases is striking. The fever, cough and night-sweats rapidly diminished and ultimately disappeared. The bacilli in the sputum began to diminish in ten days, and all disappeared in sixty days; while the expectoration became first mucoid and finally ceased. The weakness, loss of appetite, and emaciation rapidly improved; the recovery in all the recorded cases seems to have been permanent.

The simplicity and harmlessness of this treatment of Carasso, together with the remarkably successful outcome of his cases, recommends the method for a thorough and systematic clinical test.—By A. P. OHLMACHER, 56 Fifth Avenue, Cleveland, Ohio.

The Glycero-Phosphates of Soda and Lime of Dr. Albert Robin; the so-called "Séquardine."—M. Robin has recently presented a paper before the *Académie de Médecine*, in which he makes claim to the discovery of the active principle of the noted Brown-Séquard liquids. This active principle is composed of phosphorus and glycerin, and is called the glycerophosphate, or the phosphoglycerate, of soda. It is also proposed to call the substance by a kind of memorial title, namely, "Séquardine," especially if there shall be a verification of the claims of M. Robin that he has made a veritable discovery. M. Robin has experimented with various combinations of the glycerophosphates of soda, lime and potash—now with one and now with the others—both by internal and by hypodermic dosage. He credits these medications with a powerful stimulative action over the nervous system, being in this respect the antipathic remedy to antipyrin. The latter stands as an agent against an excess of nervous excitation, whereas the glycerophosphates relieve nervous

depression. The following are some of the reported favorable results, and the supposed method of amending diseased nervous conditions:

"I inferred from my experiments that glycerophosphates could be advantageously used in cases where it is desired to restore nervous nutrition that is defective and to stimulate its activity.

"They have rendered good service during convalescence from gripe and other infectious complaints, in nervous asthenia of different origins, in a particular variety of neurasthenia, in some cases of torpid chlorosis in which nitrogenous oxidation was noticeably diminished, in phosphaturic albuminuria, and in one case of phosphaturia. They therefore seem to be indicated in all morbid conditions in which nervous reaction is unsatisfactory.

"I can mention, among others, the case of a man of 25 with Addison's disease. Thin, scarcely able to walk, cachectic, already weighing fifty-six kilograms, who from January 5 to 25 received a quarter of a gram per diem of glycerophosphate of lime in subcutaneous injections. On January 26 he weighed fifty-nine kilograms, and had recovered his strength.

"He left the hospital February 9 to resume work, but I saw him again April 5, as he came to let us know that the improvement in his case had persisted."

"M. Robin reports further that some of the ataxic patients increase in weight at the rate of fifty grams a day. The treatment produces in them a tendency to moist skin, a feeling of warmth in the extremities, less apprehension in walking, and especially a very noticeable decrease in the fulgurant pains. The incoördination in walking is not changed to any degree.

Success was not invariable in the ataxic. In two cases no improvement occurred, while in a third there were signs of cerebral excitation after the fourth dose, with insomnia and slight hallucinations.

M. Robin has offered this as a preliminary report, with the following approximate results:

"These injections do not give rise to any local symptoms when made with the usual antiseptic precautions; they cause a burning feeling that rarely amounts to pain, and a more or less lasting redness of the skin.

"To resume the question: The glycerophosphates are powerful therapeutic agents which stimulate the general nutrition by means of their action on the nervous system.

"Their leading indication is nervous depression.

"In hypodermic injections their action is at least as energetic as Brown-Séguard's liquid, which in all probability owes its effects to the organic phosphorus it contains; it can therefore only be advantageously to use them in place of this liquid, since in this way we substitute a well defined substance that can be given in accurate amounts in the place of an uncertain preparation, that varies constantly and can not be preserved.

"The cases mentioned above allow us to hope that these injections will be of service in the treatment of nervous asthenia of different origins, of phosphaturic albuminuria, of Addison's disease, of some forms of sciatica and of tic douloureux of the face. In locomotor ataxia the results are more uncertain, and there seems to be nothing beyond an alleviation in the fulgurant pains."

NECROLOGY.

MEDICAL DIRECTOR PHILIP LANSDALE, U. S. N., on the retired list, died August 21, while on a visit in Connecticut. He was born in Maryland, in 1817, and entered the Navy in 1846, as Acting Assistant Surgeon. He was promoted Surgeon January, 1861; Medical Inspector 1871, and Medical Director June, 1873; retired with rank of Captain, in 1879, and since then has made his home in Philadelphia.—W. C. DABNEY, M.D., of Charlottesville, Va., August 20, after an illness of three weeks. He was born in Albemarle County, Va., July 4, 1849, and was educated at the University of Virginia. He was made the first President of the State Board of Medical Examiners, and held that office until September, 1886, when he was elected Professor of Obstetrics and Medicine in the University of Virginia. Many of the former pupils of Prof Dabney are in practice and join in

sorrow at his death. He represented the Medical Society of Virginia in the National Medical Congress, held in Washington, D. C., in 1887; was a member of the AMERICAN MEDICAL ASSOCIATION, the Association of American Physicians, and honorary member of the West Virginia Medical Society. In 1873 Prof. Dabney was the prize essayist on medical chemistry of Harvard University.—J. W. CAMPBELL, M.D., of Ottumwa, Iowa, August 26.—M. O'Brien, M.D., at Topeka, Kan., August 28, aged 54. He was for a number of years a member of the State Board of Health, and four years its Secretary.

PUBLIC HEALTH.

Leprosy in Prussia.—A number of lepers have been discovered in several places in Eastern Prussia, especially at Königsburg and at Memel, about seventy miles from Königsburg. In this latter district alone ten genuine cases of leprosy have been found and the disease has been officially declared to exist in these districts.

A Medical Party in Politics.—The London *World* announces, with approval, the formation of a medical party in the English House of Commons, and says that it has been suggested that a Public Health Bills' Consolidation Act would be a good starting point for the efforts of such a party. The *Lancet* is not so sure about this proposal, but thinks that the influence of medical men will be greater in proportion as they avoid all appearance of party or partisan action; and adds: "Public health bills and bills restricting the sale of drugs are in the interest of the public, and the medical members should regard them as being outside all party questions. Otherwise we should be charged with interested views. We should be glad to see many more members of our profession in Parliament—but not to make a new party."

State Board of Health Bulletins.—The extreme to which "red tape" was carried in the office of the Third Assistant Postmaster-General, while dealing with the Tennessee State Board of Health in its efforts to have its Bulletin entered as second class matter is characterized by Dr. Lindsley, the Secretary, as falling "but little below the methods of a Persian satrap." The Secretary finally cut the tape by securing the following amendment to the Post Office appropriation bill:

"That from and after the passage of this Act, all periodical publications issued from known places of publication at stated intervals, . . . including the bulletins issued by State Boards of Health, shall be admitted to the mails as second class matter, and the postage thereon shall be the same as on other second class matter, and no more.

This means a reduction of some 95 per cent. in the postage accounts of the Board and should correspondingly increase the field of this useful class of publications.

Smallpox Prospects.—Dr. A. R. Reynolds, Health Commissioner of Chicago, has just completed an extended tour of inspection, covering the hospitals—especially those for contagious diseases—in the leading cities of the country, with a view to incorporating their best features in the new contagious-disease hospital for Chicago. As a result of his investigations the pavilion plan has been recommended, and it is announced that work will be begun at once upon its construction, for which the sum of \$300,000 will be required; it is expected to complete enough of the structure to meet the requirements of the coming winter. Dr. Reynolds reports that there is a great deal of smallpox in the country and that physicians and sanitarians generally anticipate that the disease will again assume epidemic proportions throughout the country next winter. He is cited as saying that he does not expect that Chicago will wholly escape, but believes

that "inasmuch as vaccination has been so general there is no occasion for alarm. It is the history of the disease that it is worse the second winter than the first. Already the pest has broken out in certain sections of the city to an extent that is alarming. During the first few days of this month over 100 cases were reported."

Vaccination Technique.—One prolific source of confusion in attempts at tabulating the results of vaccination is the wide variety in the technique of the operation. The size of the area of the absorbent surface exposed, the method of exposure, the number of areas and other details which affect the evidence of the resulting scars, as well as the amount of protection afforded, lack so much in uniformity as to seriously impair the value of vaccinal statistics. This consideration lends additional importance to the observations of Dr. Ortega, who has noted in the epidemic of smallpox which occurred in Mexico in 1890, that a large number of railway employes who contracted the disease presented the very large and unsightly cicatrices of vaccination by *grattage* (scraping). Among those vaccinated by *piqûre* (sticking) a very small number only contracted the disease, and in these it was mild, while in those vaccinated by *grattage* it was, in general, severe. The re-vaccination by *piqûre* in those previously vaccinated by *grattage* was almost always successful, while this was the exception in those vaccinated by *piqûre*. The patients vaccinated by *grattage* almost always suffer from inflammations in the vaccinated member of greater intensity and of longer duration than subjects vaccinated by *piqûre*. Finally, vaccination by the former method frequently produces cicatricial keloids. The pustules developed by *grattage* are probably septic, not vaccine pustules, because the larger surface allows the absorption of septic elements, while by the *piqûre*, although repeated several times, vaccine lymph only is introduced.

Diphtheria Diagnosis, Treatment and Prophylaxis.—The medical sensation of the day, at least in the daily press, is the antitoxin treatment and prophylaxis of diphtheria; columns are devoted to fairly accurate descriptions of antitoxin, its methods of preparation, and its modes of use in treatment and for immunizing purposes; and the reader is told that "not since Jenner's discovery of vaccination has there been a more important step in advance than the treatment for diphtheria put forth from Dr. Koch's famous laboratory in Berlin." All of which may or may not be so—time alone can tell; and all of which may or may not be profitable literature for the lay reader. Certain it is, however, that the reports, which we find in our foreign exchanges, of the results of the antitoxin treatment thus far fully warrant the claims made for it—*qua* treatment. Obviously, sufficient time has not yet elapsed to determine the extent and duration of the immunity conferred by this agent. But its use for the protection of inmates of infected dwellings and for the protection of the inhabitants of localities or districts in which diphtheria is prevalent, is confidently recommended by Dr. Aronson, who furnishes instructions for its use for such purposes with the supplies made under his supervision.

An appropriation of \$30,000 is asked for by the New York City Board of Health, with which to defray the expense of producing antitoxin—mainly for gratuitous use among the city poor, who furnish the largest number of victims of the disease. Our English cousins look with favor upon the New York method of diagnosing diphtheria by bacteriologic examination. (It seems proper to call this the "New York method," since it was the Health Department of that city which first made such examination feasible and practical; although its general adoption throughout the country might now entitle it to be called the American method.) In his

annual report for 1893, Dr. Francis Allen, Medical Officer of Health for the Strand district of London, advocates the adoption of this method of prompt diagnosis and appeals to the Metropolitan Asylum Board to make arrangements for the supply of culture tubes and the carrying out of the necessary cultivations, etc.

The Cholera.—The situation in Europe *re* Asiatic cholera, has not materially changed from that summarized in last week's issue of the JOURNAL. Up to the close of August the weather had been generally so cool on the continent as to retard any serious extension of the disease beyond the localities then reported infected. Our English exchanges confirm the gravity and extent of the outbreak in Galicia and Bukovina. The most prolific center of the pestilence is the town of Zaleszczyki, which has become a very hotbed of cholera. Nothing like it has, at all events, been known in Austria for the last two years. In the brief space of about two months no less than 5 per cent. of the entire population in the town have been attacked by the disease. Seventeen districts in Eastern Galicia are declared infected; they form one united area, subject to the same sanitary regulations. These districts lie in the basins of Dniester and Pruth. The same spot formed the cholera center of last year. This and similar recurrences have revived speculation as to the probability of the cholera germ having become domesticated in Europe. It is recalled that in 1892 the epidemic of Nanterre, a suburb of Paris, could not be traced to any outside infection, but in the asylum at that place there had been previously some cases of Asiatic cholera; from here the disease apparently spread to Havre, then to Hamburg, and then to this country. In 1884 all the drinking-water wells in Naples were closed because a company had laid water conduits; in 1893, in the lowest part of the city, some of these wells were re-opened without the consent of the municipality, and cholera appeared in just that portion of the city; Naples had very little if any commerce with India, and it is now thought highly improbable that these cases were due to outside infection.

The German authorities are displaying the greatest activity in efforts to prevent the disease obtaining a foothold, and since his return from England Emperor William has ordered that full reports be furnished him with reference to the measures taken to prevent the spread of cholera. Dr. Koch has had an audience of several hours with the Emperor, who entered into the details of the precautions necessary and displayed great concern at the possibility of a recurrence of the pest on any great scale in Germany. It was upon the report of Dr. von Gossler, President-in-Chief of the Province of West Prussia, as to the extent of the disease in and around that district, that the abandonment of the military maneuvers in Western Germany this year was decided, and it is said that hardly a day passes that the Emperor does not confer with some expert or administrative officer engaged in combating the disease.

There has been one more death among the cholera cases at Battersea, on the Surrey side of the Thames, but the other patients are convalescing and the alarm has subsided. Rigid precautionary measures are, nevertheless, enforced; masters and officers of vessels are required to report every case of diarrhea occurring on board while within the limits of the port of London, and physicians of Edinburgh and some other seaport towns are required for the next two months to report their cases of British cholera and choleraic diarrhea in addition to the diseases previously required to be notified.

Blank Applications for membership in the ASSOCIATION at the JOURNAL office.

MISCELLANY.

Monument to Claude Bernard.—A statue of Claude Bernard will be unveiled with appropriate ceremonies at Lyon, France, October 26, next. The French Congress of Internal Medicine will hold its annual session at Lyon on the same date.

Painful Accident.—We regret to learn that our colleague Dr. John V. Shoemaker, editor of the *Philadelphia Medical Bulletin*, sustained a painful injury in London, which incapacitated him from attendance on the annual session of the British Medical Association lately held in Bristol.

New Hospitals.—The Rockford, Ill., City Hospital was endowed August 28, by William A. Talcott, S. Barton Talcott, Fannie E. Prentice, and Mary C. Pettibone, of Chicago, for \$5,000, the gift being for two free beds, in memory of their parents, Mr. and Mrs. Wait Talcott.

The corner stone of the Julia F. Burnham Hospital was laid at Champaign, Ill., August 23, with Masonic ceremonies.

Catgut Drainage Tube.—M. Desguin, of Antwerp, presented at the last meeting of the Society of Surgery of Belgium, drainage tubes obtained by interlacing of long large threads of catgut, forming tubes of different dimensions. He was able to obtain sterilization by heat or chemicals without altering. They are less rigid than decalcified bone tubes; absorbable and porous, and constitute ideal drainage tubes.—*Gazette Medicale de Paris*, Aug. 18, 1894.

Survival of the Fittest.—Russian courts have reversed the assumption of American tribunals that when a husband and wife are drowned in the same disaster, the wife dies first. The Russian doctors have testified unanimously that the man would be the first to die, because the woman is more agile and keeps herself longer above water. Another fact to support the argument of the Darwinian doctrine!

Poison in the Chalice.—Controversy over the individual communion cup still rages. A correspondent of the *New York Sun* suggests that if religious sentiment or belief requires that, "in order to carry out our Lord's order, separate chalices should not be used, it seems to me that the scientific objection to the single chalice might be removed by providing each communicant with a glass tube through which to partake." And adds that "any one objecting to this method on the ground of worldly association could hardly possess a mind pure enough to entitle him to the privilege of the holy ceremony."

The Late Congress at Rome.—The *Lancet* for August 4 points out the fact that an unusually artistic set of photographs has been prepared by a Roman artist, Cardilli, not only of the nineteen Sections of the Congress, but of the principal speakers in the open conferences. The *Lancet* specifies the portraiture of Virchow, of Koch, of Pasteur, of Lombroso and of President Bacelli himself as being very successful in depicting the features and characteristic expression of those leaders of modern medicine. Dr. Bacelli has been presented with a "first copy" of the album, or collection of photographs, and has expressed his approbation thereof and his hope that the fine work shall have as wide a diffusion as possible. The name of the artist is Giovanni Cardilli. The cost of the album to intending purchasers is not mentioned in the *Lancet* article.

A Septuagenarian's Holiday.—The *Lancet* invites attention to what Prof. Virchow, Rector Magnificus of the University of Berlin, has pledged himself to perform during his summer holiday at the age of 73. First, he will repair to Stockholm to take part in the "Americanist-Congress;" next, he will

appear at Innsbrück as the most conspicuous figure at the Congress of Anthropologists; thirdly, he will assist, *primus inter pares*, at the "Naturforscher-Congress" in Vienna; fourthly, his presence will be one of the chief attractions at the Hygienic Congress to be held at Buda-Pesth; and finally he will close his scientific itinerary by entering an appearance at the Bosnian Archaeological Congress, which is to meet at Serajewo. And not only will he leave those assemblies the richer for his participation; but he himself will profit by the experience, ascribing as he does to such periodical encounters with younger minds the re-invigorating effects which explain his phenomenal vitality.

Correcting History.—Dr. Edward Worthington, a delightfully garrulous "old-timer," furnishes *The Medical Age* his "Reminiscences of Early Practice," full of sound sense, kindly humor and "paukie" Scotch wit. Telling of the days when "a medical man would as soon have dreamed of going to church without his prayer-book, or of going to bed without saying his prayers, as of going out on his daily round of duty without his lancet-case in pocket," he recalls the fact that the "fat friend" of Beau Brummel's sarcasm, the profligate and licentious George IV., lost first eighty ounces and, within twenty-four hours, another fifty ounces of blood on account of a cold. Dr. Worthington prefaces the account thus: "When George, the great Father of the American Republic, lay dying, at midnight, Jan. 29, 1820—I do not mean George Washington, but the other George, the Third George,—his most affectionate son the Prince Regent, 'the First Gentleman in Europe,' was unable to attend at his father's death-bed." Thus has it remained for a medical man, with his professional penetration in determining first causes, to vindicate the truth of history and ascribe the paternity of this Republic to its proper source.

In Borrowed Plumes.—Commenting editorially upon the scurrile jests upon doctors indulged in by *Life*—a comic weekly paper—the *New York Medical Record* takes occasion to show up the professional humorist as a very cheap sort of a plagiarist. *Life's* definition of a doctor—"a person who, when you are ill, comes and guesses what is the matter with you"—is shown to be an adaptation of, but not an improvement upon the original given by Voltaire in 1740, to-wit: "A doctor is a person who pours drugs, of which he knows little, into a body, of which he knows less." Our scholarly contemporary cites other illustrations to show that the material for similar definitions of doctors exists in literature from ancient to modern times; that the sum and substance of the medical jokes of the past two thousand years, or at least samples of them, are all in print and form a part of accessible literature. "We could refer the amiable malefactor who writes his weekly medical jokes in this New York paper to the volumes in which all the above facetiæ are compiled, but he shows that he possesses them." After which neat hit the *Record* asks *Life* why—if it can not give the world some new medical jest nor give proper credit for its borrowed ones—it can not sometimes be pleasant and show the other side. "Even Voltaire, who was a bigger man after all than the average New York jest-maker, said: 'Nothing is more estimable than a physician who, having studied nature from his youth, knows the properties of the human body, the diseases which assail it, the remedies which will benefit it, exercises his art with caution, and pays equal attention to the rich and the poor.'" It strikes the *JOURNAL* that, big as the philosopher of Ferney may have been, the comparison of the professional libellist and lampooner who made a scoff of religion—"Deo crevit Voltaire"—and prostituted his talents through sheer wantonness, with the "average New York jest-maker" who distorts the truth for the sake of a facile sneer at vivisection and "conveys" his slanders of the medical profession from the "Joe Millers" of the past, is particularly felicitous.

Epileptic Colony in Sweden.—More than twenty years ago a Swedish lady, Madame De Ramsay, began a small Home for Cripples and Epileptics, at Wilhelmsro. The support given by benevolent citizens has been sufficient to maintain the institution according to the plans of its founder, down to the present time, but advancing years and other causes have impelled the lady founder to look forward to soon laying aside this work, and she is anxious to secure an endowment for the colony before she passes the management over to other hands. In a recent report, she has sketched her relations to the cause of the epileptics and others. A portion of this report is given below:

"Several members of our royal family became interested in the progress of the work, and at length Parliament resolved to give grants for the keeping of epileptic children in suitable homes, and institutions sprang up as seedlings from the plantation at Wilhelmsro.

"This summer a greater joy has been afforded me. A committee has been formed in Gothenburg of friends who, recognizing the necessity of such homes, and appreciating the excellent arrangements and the self-sacrificing management of the Wilhelmsro homes, wished to show their respect in this matter by purchasing 'The Hope,' the largest of the homes, fitted up for thirty children. The committee, moreover, is henceforth answerable for the funds. During the past winter, when lying at the point of death, it was my constant cry, 'O Lord, let not these unhappy children be scattered in a world that does not care for them.' The prayer was heard, life was prolonged, and true friends came forward, which greatly hastened the recovery.

"But for that timely relief it would not have been possible to open a very much needed new home at Wilhelmsro, 'The Refuge,' for the worst cases among epileptic children, those who, in addition to their great affliction of epilepsy, are deaf, dumb, idiotic, paralytic, and sometimes blind! The sufferings of these unhappy beings are greater than can be described, and I have longed for years to provide for them a 'refuge.' It will be a great satisfaction to spend the last years of a long life in providing for these unfortunates, and I hope that in due course the same committee will also be responsible for 'The Refuge.' But the future is left to God; the present object is to work for the neglected beings, and, in the cases of cripples and epileptics, to press upon the public the duty of making humane provision for their needs."

Washington Notes.

GARBAGE REMOVAL.—During the stay of the Pythian Encampment, garbage will be removed daily in order to better protect the health of the city.

PHYSICIAN TO DISTRICT JAIL.—Dr. D. K. Shute, Professor of Anatomy in the Columbian Medical College, has been appointed Visiting Physician to the District jail.

HEALTH OFFICE APPOINTMENT.—Dr. Austin O'Malley has been appointed by the Commissioners, Chief Medical Sanitary Inspector in the Health Department *vice* Dr. Osman, deceased.

CONTAMINATED PUMP.—The Health Officer has forwarded to the Commissioners two reports of Dr. Walter Reed, of the Army Medical Museum, giving the results of bacteriologic examination of water from the well, corner of Sixth and O Streets northwest. Both reports show conclusively that the water is contaminated by fecal bacteria.

ANATOMICAL BILL.—Congress has not as yet agreed to the bill for the promotion of anatomical science and to prevent the desecration of graves, which provides that bodies of paupers may be given to medical colleges under certain stipulations. This is practically the same bill that was vetoed by President Cleveland during his first administration.

CONGRESSIONAL LIBRARY.—The annual report of Librarian Spofford, which has been presented to Congress, shows that the library contains 695,880 volumes and 223,000 pamphlets; 18,594 volumes were added during the present year, and 53,956 copyright entries were made. Of these 18,498 were books, 16,273 musical compositions, 11,094 periodicals, 4,920 photo-

graphs, 1,810 chromos, 1,814 maps, 918 lithographs, while the balance consisted of paintings, maps, chromos, etc.

PORTABLE DISINFECTING CHAMBERS.—The Marine-Hospital Service has completed two portable disinfecting chambers at Philadelphia, Pa., which are to be used when necessary for municipal disinfecting. The apparatus consists of one large chamber for steam and one for sulphur fumigation. They may be brought to Washington, for use in the Health Department if necessity require.

AN ABORTIONIST IN CLOSE QUARTERS.—Dr. Edward Leon, an "irrigator," who was last fall convicted of having produced an abortion which resulted in the death of the child, was first found guilty of murder in the first degree and allowed a new trial, resulting in a verdict of manslaughter, desires a stay of sentence and a third trial. He is innocent, so he says, and claims to be able to prove that the crime was committed by another doctor.

DEATH OF DR. OSMUN.—Dr. Charles J. Osmun who for several years was Chief Medical Sanitary Inspector in the District Health Office, for infectious diseases, died on the 14th instant after a three days illness with malignant diphtheria. This is a particularly sad death, the disease being contracted during the faithful discharge of duty. Dr. Osmun was unmarried. The Medical Society and Health Department held special meetings and adopted appropriate resolutions of respect.

ASSISTANT CORONER FOR THE DISTRICT.—The act creating the office of Assistant Coroner for the District has become a law. This will prevent, after he is appointed, a repetition of the embarrassment arising during the "Ford's Theater" inquest when it was announced that only the Coroner could conduct the investigation. The inquest was about completed by the Coroner's substitute when this fact was brought out by the attorneys, and the proceedings began anew by the late Coroner, Dr. De Witt C. Patterson then confined to bed by illness, but who notwithstanding, reported for duty and conducted the case, greatly to the detriment of his health.

THE PRESIDENT has signed the bills to prohibit the interment of bodies in Graceland Cemetery and to provide for the sale of the property of that cemetery and the removal of the bodies already interred there. This cemetery has been outgrown by the surrounding neighboring community and almost surrounded by dwellings. It has been deemed a matter of only common precaution to remove the possibility of infection from the presence of these bodies in the midst of a thickly populated community, and this enactment is in the line with all similar legislation in other cities to remove burial grounds beyond municipal limits, and provide for the sale of new tickets by the street railway and herdic companies of the District. The nuisance of old, tattered and germ-laden tickets has been borne more or less patiently by the patrons of the local companies for many years, and this bill granted great relief by compelling the companies to issue their tickets in sheets of six for 25 cents and to cancel each ticket presented for fare so that it could not be used again. An appropriate penalty was provided to punish proved violations of the law. Since the expiration of the thirty days' margin granted to the companies after the passage of the act there has been inaugurated an era of clean, crisp and wholesome trip slips such as has never before been seen in Washington.

Philadelphia Notes.

The health of the city during the heated term has been remarkably good. With the exception of a limited outbreak of diphtheria in one of the suburbs, there has been nothing that approached an epidemic, although some instances of the contagious zymotic diseases have occurred and a few cases have been received into the municipal hospital; ty-

phoid fever cases also are reported occasionally. It is evident that the efforts put forth by the Board of Health and private citizens, under the stimulus of the cholera scare for the last two years, have resulted in a greatly improved sanitary condition of the city. The back streets and alleys have been kept clean, public bath houses have been well patronized, the food-supply is watched and, in particular, dishonest dealers in milk have been frequently detected and punished, so that there is a distinct improvement in the quality of this staple food article. In this connection might be mentioned an agency that has not been without its favorable influence upon the lives of the children. A little more than two months ago Rabbi J. Leonard Levy, of this city, founded the Philadelphia Sterilized Milk and Ice Society for the purpose of supplying these necessities to the poor at cost, during the summer. Mayor Stuart consented to act as President, with Rabbi Levy as First Vice-President, and the City Treasurer, Mr. McCreary, as Second Vice-President. This charitable work appealed to the benevolent and like the similar organization in New York City, it was at once successful. Since it began operations, it has sold over 7,300 bottles of sterilized milk, several tons of ice, beside fresh milk and infants' food. Disinfectants have also been distributed with directions as to their use. In one week, 13,509 persons were helped by this organization. The receipts have averaged about 3 cents for each purchase. The Society has now five stores or depots in different parts of the city and employs about a score of persons. It is difficult to fully estimate the practical good which such a work may exert upon the health and mortality of the crowded portions of the city. It is strictly in line with the college settlements and guild houses, which have been doing a civilizing and humanizing work in the congested precincts for several years, and with encouraging results.

Another agency, which should not be overlooked, on account of its effects upon the children particularly, is the Sanitarium Association for Children, which has its plant situated on the New Jersey side of the Delaware River about twelve miles below Philadelphia. This noble charity keeps two large steamboats running between the city and the large grounds; where the children are brought by their care-takers to spend the day under the trees, where hammocks, swings, etc., are provided. There is also a small well appointed hospital for children, who require attention or are too ill to return to the city, and who can here receive proper medical care from the resident physicians and nurses. The entire service is free, including a luncheon both for children and care-takers. Up to the evening of August 16, 139,959 persons, (including adults with children) had been admitted in 69 days, an average of 2,332 per day. It is not unusual, on a hot day, to have more than double this number to enjoy the hospitality of the Association. A new bath house for infants and small children has just been put into use and is well patronized.

The Children's Country Week Association, which has sent several hundred children out of the city during the hot weather, has undoubtedly contributed to the improved health of the city. The city streets are now cleaner than ever before, owing to the fact that the railway companies have introduced the trolley system very generally; thus doing away with hundreds of horses, and also by city ordinance they were obliged to re-pave the streets with asphalt or some other improved pavement, so that the cobble-stone pavement has disappeared from all the principal streets.

The water supply of the city will soon be increased by the completion of the new Queen Lane reservoir, consisting of two basins, brick and concrete lined, with a storage capacity of 386,000,000 gallons of water. A system of sand filtration is under consideration and probably next year will be introduced, which it is hoped will have the same effect here as in the cities of Europe, and greatly reduce cases of typhoid fever and bowel disorder.

The diminished mortality from sunstroke of late years is attributable in part to the popular appreciation of the danger of alcoholic drinks and the greater care in their use

during hot weather, and in part to the fact that patients affected upon the street are rapidly taken in the city ambulances to the hospitals, in nearly all of which cases of insolation are treated in tents (or in the open air) and promptly cooled down with ice or cold bathing.

Among the numerous agencies tending to reduce the mortality of the city may also be mentioned the action of the City Board of Health in circulating leaflets on "The Care of Infants in Hot Weather," and "The Prevention of Tuberculosis." This has doubtless led to a reduction in the number of cases of summer complaint, and consumption.

Medical College Notes.

DR. GEO. M. PHILLIPS, of Maysville, Kentucky, has been called to fill the Chair of Genito-Urinary Surgery in Barnes Medical College, St. Louis. Dr. Phillips is a graduate of the College of Physicians and Surgeons, of Baltimore, and goes to his new field of labor after an abundant clinical experience and with the best of home and foreign recommendations.

New Orleans.

DR. J. D. BLOOM, formerly Assistant House Surgeon, upon the death of Dr. Albert B. Miles, was promoted to the House Surgeonship of Charity Hospital. Two Assistant House Surgeons were appointed on equal footing, Drs. W. E. Parker and H. Mark Fortier. All of these gentlemen are graduates of the Medical Department Tulane University of Louisiana, and reflect great credit on the younger members of the New Orleans profession.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from August 18, 1894, to August 24, 1894.

Capt. ALFRED E. BRADLEY, Asst. Surgeon U. S. A., is granted leave of absence for one month, with permission to apply for an extension of one month.

Capt. JOHN L. PHILLIPS, Asst. Surgeon, is granted leave of absence for two months, to take effect on or about Sept. 1, 1894.

First Lieut. MADISON M. Brewer, Asst. Surgeon, is granted leave of absence for three months, to take effect on or about Oct. 1, 1894.

Capt. WILLIAM H. CORBUSIER, Asst. Surgeon, is granted leave of absence for one month, to take effect on being relieved from duty at Ft. Supply, O. T.

First Lieut. WILLIAM H. WILSON, Asst. Surgeon, will be relieved from temporary duty in the Department of Dakota by the commanding General of that Department, when his services are no longer required with troops in the field, and will return to his proper station.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending August 25, 1894.

P. A. Surgeon I. W. KITE, ordered to hold himself in readiness for orders to the U. S. S. "Constellation."

P. A. Surgeon T. B. BAILEY, ordered to hold himself in readiness for orders to the U. S. S. "Machias."

LETTERS RECEIVED

(A) Atkinson, W. B., Philadelphia, Pa.; Anthony, A. G., Oakland, Cal.; Antkamua Chemical Co., St. Louis, Mo.

(B) Barnum, F. E., Utica, N. Y.; Brainerd, H. G., Los Angeles, Cal.; Buxton, G. E., National City, Cal.; Bassett, M. F., San Jose, Cal.; Brown, M. R., Chicago, Ill.

(C) Cone, A., New York City; Crothers, M. D., Hartford, Conn.; Carpenter, J. T., Pottsville, Pa.

(D) Duglison, R. J., Philadelphia, Pa.; DeCourcy, J. O., St. Lihory, Ill.; Douges, J. W., Camden, N. J.

(E) Eaton, F. B., Portland, Ore.; Ellis, Griffith, Dayton, Ohio.

(F) Foster, A. B., Fonda, N. Y.

(G) Griffiths, L. M., Bristol, Eng.

(H) Hummel, A. L., Philadelphia, Pa.; Howell, S. M., Duncan Falls, Ohio; Hunt, A. Clark, Trenton, N. J.; Hill, E. S., E. Killingly, Conn.

(I) Ingals, E. P., Chicago, Ill. (2).

(J) Johnson, H. L. E., Washington, D. C. (2); Jones, Hamilton P., New Orleans, La.; Jenkins, J. C., Everetts, N. C.

(K) Kephart, A., Petoskey, Mich.; King, Geo. D., New York City; King, John E., Thistleton, Ont.; Kindred, J. Jos., Darlen, Conn.; Kolb, M. G., Cleveland, Ohio.

(L) Lamb, L. K., Aurora, Ind.; Lehn & Fink, New York City.

(M) Murphy, R. W., San Francisco, Cal.; Millard, P. H., St. Paul, Minn.

(N) Neff, J. H., Kalamazoo, Mich.

(O) Rathmell, J. R., Chattanooga, Tenn.; Rozzell, M. W., Pryorburg, Ky.; Rook, C. W., Quincy, Ill.; Reinking, H., Sheboygan, Wis.; Reynolds, D. H., Louisville, Ky.; Ransohoff, Joseph, Cincinnati, Ohio.

(S) Schaefer, H. J., Philadelphia, Pa.; Small, A. R., Chicago, Ill.; Simmons, Geo. H., Lincoln, Neb.; Stearns, F. & Co., Fonda, N. Y.; Stillans, D. C., Chicago, Ill.; Stover, C., Amsterdam, N. Y.; Solly, S. E., Colorado Springs, Colo.

(T) Taylor, Lewis H., Wilkes-Barre, Pa.; Troy Buggy Works Co.; Troy, Ohio.

(W) Will, O. B., Peoria, Ill.; Woodbridge, J. E., Youngstown, Ohio; Wyeth, J. A., New York City; Wilbur, C. T., Kalamazoo, Mich.; Woods, G. W., Mare Island, Cal.

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No. 10.

ORIGINAL ARTICLES.

ARE LOW DEGREE LENSES "MERELY OF MYTHICAL VALUE?"

Read in the Section on Ophthalmology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY HORACE M. STARKEY, M.D.

CHICAGO.

The leading editorial of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, of Feb. 3, 1894, entitled, "Superfluous Spectacles" has attracted much attention and elicited considerable discussion and criticism. Most critics have, so far as observed by the writer, agreed that the editorial is, in the main, timely and excellent. The object of the editor was to enter a protest against what seems to him to be a growing tendency on the part of many ophthalmologists to find in the eyes a cause for all the ills to which flesh is heir, and also to fear that ills will come to the most vigorous if any error of refraction is allowed to go uncorrected. As a protest against the prescribing of spectacles without a clear indication for their use, and against considering the eye apart from the organism as a whole, we believe it is strong and timely.

The editor, however, not only protested against the prescription of lenses without clear indications for their use, but he also stated that certain lenses, namely spheres of less than 0.75 D. and cylinders of less than 0.50 D. were never indicated because they are valueless and so should never be prescribed. All of these low degree spheres and cylinders are to him "superfluous spectacles." In this your essayist believes he is mistaken, and to bring out the reasons for this belief as clearly and forcibly as possible is the object of this paper. As the editorial in question may not be familiar to all present, some quotations will be made from it, followed by extracts from a letter by the writer, commenting on this editorial, published in the same JOURNAL two weeks later:

QUOTATION FROM EDITORIAL.

"Of all facts in medicine, none are the better founded than the knowledge that even moderate degrees of far-sightedness or astigmatism lead in many persons to discomfort in the use of the eyes and often to headaches and other nervous disturbances. The basis for the rational prescription of convex glasses and cylinders is hence as positive as the results are gratifying.

"But does every optic defect need correction and is every case of painful vision curable by glasses?"

"No ophthalmologist can overlook the fact that many persons can tolerate moderate optic defects and some even high degrees of ametropia without ever suffering therefrom. . . .

"On inquiring into the general health of patients

complaining of eye-strain and its consequences, it becomes apparent that the amount of optic imperfection which can be tolerated without distressing sensations depends on the vigor of the system at large, and especially the condition of the nervous system. It is not rare that patients call for correction of moderate far-sightedness or astigmatism, accept the glasses with satisfaction for the time, but lay them aside as unnecessary after some improvement of their general condition.

"Since errors of refraction are stationary conditions, (except progressive myopia which is foreign to this topic) there is hence no object in correcting them, unless they cause some annoyance, be it by poor sight or in the form of discomfort or headache or distress of any kind. If, however, any discomfort referable to the eyes is present, what is the lowest amount of ametropia which can be considered as the cause of the eye-strain?"

"It is the general experience that a hypermetropia of 0.75 D., or any degree of hypermetropia uncorrected to the extent of 0.75 D. can cause distress in many persons. But that a hypermetropic eye can appreciate a correction of half a dioptre or less will not be admitted by most observers. There is more diversity of opinion as to the amount of astigmatism which may require correction. While again 0.75 D. represents the lowest cylindrical lens which is ordinarily of benefit, cases do occur beyond doubt in which half a dioptre of astigmatism leads to discomfort or headaches.

"Such cases, however, are exceptional and occur as a rule only when the general health is below par. It is true that a cylinder of 0.25 D. is not only employed but even highly recommended by a few prominent oculists, but they have as yet furnished no proof that such lenses benefit their patients. The majority of oculists have learned from their own experience, as well as from the failures of the champions of the 0.25 D. cylinder, that such weak glasses are merely of mythical value."

QUOTATION FROM LETTER.

"The editorial in the JOURNAL of February 3, under the above title, 'Superfluous Spectacles' is on the whole excellent. There are some points, however, which, it seems to me are open to criticism. You seem to argue, though that is not very clear, that if a patient when out of health has glasses prescribed which he wears with relief and comfort until the general health improves and then voluntarily relinquishes them, that the glasses were of no service. As well might you argue that the tonic of restorative medicine taken when out of health was of no benefit because not needed when the health is restored. I believe it is a very common practice with oculists (it certainly is with me) to prescribe lenses with the distinct expectation that they can be taken off when the general health and the eye health improves. The

rest given to the eyes by the glasses assists the eyes to so recuperate that they may be used comfortably without glasses; and the relief given thereby to the nervous and muscular systems, is, I am sure, a potent factor in the general restoration of health. It is not at all uncommon to find young persons suffering from almost constant headache from eye-strain, and in whom the headache is relieved at once and entirely by proper lenses, after a time gradually leaving off those lenses without a return of the headache. Does that prove that the glasses were of no use? Does it not rather prove that the eyes have been so strengthened and improved by the glasses that they are now able to do their proper work without the fatigue and pain formerly experienced? In such cases, where there is a moderate degree of ametropia only, I invariably instruct my patients that the glasses are a means, not an end, and that it is to be hoped that they may later be able to discard them wholly or in part.

You ask: "Does every optic defect need correction?" Certainly not, nor do I think that any prominent ophthalmologist so teaches. It seems to me that the indications for lenses are and should be very distinctly kept in view. They are but two; the relief of discomfort in the use of the eyes and the improvement of vision. If there is no discomfort from the use of the eyes but vision is improved by lenses the patient may, I think, elect whether he will wear glasses or not. If the bother of wearing glasses is greater than the pleasure of improved sight he may with propriety refuse them. (Except in progressive myopia which is foreign to this topic.) If, on the other hand, there is discomfort from the use of the eyes which can be relieved more easily by the use of the lenses than by any other means, whether the required lens be of high or low power, such lenses should be prescribed and worn so long as, and no longer than they are beneficial. And this leads to the consideration of what it seems to me is a most important misconception in your editorial, when you comment on the use of low degree spherical and cylindrical lenses. You argue that the eye can not appreciate a less degree than 0.75 D. sphere and a less degree than an 0.50 D. cylinder. If this were so it would very much simplify our trial cases of test lenses. It is illogical to say that the eye can not appreciate less than 0.75 D. S. below 0.75 D., and yet can appreciate a shorter interval above that; or that the eye can not appreciate less than 0.50 D. C. below 0.50 D., and can appreciate less than that above. So that if your statement is correct our trial cases instead of having, as usually now, twelve pairs each of spherical and cylindrical lenses up to 3.00 D. need have but four pairs of spheres, viz: 0.75 D., 1.50 D., 2.25 D., and 3.00 D., and six pairs of cylinders, viz: 0.50 D., 1.00 D., 1.50 D., 2.00 D., 2.50 D., and 3.00 D. The fact is, however, that many eyes can appreciate a difference of one-fourth of a dioptré and even one-eighth of a dioptré in weak spheres or cylinders. But the ability of the eye to appreciate such small differences is not proof that such differences are of practical importance; that must be determined by clinical experience. In regard to that you say: "The majority of oculists have learned from their own experience, as well as from the failures of the champions of the 0.50 D. cylinder, that such weak glasses are merely of mythical value." I think you are mistaken in that statement. So far as I have been able

to learn and observe, the oculists who believe that such weak glasses are of merely mythical value have not used them. They do not believe that such lenses can have any value, and so have never tried them.

Again you say: "It is true that a cylinder of 0.25 D. is not only employed but even highly recommended by a few prominent oculists, but they have as yet furnished no proof that such lenses benefit their patients." Now that statement surprises me very much, for I thought a great deal of proof of such benefit had been furnished. If it has not been presented it should, if available, be before the profession, and I will endeavor to furnish the proof to establish the fact, if it is a fact, that the 0.25 D. cylinder is a most valuable therapeutic agent."

"The majority of oculists have learned from their own experience, as well as from the failures of the champions of the 0.25 D. cylinders that such weak glasses are merely of mythical value."

In this one sentence of the editorial are three disputed points which we will now consider: 1, is the 0.25 D. cylinder of merely mythical value? 2, do the majority of oculists so regard it? 3, have a majority of oculists learned this from their own experience? In all of these points the writer believes the editor mistaken, but desires to view the subject from a calm scientific standpoint and if he himself is the one in error will still welcome the truth. The last two of these questions are comparatively easily determinable by simple inquiry; while the first may be investigated from three standpoints: 1, that of personal experience and observation; 2, the teachings of the textbooks; and 3, the personal experience and observation of other workers in this special field.

To assist in answering these questions the writer sent the following letter to one hundred ophthalmologists scattered throughout the land:

"Dear Doctor:—There appears to be much difference of opinion among ophthalmologists as to the value of low degree lenses. To assist in solving the problem will you kindly answer the following questions:

"1. Do you ever prescribe cylinders of less than 0.50 D.? or spheres of less than 0.75 D.?"

"2. If no. Have you ever prescribed such lenses and if so what are the reasons for discontinuing them?"

"3. If yes. In what cases do you prescribe them and what evidence have you of their value?"

Of the 100 so addressed, 75, located in 26 States replied. It would seem as if these replies must give some indication of the practice of ophthalmologists in general in this country. Most of those addressed were unknown to the writer except by reputation, and of very few of them was the practice in regard to low degree lenses known. Under these circumstances it is hardly to be supposed that a great majority of them should have been taken from a minority of oculists. The replies received are surprising, in that they indicate that a very large proportion of oculists employ both weak cylinders and weak spheres; a few only, prescribe one but not both, and yet fewer prescribe neither. Thus we find that of the seventy-five, sixty-six replied, Yes; they do use the 0.25 D. C. and the 0.50 D. S.; four reply, Yes, but seldom; three use the spheres but not the cylinders, and but two answer no, and one of those the writer of the editorial in question. Seventy do prescribe the 0.25 D. cylinders and five do not, and of the five, three prescribe the 0.50 D. spheres.

In answer to the second question there are replies from four; two who say that they do not now use

these weak cylinders because they have no evidence of their value, but do not state if they have ever used them; one who says he has quit because he is convinced that they are useless; and one who says he rarely uses them now, because he finds that atropia either shows at least 0.50 D. of astigmatism present or none at all.

The answers to the third question are fairly uniform, most of the answers being, in general terms, That the low degree lenses are prescribed in cases where persistent asthenopic or reflex symptoms are associated with slight errors of refraction, and the evidence of their value is the disappearance of these symptoms when the proper lenses are adjusted. A number of replies state that in many cases the symptoms remain absent so long as the lenses are worn and return at once when the lenses are omitted. I have tabulated these seventy-five replies, all that were received.

| OCULIST. | REPLIES TO QUESTION 1. | REPLIES TO QUESTIONS 2 AND 3. |
|--------------------|---|---|
| Allen, H.P. | Yes; 0.25 D. C. constantly; 0.50 D. S. also. | Relief of asthenopia and headaches. |
| Allport, Frank. | Yes; skeptical as to S. Positive of value of 0.25 D. C. | Relief of headaches, asthenopia, etc., in H. as obtain results difficult or impossible without their use. |
| Ayers, S.C. | Yes; 0.25 D. C. frequently; 0.25 or 0.50 D. S. often, especially in school children, frequently combined. | Improvement of vision and addition to comfort of patient. |
| Aschman, G. A. | Yes; but not till other means of relief have failed. | In cases of asthenopia after other means as rest, tonics, etc., have failed. Usually young teachers, students, etc., using eyes much. Evidence of value relief from asthenopia. |
| Baker, A.R. | Yes; very many such cases. | In all cases where there is headache or other evidence of asthenopia, particularly cylinders where axes are irregular. Most happy results in relief of symptoms. Low degree of ametropia cause more severe symptoms than high degree. |
| Blitz, Adolph | Yes; cylinders 0.25 D. and 0.37 D., sometimes 0.25 D. S. | Eye-strain with headaches, irritation of eyes, etc. Relief of these symptoms. |
| Bryant, D. C. | Yes. | Where there are symptoms of asthenopia, I correct errors of high or low degree. Complete relief of such symptoms. Asthenopia. Relief of symptoms. |
| Buckner, Jas. H. | Yes; rarely, 0.25 C. alone, frequently combined with 0.25 0.50 S. | Asthenopia. Relief of symptoms. |
| Carrow, F. | Yes; 0.25 C. and 0.50 S. and compounds of these. | Cases of asthenopia among the 4,000 students under my observation. Relief of asthenopia. Have exceptional opportunity to observe cases for long periods in Michigan University, State Normal School, etc. |
| Carvelle, H. D. W. | Yes; very often. | Cases of headache and inability to use eyes without discomfort or where sight is materially improved. Relief of asthenopia and improvement of vision. |
| Cheatham, Wm. | Frequently, especially the cylinders. | To improve vision and relieve pain, blurring, headache, etc. Relief of these symptoms. |
| Chisolm, J. J. | Very decidedly, yes. | 0.25 D. + — Most useful in list especially when astigmatism is oblique asthenopia. Change from inability to use eyes without headache to use all day without trouble and return of headache, etc., when lenses are left off. |
| Colburn, J. E. | Yes. | Asthenopia not otherwise relieved and reflex irritation not otherwise explained, in which low degrees of error exist. Cessation of symptoms so promptly follows that no other cause of relief can be assigned, other means having failed. |
| Cotter, Robt. O. | Yes; certainly and frequently. | Almost altogether in cases of H. and H. a. Comfort to patient arising from their use best evidence of value. |
| Coleman, W. F. | Cys. very constantly, 0.50 S. occasionally. | When they improve vision or relieve asthenopia. Simple 0.25 D. C.'s give remarkable relief in a few cases. |
| Connor, Leartus. | Yes; for more than twenty years. | Same class cases as require stronger lenses and relief of the same. Same relief from eyeache, headache, weariness, photophobia and other evidences of exhaustion as with stronger lenses when they are needed. Relief constant and permanent. |

| OCULIST. | REPLIES TO QUESTION 1. | REPLIES TO QUESTIONS 2 AND 3. |
|---------------------|--|--|
| Chase, John. | Yes; cys. frequently for ten years with satisfactory results. S. less often. | In cases of eye-strain where ametropia shows no higher degree of error. Relief of unpleasant symptoms. |
| Dickinson, Frances. | Yes; particularly cys. in oblique astigmatism. | In cases of asthenopia the weak lenses when they correct the error give the same relief that stronger lenses give in cases for which they are suitable. |
| Dunlavy, J. C. | Yes; often, because eyes demand them. | A large number of cases of asthenopia fully relieved by their use. |
| Fox, L. Webster. | Yes; both S. and C. daily. | Asthenopia and headaches. I consider these glasses most valuable. |
| Frothing-ham, G. E. | Yes. | In cases of asthenopia showing this amount of error under a mydriatic and am satisfied with the relief in a majority of cases. Formerly ignored these low degrees but soon became convinced this was an error. |
| Gardiner, E. J. | Yes; C. frequently; S. seldom. | It has been my experience that quite a number of asthenopic symptoms are caused by astigmatism of less than 0.50 D. and proper correction has relieved the difficulty, hence I prescribe them. |
| Gould, Geo. M. | Most certainly, yes. | Would not cure or keep my patients if I did not do so. Anisometropia, unsymmetric astigmatism and even in isometropia and symmetric astigmatism where relief of symptoms or occupation demands. Asthenopia and some reflex troubles that can not otherwise be explained. Relief of symptoms. |
| Hawley, Clark W. | Yes; more than of higher degrees. | Where vision is improved or asthenopia relieved. Asthenopia from ametropia is caused by the effort put forth to secure a sharp image, not upon amount of ametropia. I correct any amount of ametropia which diminishes visual acuteness or leads to fatigue. |
| Hobby, C. M. | Yes. | I prescribe them whenever on trial they render use of eyes at close work more comfortable. |
| Holmes, E. L. | Yes. | In the same cases and on the same principles where with higher degrees of error stronger lenses would be given and with the same results. |
| Hotz, F. C. | Yes. | Persistent asthenopia, aggravated by eye-work without other discoverable cause. Freedom from the previous pain, discomfort, congestion, irritation, etc., increased ability for eye-work and recurrence of symptoms on leaving off glasses. |
| Jackson, Edward. | Yes; but not often except in combination. | In all cases where necessary to relieve strain, I have for twenty-five years found them very serviceable and satisfactory. |
| Keyser, Peter D. | Yes; frequently. | Cylinders in one eye, if either has marked ametropia. Spheres not infrequently in young people of nervous temperament. |
| Knapp, Herman S. | Cys. exceptionally, Sph. frequently. | Not very frequently and only in cases where on trial decided relief to asthenopia or decided improvement in vision is obtained. |
| Kollock, Chas. W. | Yes. | Asthenopia due to slight errors. In a comparatively large proportion of cases, relief is obtained by their use. |
| Maire, L.E. | Yes. | Cases (mainly stenographers, book-keepers, teachers, sewing girls, etc.) with slight refraction errors with symptoms of eye-strain which are relieved by careful adjustment of lenses tried for several days. Relief of symptoms of eye strain. |
| Mann, Win. A. | Yes. | In cases of accommodative asthenopia, mostly in young people, marked relief is obtained by such lenses. |
| Miller, R. W. | Yes; cylinders often, S. occasionally. | Students and sewing girls. They give relief. |
| Minney, J. E. | Yes. | In all forms of asthenopia, especially ocular headaches which are, as a rule, relieved by these glasses. |
| Mittendorf, B. L. | Yes; frequently, especially cylinders. | Cases with frontal headaches and generally irritable condition of the eyes. Complete relief and ability to use the eyes comfortably. |
| Montgomery, W. T. | Yes; cylinders frequently, S. exceptionally. | The cylinders in cases of oblique astigmatism with asthenopia or headache in most cases give relief to the patient. |
| Moulton, H. | Yes; cylinders frequently, S. occasionally. | Correct all cases of astigmatism to 0.25 D. Give 0.50 D. or less S. as partial correction of higher degree of hyperopia. Relief from symptoms. |
| Murrell, Thos. E. | Yes; habitually and daily. | Asthenopia and other troublesome eye symptoms not relieved by other means. Relief of these symptoms. |
| Oliver, Chas. A. | Yes, for thirteen years. | Asthenopia. Relief of symptoms. |
| Pinkard, Chas. P. | Yes. | Asthenopia. Relief of symptoms. |

| OCULIST. | REPLIES TO QUESTION 1. | REPLIES TO QUESTIONS 2 AND 3. | OCULIST. | REPLIES TO QUESTION 1. | REPLIES TO QUESTIONS 2 AND 3. |
|----------------------|---|--|--------------------------|--|--|
| Price, G. H. | Yes; rather frequently. Nearly 50 per cent. of refraction cases receive one or other alone or in combination. | All cases of low degrees of astigmatism are corrected. Relief of distress in use of eyes. | Wood, Casey A. | Yes. | Most cases of astigmatism against the rule. Nervous symptoms, as asthenopia and weakness of accommodation, headache, blepharitis, general relief from symptoms. |
| Prince, A. F. | Yes; in 100 consecutive cases (200 eyes) 36 eyes received C. less than 0.50 D. and 50 received S. less than 0.75 D. | Cases with low refraction error with asthenopia, ocular headache or neurasthenia, not otherwise accounted for. Testimony of patient as to relief by use of glasses and the return of symptoms when glasses are discontinued. | Würdemann, H. V. | Yes; constantly as to Cys.; rarely as to S. except in combination. | Correct low degrees under same circumstances as I would correct higher degrees and with equally good results. Relief of asthenopia and occasionally of reflex disturbances as chorea. |
| Randolph, R. E. | Yes; 0.25, 0.50 D. cylinders more frequently than any others. S. less frequently. | In all cases where astigmatism of 0.50 or less is present. | Wilder, Wm. H. | Yes; both. | In persons with low degree of error who use their eyes much at close range presenting symptoms of asthenopia; as smarting pain in head and eye-balls, blepharitis, general debility, etc. Relief from symptoms. |
| Randall, B. A. | Yes; 0.37 or 0.25 Cys. not infrequently. Sphericals occasionally. | Patients having low errors with asthenopia not relieved by tonics, hygienic and other means; retinal and choroidal disturbance, etc., call for correction of those errors. Relief of distress, increased capacity for eye-work and disappearance of fundus symptoms. | Bettman, B. | Yes; but seldom C. and S. very seldom. | Relief of asthenopia when present. Never given simply because slight error is found. The prescribing of spectacles has been much overdone. |
| Richey, S. O. | Yes. | Always correct the static refraction fully, but do not often find these low degrees, not due to spasm. | Fiske, Geo. F. | Yes; very seldom. | In rare cases of anisometropia, often where from ill-health use of eyes is difficult except under most favorable conditions. Evidence of value cessation of headaches and ability to use eyes comfortably. |
| Risley, S. D. | Yes; frequently. | Anisometropia, antimetropia and asthenopia, especially in neurotic individuals. Much clinical evidence. | Ware, Lyman Young, H. B. | Yes, but very rarely. Seldom now. | Eye-strain, recovery or restoration of normal condition. Under atropia I usually find more error or none at all. In anisometropia of low degree I prescribe crossed cylinders. Occasionally in neurasthenics who have much eye-work to do I prescribe 0.50 S. I believe they usually have really no value, the burden of the glasses being greater than the burden of the error. |
| Ray, J. M. | Yes; where symptoms demand. Never simply because that amount of error exists. | Eye-pain, etc., give proper glasses whether of low or high degree. Relief of the trouble complained of. | Dowling, F. | Cys., no; S. rarely. | I do not think such a low degree of astigmatism needs correcting. |
| Savage, G. C. | Yes. | Correct all astigmatism from highest to lowest degree in all cases. | Erwin, A. J. | Cys., no; S. sometimes where accurate vision is required. | I have quit prescribing cylinders of less than 0.50 D., as I am convinced that as a rule a low degree astigmatism is less hurtful than the corresponding cylinders. |
| Schneider, Jos. | Yes; very often. | Cases with small error and large nervous manifestations. Relief of very distressing symptoms. | Sinclair, J. G. | Cys., no; spheres, yes. | In low degrees of H. and weakness of muscle of accommodation. |
| de Schweinitz, G. E. | Yes. | In all cases in which low degrees of astigmatism are the evident cause of asthenopia in the widest acceptation of the term; because an abundant experience demonstrates that relief follows such practice. | Gibson, Robt. D. | No. | With rare exceptions I obtain as good results with plano lenses as with these. (Try it). |
| Scott, X. C. | Cys. yes. Sph. except in combination, no. | Cases with asthenopic symptoms and conditions. Cases who could do no work with their eyes without headache which have been entirely relieved. | Gradle, Henry. | Very rarely, if ever, now. | No evidence that they are of any value. |
| Smith, F. T. | Yes. | Use them empirically where they seem to relieve asthenopia. In a few cases relief has been complete; in most the glasses were rejected after a few days. | | | |
| Standish, Myks. | Yes. | In all cases in which the asthenopia or nervous symptoms, headache, etc., are prominent. The evidence of my own eyes, in which 0.25 D. makes the difference between comfort and great discomfort. | | | |
| Stevens, Geo. T. | Yes; but Cys. rarely, now 0.50 D. S. frequently. | Rarely now prescribe 0.25 D. except combination with higher power. Usually 0.25 of astigmatism does not cause annoyance unless associated with muscular trouble and the correction of the latter is usually sufficient relief. | | | |
| Thompson, J. L. | Yes; most decidedly for past twenty-three years. | Evidence of value accumulates year by year. In hypermetropia, in simple astigmatism, and in compound hyperopic astigmatism. The evidence of patients is such in hundreds of cases that I am as fully convinced of the remedial power of these lenses as I am that the earth revolves upon its axis. | | | |
| Thompson, R. L. | Yes; 0.25 C. frequently. 0.50 S. occasionally. | Never simply to correct an error of refraction but to improve vision, to relieve eye-strain, blepharitis, marginalis, burning and blurring after use of eyes, headaches, pain in eyes, etc. Relief to patients from the symptoms mentioned. | | | |
| Tiffany, F. H. | Yes; both frequently. | In heterophoria I find them of value; they relieve asthenopia and assist in restoring balance and strength of the extrinsic ocular muscles. | | | |
| Turnbull, C. S. | Yes; with much pleasure and satisfaction. | Usually in cases of H., H., and a H., seldom in Ma and Ma M. | | | |
| Vermyne, J. J. | Yes; Cys. not very frequently. | Cases of constant headache and pain in eyes, etc., that have been treated by other means without relief, and other symptoms of irritation about eyes. As relief of these symptoms through rest of eyes and general treatment is always insisted upon, amount of benefit from lenses is difficult to determine. | | | |
| Wescott, Cassius. | Yes. | I correct all cases with measurable error if there are symptoms of eye-strain. Disappearance of headaches and other troubles under use of 0.25 to reappear when attempt is made to lay them aside. | | | |

So far as can be judged by these replies the editor is mistaken in questions two and three. We will now consider the first question. Is the 0.25 D. cylinder of merely mythical value, on the lines suggested? 1, personal experience; 2, the teachings of recent American text-books; and 3, the experience and observation of others.

1. Personal experience and observation. The writer has for many years prescribed the low degree cylinders rather frequently; the low degree spheres rather unfrequently. In the earlier years he believed, as he had been taught, that less than one dioptré of astigmatism was not worth considering. He, however, found cases requiring correction for less degrees, and gradually made more accurate correction until the 0.25 D. cylinder was reached. Then certain cases were found not entirely corrected by 0.25 D. C. and a little over corrected by 0.50 D. C. and so in 1890, 0.37 D. C. was added to the trial lenses and a little later in the same year 0.12 D. C., 0.62 D. C., and 0.88 D. C. An 0.12 D. lens has been prescribed a very few times, in cases requiring a higher correction for the other eye; 0.37 D. is used frequently; 0.62 not so frequently and 0.88 rarely. Cases are constantly seen where a difference of one-eighth dioptré in the strength of the correcting lens causes a decided difference both in the acuteness of vision and in the comfort of the wearer. This has been illustrated several times when a patient for whom 0.37 D. C. lenses has been prescribed returned with the statement that they did not seem right, and upon examination it was found that the optician had substituted

0.25 D. or 0.50 D. When the patient procured the proper glass the trouble disappeared. Those most frequently requiring these weak lenses are school-boys and girls about the age of puberty, medical and other students, stenographers, bookkeepers and typewriters, sewing girls and finally the neurasthenic and debilitated. Many of these require constitutional and other treatment, and most of them would recover completely with this and prolonged and complete rest for the eyes. But to many of them this rest is simply impossible, and anything which will assist them to bear their necessary load is eagerly accepted.

The lenses are fitted and prescribed with the utmost care. The general condition of the patient is noted, other sources of irritation are sought, and patients are encouraged to take rest, recreation and whatever general remedies may be indicated and to avoid the wearing of glasses unless really necessary. The refraction is carefully worked out and the lens theoretically required noted. But the crucial test is the actual wearing of the lenses. The patient is given lenses such as seem to be required, to wear about his regular work for one, two, three or more days, that he may determine with certainty the effect. This is easily done by having a number of pairs of frames with round cells and a number of cylinders of various numbers cut round so as to fit in these cells. The axis of the cylinder can thus be placed at any desired angle. Where doubt exists as to the value of the lens on trial, window glass so marked that the patient shall not know the difference is substituted and the patient tries that. Rarely one is found who accepts the latter as well as the lens, and he is advised to postpone wearing glasses and try other measures. A number of patients who have been wearing lenses a considerable time have, in the past few months, had their lenses replaced by window glass to see if they liked the one as well as the other. In none of these cases has the window glass given satisfaction.

A few illustrative cases will be given among those furnished by others. Very many equally striking could be added. Nearly all the patients whose cases are given, live in Chicago, have been frequently seen since the glasses were prescribed and have received the advice to try leaving them off but have been unable to do so.

2. The teachings of some of the more recent American and English text-books will be considered, the list not being complete as only the writer's library was consulted.

It is surprising to see how little is said upon this particular point in these text-books; even men who are well known, from papers read before this Section, to have very decided views on the subject, discussing it in a very indefinite and unsatisfactory manner.

Juler, "A Hand-book of Ophthalmic Science and Practice," 1893. Nothing about low degree lenses.

Roosa, "Schmidt-Rimple, 1889." Notes the necessity of correcting even low degree of astigmatism in presbyopia.

Nettleship, "Diseases of the Eye," 1890. Has only the most general statements concerning the relation of hypermetropia to asthenopia. Nothing as to the correction of low degrees of ametropia.

Tiffany, "Anomalies of Refraction and of the Muscles of the Eyes," 1894. Seems to advise the use of both weak spheres and cylinders in certain cases, but the teaching is not very clear or definite.

Fuchs, "Text-book of Ophthalmology, American

Translation," 1892. "The treatment of astigmatism consists in correcting it as precisely as possible by means of cylindrical glasses. In this way distinct vision can be secured and at the same time the asthenopia is relieved." This comprises all he has to say on the subject.

Berry, "Diseases of the Eye," 1893. Speaks of astigmatism of one-fifth or less as a cause of headache in certain cases, and of the necessity of correcting even low degrees of ametropia in such cases.

Noyes, "Diseases of the Eye," Second Edition, 1894, says: "The more pronounced are the asthenopic symptoms the more searching must be the search for astigmatism and the more accurate its correction. Then even slight degrees, 0.5 D. must not be neglected," p. 127. "But it must be emphasized that in susceptible persons small errors, especially hyperopic astigmatism calling for a cylinder with axis nearly vertical or even small degrees of hyperopia demand exact correction. As a fact, we have often to deal with a susceptible organism, and because it is easily set ajar we must remove even minute sources of disquietude." Pp. 197-198.

Norris and Oliver, "Text-book of Ophthalmology," 1893, are most decided and definite in their statements of the relation between slight ametropia and asthenopia and state that the correction of even 0.25 D. of astigmatism is often followed by marked relief of asthenopia and increase in visual power. Pp. 266 and 211.

De Schweinitz, "Diseases of the Eye," 1892. Advises in a general way the use of low degree S. and C. lenses but is not very definite.

The experience and observation of others. To obtain this the author wrote to fifty of those who had replied to the previous letter, asking that each one send notes of two cases for whom these low degree lenses had been prescribed, and that these be cases sufficiently long under observation to show results. Of these thirty-nine replied, most of them sending two or more suitable cases, some sending one and a very few sending cases that can not be used in this paper because not coming within the low degree lenses asked. To all of those, answering either of these letters, the writer wishes to extend most hearty thanks. Many have taken much time and trouble to look up cases and records. That work is appreciated and the author hopes the results will justify the labor. Fifty cases are given below, one only being taken from each contributor in most cases, and sufficient taken from the author's records to make the number an even fifty. While most of the cases are necessarily condensed to bring them in the limit of this paper, an effort has been made in each report to give the exact idea of the reporter and in as nearly his own language as possible. Many of those sending cases wrote that they could easily duplicate those cases by hundreds.

Case 1.—Reported by Dr. H. P. Allen. Miss P. R., age 19; student. General health good, November, 1888. Asthenopia; blurring after using eyes for an hour particularly at night; temporal headaches, not severe. Other members of family have similar eye troubles. V. 20-18 P. P. 3 inches. Correction R. 0.25 C. 30°. L. 0.25 C. 180°. Reported April, 1892, that she had entire relief. "Did not know that glasses could do so much for her."

Case 2.—Mrs. L. N., age 30. Perfectly healthy. September 1891. Reads several hours daily. Severe frontal pain sometimes with occipital pain and nausea after reading half an hour; has been using +0.50 S. without much relief. Orthophoria V. 20-18. Correction +0.25 C. 90° both. Relief almost immediate. Axes changed to 180° and without

patient's knowledge return of all trouble. Reported 1893: "I always use my glasses for near work. Never have any trouble now."

Case 3.—Reported by Dr. Frank Allport. Miss M. F., age 20. Healthy. Asthenopia, severe and protracted headaches. Competent oculists have fitted various convex spheres. No result. Tenotomy had been advised but declined. I find esophoria 4°. Homatropia correction +1.25 S. \odot +0.25 C. 90° each eye. Prescribed 0.25 C. 90° each eye for constant use. Patient perfectly well for one year and still wears glasses.

Case 4.—Dr. Frank Allport. G. G., boy. Age 14; good health. Headache in school, almost incessant winking and blinking, blepharitis. Homatropia correction. +1.50 S. \odot +0.50 C. 90° each eye. Lids treated and boy taken from school for a few weeks. Prescribed 0.25 C. 90° each eye for constant use. Has worn these for two years. Perfect result.

Case 5.—Reported by Dr. G. A. Aschman. N. P., 18. Seamstress. Eyes tire after sewing and smart and burn at night. Headache, twitching of lids, watering of eyes and blurring. Tonics and rest improve condition, but still considerable trouble. Correction +0.25 D. C. 135° and 45°. Relief immediate and one and one-half years later she still wears glasses constantly for work with complete relief. Broke one lens a few months ago and while having it repaired old symptoms returned, to disappear when lenses were resumed.

Case 6.—Reported by Dr. A. R. Baker. G. E. P., farmer's daughter, age 28. Comes to renew glasses broken for six months. Constant sufferer from headache from childhood till six years ago. She at that time received from me correction +0.25 D. C. 60° and 120° increasing V. from 20-30 to 20-20 and entirely relieving head. Since glasses were broken, headaches have returned; patient hoped to get along without glasses but could not. Renewal of lenses stopped the headaches.

Case 7.—Reported by Dr. B. Bettman. Dr. E., age 40; busy over-worked practitioner. Tired feeling and frontal headache increasing toward night. Refraction under cycloplegia 1. D.; after recovery accepts 0.50 D. S. These gave immediate and complete relief. Later after vacation and rest he finds them unnecessary and lays them aside.

Case 8.—Reported by Dr. J. H. Buckner. Miss M. H., seamstress. April, 1893. Much headache for two years. V. each eye 20-15. Correction under atropia. R. +0.25 S. \odot +0.25 C. 135°. L. +0.25 S. \odot +0.25 C. 45°. Ordered these. Entire relief from headache.

Case 9.—Reported by Dr. H. D. W. Carvelle. Fred N., age 21. Druggist clerk. July, 1888. Left eye enucleated in 1886; R. eye weak; can not read or write without headache and pain in eye so that he was obliged to give up his position. Correction with homatropia +0.25 S. \odot +0.25 C. 90° with which pain and headache disappeared and work was resumed.

Case 10.—Reported by Dr. Wm. Cheatham. Emma N., age 24. Health good. Nov. 12, 1892. Spots before eyes; discomfort in back of head when eyes are used. Mild conjunctivitis and blepharitis. Treatment for latter ineffectual. Atropia correction. R. +0.25 D. C. 90°. L. +0.25 D. C. 75°. Have worn these with perfect satisfaction since. Quickly recovered from the conjunctivitis and blepharitis. Reported a few days ago.

Case 11.—Reported by Dr. J. J. Chisolm. Mr. La C., age 30. May, 1891. Eye and head pains and photophobia. Can not use eyes without pain V. 20-20 and 1-1. Correction = 0.25 D. C. 180° each. These gave complete relief and have been worn since with comfort, but can not be left off for a single day without return of pain.

Case 12.—Reported by Dr. J. E. Colburn. Bertha W., 25. Health good. Frontal and occipital headaches. Blepharitis. Correction. R. +0.37. 90°. L. +0.25. 90°. These were prescribed but patient complained of pain in right eye; this lens was found to be 0.25 instead of 0.37. Pretended to change this but patient still complained. Changed to 0.37. These gave complete relief and she is still wearing them without headaches.

Case 13.—Dr. Coleman. Annie S., age 17. High school student. Any study in evening causes eyes to pain. Homatropia correction +0.25 D. C. 90° each. Seen several times since; says she has absolutely no trouble with eyes if glasses are worn but pains soon return if glasses are taken off.

Case 14.—Reported by Dr. Robt. O. Cotter. Mrs. C. V. W., age 53. Pain in eyes and head on any attempt to use eyes for distance, or for near points with presbyopic lenses. Correction +0.25 D. C. 90° each eye. These for distance with proper correction added for close work gave complete relief from the above symptoms and have been worn with comfort for four years.

Case 15.—Reported by Dr. J. C. Dunlavy. Miss G. Age 18. Teacher. August, 1891. Good health except almost constant headaches. Dizziness when headache is bad. Profound asthenopia. Correction +0.25 D. C. 180° both. Within four weeks all pain and asthenopia had disappeared and eyes were used without difficulty. Glasses now used for close work only.

Case 16.—Reported by Dr. J. C. Dunlavy. Miss P. Age 19. College student. August, 1891. So much eye ache and headache she had left school. Correction +0.25 D. C. 75° and 105°. In three weeks returned to school. Graduated last year and is now taking post graduate course. No trouble with eyes in all this work.

Case 17.—Reported by Dr. Geo. M. Gould. Mr. A. D. E. Age 25. Consulted many oculists in past six years for intense headaches in eyes and temples and occiput; reading ten minutes would bring on an attack which usually lasted a day. All had given—spheres or cylinders; wearing now -0.25 C. 90°. Mydriatic correction +0.62 S. \odot +0.37 C. 180° each eye. Use of these lenses gave at once complete relief with ability to read a normal time. This happy condition has continued for six months.

Case 18.—Dr. Geo. M. Gould. Mrs. A. M. W. Age 22. Trained nurse. Been wearing for eight years +0.62 D. S. Severe headaches, temporal and occipital, recurring of late years once or twice a week. The following correction has been worn over a year with relief of headaches. R. +0.25 S. \odot 0.25 C. 90°. L. +0.37 S. \odot +0.25 C. 90°. Headache at once returns if glasses are discarded for the shortest time.

Case 19.—Reported by Dr. E. J. Gardiner. Miss P., age 30. May, 1889. From early childhood has been a martyr to most severe headaches, coming on sometimes twice a week and prostrating her for two days at a time. With the lighter attacks she could go about the house, but the "regular attacks" sent her to bed in a dark room. Use of eyes for close work frequently brought on these attacks. All kinds of treatment had been found unavailing. The eyes had been examined and found normal; the headaches had been finally accepted as a necessary evil. Examination of eyes revealed nothing abnormal. R. E., V. 20-20 C. 25 S. a little better. L. E., V. 20-20, 0.25 C. 90° better. Most careful testing under atropia did not change this, so above were prescribed. Headaches began to diminish at once in frequency and intensity, and in these three months patient reported that she had "no more headaches." Six months later when on a long journey glasses were broken and headaches soon commenced again; by the time she got home she had one of her old attacks. New glasses again gave relief; she has continued to use her glasses until last year (1893) and lately has been going without them without any return of the headaches.

Case 20.—Reported by Clark W. Hawley. Miss K. F., 11, school girl. Good health. Occipital and frontal headache from study. Letters get mixed up when reading. Correction +0.25 D. C. 135° and 45° have given complete relief now one year. Glasses sometimes left off a few hours when old headaches return, at once relieved by resuming glasses.

Case 21.—Report by Dr. C. M. Hobby. Miss E. C., age 18. Asthenopia. V. 20-20 each eye. Under mydriatic R. +0.25 D. C. 60° 20 = 20 +. L. +0.25 D. C. 120° 20-20 +. With this correction vision remained comfortable permanently.

Case 22.—Reported by Dr. F. C. Hotz. Boy of 12. Constant frowning; eyes red and lids swelling after reading a short time. Ordered +0.25 C. 180° each eye. Was relieved. Eyes so well, glasses were left off after a time but in a few days he was compelled to wear them again because the old symptoms had returned.

Case 23.—Dr. F. C. Hotz. Bookkeeper, age 20. After few hours' work eyes burn and smart, and dull headache often compels cessation of work in afternoon. Very sensitive to light; can not read in evening. Conjunctivitis treated four months; improved but other symptoms remain. Ordered +0.25 D. C. 90° each eye and topical applications discontinued. Now after six months has been working over books every day without slightest discomfort.

Case 24.—Reported by Dr. Chas. W. Kollock. Female, age 29. V. normal. For two years use of eyes for close work causes blurring and lachrymation with pain. Atropia correction +0.25 D. C. 90° each eye. These have been worn now for six years with relief from symptoms complained of.

Case 25.—Reported by Dr. Peter D. Keyser. Mrs. C. E. D., age 27. Can not read five minutes without lids drooping and a sandy feeling in eyes. Persistence in work causes headache and nausea. Atropia correction +0.25 D. C. 60° and 90°. Has worn these glasses six weeks and is entirely relieved of her trouble.

Case 26.—Reported by Dr. L. E. Maire. Mrs. E. R., age 31. February, 1893. Nervous temperament. Periodical headaches not relieved by thorough constitutional treatment. Pain in head and eyes daily occurrence, interfering with her household duties. Fundus normal. Homatropia correction -0.25 D. S. each eye. These glasses give entire relief. Latter part of 1893, eyes were very comfortable. Glasses were omitted when headaches returned. Glasses resumed, relief again complete and has continued to this time.

Case 27.—Reported by Dr. Wm. A. Mann. Miss M. H., age 23. Stenographer. Had to quit work on account of "weak eyes." Head and eyes ache after using a short time; type blurs Homatropia correction. R. $+0.25$ C. 10° . L. $+0.25$ C. 180° . Complete relief from asthenopia symptoms, and says after three months she can't get along without them.

Case 28.—Reported by Dr. J. E. Minney. Dr. C. E. N., age 21. December, 1893. Constant headache, with temporary blindness when headaches are most severe. Correction. $+0.25$ D. C. 90° both eyes, gave relief which has continued now four months.

Case 29.—Reported by Dr. B. L. Mittendorf. Miss A. H., age 18. College student. January, 1894. Severe and almost constant headaches for years. Treated by family physician for a long time without relief. One year ago given $+1$ D. S.; worn since without relief. Headaches so severe she thinks she will have to give up study. Correction $+0.25$ D. C. 180° . January 27, headache very much better. April 20, has lost glasses. Study for one day without glasses has caused return of headaches with great violence. Similar correction again given. No headaches since.

Case 30.—Reported by Dr. W. T. Montgomery. M. De W., age 11. School girl. General health good. Jan. 1, 1891. Smarting and aching of eyes, frontal headaches for four years. Headaches now so severe, she had to give up school. Vision 20-20 either eye. $+0.25$ D. C. Axis 25° right eye, and 150° left eye. Vision 20-20. These glasses give complete relief so long as she wears them, with recurrence of headaches if she leaves them off.

Case 31.—Reported by Dr. H. Moulton. Miss S. E., age 24. Teacher. Fair health. Feb. 5, 1894. Eyes used with difficulty for three years. Blurring, pain in and behind eye-balls, constant frontal headache. Homatropia correction $+0.25$ D. S. $\odot +25$ D. C. 90° each eye. These gave immediate and complete relief. Head has not ached since, and patient can read as long as she desires without discomfort, but any attempt to lay aside glasses is followed by discomfort until they are resumed.

Case 32.—Reported by Dr. Thos. E. Murrell. Miss Adah H., age 17. Good health. Headaches and tiresome vision, relieved by $+0.25$ D. C. 90° both eyes. One year later wrote she had perfect comfort with the glasses, but leaving them off one day would bring on severe headache.

Case 33.—Reported by Dr. G. H. Price. Dr. G. H. P. (Myself); suffered with my eyes for about ten years, having been under treatment during each year more or less. Almost compelled to abandon college. Homatropia correction O. D. $+0.25$ C. ax. 60° . O. S. $+0.25$ C. ax. 90° . I have been able to read and study any time, and for hours without trouble, except now and then when I have a heterophoralgia due to muscular unbalance.

Case 34.—Dr. A. E. Prince. Frank K., age 32. Tailor. 1888 first seen. Conjunctivitis. Various astringents used for eyes. 1891. Gave him $+0.50$ D. S., each eye. These gave him some relief but trouble persisted and other symptoms arose. Correction after repeated and careful treating under atropia $+0.25$ D. C., axis 180° each. Gave entire relief. He is now able to do a large amount of work by artificial light as well as by daylight without discomfort.

Case 35.—Reported by Dr. Pinckard. Miss M. H., age 17. March 1, 1892. Had been under treatment for headaches over three years without relief. Insists that headaches have no connection with her eyes. Correction $+0.25$ D. S. $\odot +0.25$ D. C. Axis 90° and 80° . No relief for about ten days, after which headaches gradually disappeared. March 5, 1894. Has been able to work without discomfort.

Case 36.—Reported by Dr. Chas. A. Oliver. Dr. —, age 24. January, 1894. Severe asthenopia and lid irritation, unrelieved by local and general treatment for nearly ten years. Insufficiency of convergence so pronounced, that tenotomy had been advised. Fundi normal. Atropia correction $+0.25$ D. C. 25° and $+115^\circ$. This correction with 2° prisms, bases in, has been continually worn since, enables patient to perform an enormous amount of literary work without eye trouble. Twice through breakage lenses have been omitted for a few days with speedy return of old symptoms.

Case 37.—Reported by Dr. J. M. Ray. G. S., age 34. Druggist. Feb. 21 1894. Headache on use of eyes. Correction R. $+0.25$ D. C. 90° . L. $+0.50$ D. S. March 6, 1894. Been using glasses with complete relief from headaches, but if eyes are used without glasses, headaches return.

Case 38.—Reported by Dr. S. D. Risley. Miss C., age 26. Art student. March, 1894. Weak eyes, headaches, etc. Correction R. $+0.37$ C. 90° . L. $+0.25$ C. 90° . At the end of the month reports perfect comfort at her work but is compelled to use her glasses.

Case 39.—Reported by Dr. G. C. Savage. Mrs. M. B. D. Oct. 21, 1892. Ordinary symptoms of eye-strain. Under homatropin O. D. $+0.25$ C. ax. 105° . O. S. $+0.25$ C. ax. 65° . Reports relief from eye-strain.

Case 40.—Reported by Dr. J. L. Thompson. Physician of rare intelligence and very hard student. April, 1887. Intense sufferer for weeks with head and eyes. Vision 20-30 each eye. No muscular trouble. Atropia correction. Vision 20-20 each eye with $+0.50$ D. C. axis 65° . Right, 0.50 D. C. axis 130° , left. Prescribed $+0.25$ D. C., axes as above. Benefited in a few days. In six weeks could read all he pleased and has continued to do so until this day. Has several times tried to do without glasses but the old symptoms promptly return.

Case 41.—Reported by Dr. R. L. Thompson. Spokane, Wash. Miss T., school teacher. So much trouble with her eyes that she seriously thought of giving up her avocation. For this I gave her in May, 1893, a pair of $+0.25$ D. C. 90° . I saw her yesterday (April 25, 1894.) She is delighted with her glasses and says she has had no trouble with her eyes since she got them.

Case 42.—Reported by Dr. H. V. Würdemann. Mrs. B., age 43. Neurasthenic. Asthenopia and headache, marginal blepharitis and chronic conjunctivitis. Correction $+0.25$ D. C. $90^\circ \odot 0.75$ D. S. for reading. Lenses give satisfaction for reading, but headaches continue. Gave $+0.25$ D. C. 90° each eye for constant use which have given relief to this time from all symptoms.

Case 43.—Reported by Dr. H. M. Starkey. Frances G., age 13. School girl. April 7, 1893. Had cerebro-spinal meningitis three years ago. Much pain in eyes and in head particularly at base, when eyes are used since. Very severe paroxysms of headache occur about once a week. Sunlight and lamplight painful. Patient looks dull and forehead is contracted. Correction $+0.37$ C. 90° each eye. April 12, no headache with glasses. June 1, no headache. June 13, no headache and light hurts the eyes but little. October 10, has had practically no headache since getting glasses and school has been resumed. The change in facial expression when the glasses were put on was very pleasant to see and she always afterwards came to the office with a smile.

Case 44.—Reported by H. M. S. Miss E. A. P., age 28. Oct. 17, 1893. Severe and almost constant supraorbital headache. Had come to visit the World's Fair but pain is so severe when patient enters the grounds that she fears she must go back home without seeing the Fair. Esophoria 10° and 12° . Homatropia correction $+0.37$ C. 180° each eye. These glasses were prescribed and relieved head at once. Miss P. remained in city with but little eye trouble and attended the Fair until November 4, and had but one headache. Esophoria reduced to 6° and 4° by this time without other treatment. Have heard lately that Miss P. continues to wear the glasses with same comfort.

Case 45.—Reported by Dr. H. M. S. H. P. H., age 28. Book-keeper. Oct. 25, 1893. Eyes tire easily and give out entirely if used much. Feel full of sticks after use. Homatropia correction $+0.37$ C. 135° and 45° . These gave entire relief and have been worn constantly since though eyes are used constantly and closely. I see Mr. H. frequently and suggested a short time ago that he might perhaps get along without his glasses now, but he said he is so perfectly comfortable with them that he does not care to try any experiments.

Case 46.—Reported by Dr. H. M. S. Miss M. G. H., age 19. School girl and later teacher. Feb. 21, 1893. Always has had much headache in brow and temples particularly if tired. Dull headache most of the time; worse at evening. Correction: $+0.50$ S. $\odot +0.25$ C. 90° each eye. Likes the simple cylinders better and these are given and relieve the head. February 25. Headache relieved completely, but return if glasses are omitted and are again absent when glasses are resumed. May 20, 1894. Has much headache but not of the old character. Headache most intensified if glasses are omitted at all.

Case 47.—Reported by Dr. H. M. S. Miss J. H., age 25. Health much impaired from mitral heart disease. August 15, 1890. Eyes and head have been troublesome and painful

for a long time. Correction $+0.25$ C. 90° each eye. These glasses given and headache disappeared within a few days. Patient seen frequently since and says she can not get along without glasses. Seen May 20, 1894. Says leaving off glasses a short time causes headache and if they are not resumed nausea arises.

Case 48.—Reported by Dr. H. M. S. Miss C. M. S., age 25. Eyes have been troublesome for ten years. Severe headache and eyes smart after use. Homatropia correction. R. $+0.50$ S. $\odot +0.25$ C. 20° . L. $+0.25$ S. $\odot +0.25$ C. 160° . After recovery from cycloplegia gave $+0.25$ C. 20 and 160° . These relieved head and eyes. Saw patient a number of times in the following two years and she always expressed the greatest pleasure in the use of the glasses.

Case 49.—Reported by Dr. H. M. S. Miss J. W., age 18. Teacher. Health good except headache Dec. 15, 1890. Always had much headache. Worse past year and there has been pain and heaviness in eyes in bright light and after using them. Correction $+0.25$ C. 180° R. -0.25 C. 90° L. These relieved the headache and eye-strain. Have been worn ever since with relief from pain in head and eyes and increased ability to use eyes. Pain returns if glasses are left off.

Case 50.—Reported by Dr. H. M. S. Miss Dora W., age 18. School girl. One of a family of sisters all having slight degrees of astigmatism with much headache relieved by proper correction. Dec. 6, 1889. Always had more or less headache, very severe and almost constant past two years. Correction $+0.25$ C. 180° . Dec. 14, 1889. Has not had a headache when glasses are worn. May 15, 1890. Uses glasses almost constantly. Does not have headache when glasses are worn. May 8, 1893. Lost glasses some time ago and headaches have been increasing until they are now very bad again. After examination gave same lenses which again relieved from headache.

WEDNESDAY—JUNE 6.

Section was called to order at 3:10 P.M.

Before the reading of the papers a case was presented by Dr. A. H. Voorhies, of San Francisco.

DR. VOORHIES—Mr. Chairman: You have kindly given me an opportunity of presenting a case which came in this morning unexpectedly. It was an operation which was so applicable to this Section that I asked my friend to allow me to present it here. It is a case of double cataract. Some of the members asked me this morning a question or two in regard to certain methods. I am not going into a long discussion on extracting cataracts, but I will say it has been my habit for twenty-five years of making a simple extraction. Never in the course of my life have I made an iridectomy, without its being an enforced one.

Again, in regard to the point of section, as to whether it should be at the lower or the upper section. I say in the majority of cases that is immaterial—I would as soon operate in the lower section as in the upper. I thought it would be of interest to the Section to see this case and therefore have brought the patient. The case illustrates also the method used now by many, of irrigating freely the anterior chamber, which I do in all cases that require it. If the cataract is senile and the greater portion of it is dense, we have no occasion for irrigation, but in all cases of cataracts in which the upper portion is wholly soft, then we are called upon to irrigate.

In regard to the knife—I have possessed recently some modifications of the cutting knife, that is, of having a very narrow knife, twenty millimeters in length, with a cutting edge one-half of its length on one side and complete on the other. The narrow blade will accomplish all that is to be done in the way of cutting—it can make a wound small or large, according to the section. In case of accident the introduction of the knife the wrong way, without withdrawing the knife, it can simply be turned over and the section finished without bad results.

Again, as to the method of irrigating. I use a syringe which I improvise at the time (showing.) The tube being placed in a bottle and the fluid drawn up into this bulb. In regard to the solution, I used simply distilled water, boiled

immediately before the operation or at the time. I do not hesitate to irrigate the anterior chamber freely and have never had evil consequences from it, using distilled water. I have under certain circumstances used a solution of boracic acid, probably 1 per cent., and occasionally, a mere suspicion of common salt, using nothing in the way of bichlorid.

The report of the Nominating Committee was then read.

DISCUSSION ON DR. STARKEY'S PAPER.

DR. H. I. JONES, San Francisco—I agree with Dr. Starkey about his paper. I think a great many of these cases require weak spherical glasses. Most all of them suffer from some neurotic trouble, or some condition which can be cured by constitutional treatment. They are often bilious. Give them some blue mass or a good dose of salts and a little tonic afterwards and they will often get well without glasses, putting on colored glasses in the meantime.

DR. ELLIS—Mr. President: Somebody has remarked quite recently in our medical literature that oculists were getting to be simply expert opticians. I think, Mr. President, our oculists should be expert opticians, but to say they are only expert opticians is to say they are very wide of the mark. There can be no question in this day and generation, when the eyes are called upon for so much work and such continuous work, that they must be under greater strain than they were in times past, and than they are in other countries where individuals are less on the move and more on enjoying themselves. I do not believe that all errors of refraction should be corrected. Many individuals pass through life with errors of refraction amounting to 1 or 2 D., either with astigmatism, or ametropia, without any discomfort and use their eyes a great deal. In the majority of cases, these are individuals in a healthy condition. There are other individuals who have only one-fourth or one-half D. astigmatism, who upon every effort of use of the eyes for close work have a reflex manifestation; frontal, vertical or occipital. Where we have these conditions as the result of eye-work, I think there can be no doubt that the oculist is justified in correcting the trouble. In my own personal experience, I have had more good results from correction of astigmatism of from one-half to one-quarter D. than from greater degrees, simply from the fact that in a low degree we usually have excellent vision, and the eyes are used to the utmost capacity, whereas in greater degrees we have more or less impairment of the vision, and there is not that constant strain that there is in close work where the vision is good. I am heartily in accord with Dr. Starkey in his views.

DR. SIMONTON, San Jose—Mr. President, I have corrected a great many cases of optical error of one-quarter D., and as the gentleman has just said who preceded me, it seems to me that relief is sought in the low degrees than in the high degrees of astigmatism. In the high degrees the eye gives up endeavoring to obtain perfect vision, and hence there is less eye-strain, while in the low degrees the vision being almost perfect, the eye makes every effort possible to make it perfect; hence, the trouble. As to the necessity of wearing glasses—I have not heard it mentioned, but I suppose it is your universal experience that a much larger percentage of females call for the correction of optical errors than males. In my experience, I think it will amount to three-fourths females, if not more. For some reason, there are either not the optical errors existing in the male portion of the race that there are in the female, or else they do not call for correction. Is it because they are stronger or in better condition physically? It would seem that we would have the same amount of optical error in the male portion of our race as the female, but it is my observation that a much larger percentage of females require correction. There is a great difference in individuals.

A gentleman called at my office a few days ago, who was over 70 years of age. He had inflammation of the lids in mild degree and due to eye cyst in some shape. I found his glasses for short range work were two areas. I came to the conclusion that he was ametropic. Upon testing the individual with the letters at twenty feet, he was not ametropic. I suggested that he wear a stronger lens, as he was actually drawing on the axillary muscle, and he has done so since. I think it would be the unanimous expression of this Section if they would express themselves, that the low degrees of cylinder, especially quarterly are beneficial and their use is warranted in hundreds of thousands of cases. It has been mentioned here that persons may wear glasses for a long time and then cast them off and go without. My experience in that line does not indicate that many persons will do it. After the eye has been accustomed to the glass, and the optical error has been corrected, to take off the lens and put the eye under the old conditions brings on the trouble again, except in cases where the general condition has been so improved. Our experience leads us to conclude that very few persons of optical error can cast aside their glasses and not wear them.

DR. H. B. YOUNG, of Burlington, Iowa—My personal experience is that in a majority of cases, ametropia disappears, so far as the ordinary tests are concerned. I want to ask the advocates of the use of one-quarter D. cylinders to tell me how they determine when they have found a case of one-quarter D. astigmatism. You must oftentimes take simply the judgment of the patient, and we know how unreliable that is. I do not believe we can *measure* it reliably by the ophthalmoscope. In my judgment, those advocating the one-quarter D. cylinder, do so on the reply of the patient himself. I have found, however, that there is one way of getting a little more definite reply in regard to the one-quarter D. cylinder, but I think the cure is worse than the disease. At the meeting of the State Society in my State last year, I presented a paper on this topic, and then called attention to the fact that I doubted if any one person could take the one-quarter D. glass, and on the ordinary test card tell when a one-quarter D. had been removed. They must have a plain glass in front of them to give them the idea of looking through a glass in the first place.

I have found that in nearly every case where a one-quarter D. cylinder was accepted, astigmatism would develop in almost every case. As a result of that experience, I have nominally discontinued the use of one-quarter D. cylinders. This applies simply to those cases which have equal vision. I understand the discussion does not apply to those cases which have very marked ametropia.

DR. BAKER, San Diego—I do not want to offer myself in opposition to the last speaker, but I would like to give my experience in this test. In testing by the use of a wheel, the radiating spokes placed at angles of 10 degrees, the inequality of the wheel can be determined in a large per cent. of these cases, and the inequality corrected and the relief of strain is marked at the time. In my own case, I showed the one-quarter D. minus astigmatism, which without the use of the wheel resulted in a plus astigmatism, the use of the plus cylinder being necessary. For six or seven years of my life I have suffered from migraine of a severe type. For six or seven years previous to the wearing of the glasses, I found that by a strict diet, taking away all meats, I could be reasonably free from the attacks. I put on glasses and worked and in the intervening time I have had four attacks of migraine, as against an attack of once a week or once a month, and these four attacks have been all I had, notwithstanding the fact I have done as much work as I chose. The relief has been absolute, as I am thoroughly convinced. In reference to other cases, I have a number of them, and

two of them were absolutely removed by having a one-quarter D. glass. Another case which had been diagnosed tubercular trouble, where there was persistent loss of weight and apparent serious lung trouble, was absolutely cured by the having of a one-quarter D. glass. I used atropin five days. I could only get the test with the wheel; I could not make it by the test pad. After putting the glasses on I told the patient I was disappointed, inasmuch as there were errors which could not be corrected by glasses, and on taking the glasses off the patient immediately complained of nausea; on putting them back again the nausea disappeared. And after wearing the glasses the condition of nausea disappeared absolutely. Within a few days the case disappeared entirely and the patient gained fourteen pounds in weight, and has been absolutely well since. The eye trouble may not have been the original cause of the disturbance; this is evidenced from the fact that for the last year she has been in perfect health without her glasses. But there can be no question that the relief was immediate at the time, and that the cause was the fitting of these glasses I see no reason to doubt.

DR. RYAN, Galesburg, Ill.—The remarks made have called into question the possibility of getting a correction by plus 25 or cylindrical 25. I have had considerable experience in fitting glasses in the last few years, and find it a very easy matter to make complete correction by the use of cylindrical 25. The ordinary patient would not be able to detect any particular difference in the letters, but if you use the wheel, as has been said, you can nearly always make a complete correction. You can not do it if the letters of the wheel are very close together, but if the wheel is very distinct and the lines are four millimeters apart you can always do it. I have a record of cases in which I am positive that dozens of them have been fitted in that way, and the difference could be noted instantly if we changed from 25 to 50, or *vice versa*. I have seen it so often that I am positive that the ordinary individual can detect those differences where we use a wheel which is clear and distinct, and the lines far enough apart so that you can easily recognize the lines. Where the lines are close together, it is in my opinion impossible, because there is a slight blur.

DR. PRICE, Nashville—I rise to add my testimony to that which has been spoken on this subject. I received a communication from Dr. Starkey and one of the cases I noted in the reply was striking. That case required only the correction of twenty-five-hundredths of astigmatism, and as with the cases related by the doctors here, it seemed as if the case were too serious to be accounted for by so slight a deviation from the normal; nevertheless, the correction was given and the patient was entirely relieved.

Another case that is striking is my own. I had suffered for many years,—I was almost compelled to abandon study when quite young on account of eye trouble. I was treated at that time by various general practitioners, who treated me for all troubles and conditions from granulated lids, as they supposed I had, with a first-rate attack of conjunctivitis, and I received no relief. I went from bad to worse for about ten years, when I had my vision corrected. At that time it was an absolute impossibility for me to devote exceeding fifteen to thirty minutes to consecutive reading at night without suffering from eye-strain. After that time, and since that time, I have been able to read almost indefinitely and what work I feel disposed to do I can do. If I confine myself to work for several hours consecutively without my glasses I feel the effect of it, but as long as I use them in proper position so as to get the benefit of the cylinder correction I proceed with my work without serious interference.

So, I am of the opinion that very frequently the great

trouble lies in the fact that men presume that it is useless to make these corrections, and they do not give the patient the benefit of the correction. It is difficult to determine to the one-half D. whether they should be corrected or not, but I think by careful observation we may be able to determine it. As the gentlemen who have preceded me have said, it is almost impossible to do this by reference to the letters. We must resort to the radiating letters, and in this way we can arrive at the proper direction in nearly every case. I do not attempt to place the position of the axis by the cylinder, if that cylinder is less than 75, but get the axis with a stronger cylinder and then reduce the cylinder to the required strength. As to the value of those lenses, I have every reason to have faith in them on my own account.

DR. DAVIS, Stockton, Cal.—The last speaker suggested the idea of putting a stronger cylinder before the eye to locate the angle. I want to suggest that where I could not find any effect I have reversed the cylinder. Put the cylinder in at 90, turn it quickly and it very materially hurts the vision.

DR. McDERMITH, Colorado—Mr. Chairman, on account of the confusion that exists in the minds of the profession, growing out of the editorial alluded to in the paper, and also the replies that have been made, and inasmuch as there seems to be somewhat of a unanimity on this subject, my experience (while it is not very extensive) certainly accords with that of the gentleman who read the paper and the most of those who have taken part in the discussion. Inasmuch as confusion exists and probably will exist, it seems to me that it would probably not be out of order for this Section to place the stamp of its approval in some way so as to make it more emphatic on one side or the other, and I move you that it is the sense of this Section that it is in accord with the paper presented by Dr. Starkey, meaning that the criticism of the editorial is about the proper thing.

This motion was seconded and a rising vote called for.

DR. SIMONTON—Mr. President, just one word of confirmation. The gentleman at my right said that by using the 4 D. cylinder, it would not improve the vision. If we turn the 4 D. cylinder at right angles to the supposed proper margin, invariably it hampers the vision, if a person has astigmatism—turn it back and the vision is improved at once. If we have one-fourth D. astigmatism, and take a one-half lens, it will be more so and there will be no doubt about it, thus determining that there is astigmatism and the vision is greater when the cylinder stands in one position than when it stands in any other position.

DR. YOUNG—That is my point—if there is a 4 D. astigmatism and you turn a 4 D. lens to the opposite axis, it will give the effect of a one-half D. lens.

DR. SIMONTON—I have put the motion in the form of a resolution, which is as follows:

Resolved, That it is the sense of this Section, deduced from actual observation and experience that the one-fourth D. cylinders have a permanent and important value in correcting myopic errors."

I offer that as an amendment.

DR. McDERMITH—I offer the amendment, "may have," without committing ourselves to the assertion that we believe in every case.

THE CHAIRMAN—It is rather an important matter, if we are going to pass a resolution, that we do it in such a way that we will not be ashamed of it afterwards.

DR. JACKSON—Mr. President, with reference to this resolution, while I am thoroughly in accord with the views of the speakers, and the gentleman who offered the resolution, as to the value of the remedies, I think that a formal indorsement on any grounds of any measure in therapeutics would be entering upon dangerous ground, and establishing a

precedent that may trouble us in the future, and unless such an expression is clearly needed and meets some emergency, with which I am not acquainted, I think it would be better for the Section not to take such formal action.

DR. EATON, Oregon—Mr. Chairman, I wish to emphasize what Dr. Jackson has said. There are many other points in ophthalmology which may come up and might require some sort of resolution, and we would find ourselves making resolutions until we become the laughing stock of our brethren. I therefore enter my protest against this resolution.

DR. GIBSON—What would we say of the Section in *Materia Medica*, if they should adopt a resolution similar to this one, saying that calomel in one-twentieth grain doses has its merits.

DR. PAICE—I would suggest that this is a thing which can be demonstrated mathematically, and that can be demonstrated only by the individual case.

DR. McDERMITH—I do not think that question has been raised. And it is not likely to be—the question of one-twentieth of a grain dose of calomel.

DR. BRIGGS—Mr. President, I do not favor this resolution from the fact that it is a matter of opinion largely. In regard to this opinion, I do not think it has been demonstrated as a positive fact that the 4 D. lenses are of so much value or so essential that it is necessary for us as a Society to resolve that they are beneficial. We can use them and believe in them and find them good in a good many cases, but I think the resolution would be rather a backward step for this Section to adopt. It seems to me the almost universal indorsement of the paper itself is a sufficient indorsement of this Section, without the adoption of a resolution.

DR. STARKEY—I think the resolution is hardly necessary. I do not think it would make any difference with those who do not use them. I move that the resolution be laid on the table.

This motion was seconded.

THE CHAIRMAN—The motion has not been stated by the Chair, and I think there is no motion before the house.

DR. STARKEY—There have been several things brought out in the discussion, much more emphatically than I had gone over them. I should like to say, in the line of argument of the gentleman who spoke second, that more good results from low degrees of correction are found. That was expressed by the doctors in their replies—that they found in a given number of cases more cases of a low degree of error in which correction was made, than in the higher degrees. Dr. Simonton spoke of the constitutional test as being important, and I also dwelt somewhat upon the fact that I thought most of these cases, if they could only stop work would get well without glasses. His experience in regard to females being in larger proportion is somewhat different from mine, probably because I have a large number of medical students who raise the proportion, so that I should think I had fully as many young men as women on my records. The fourth speaker said he thought it would be the unanimous sentiment of this Section that the low degree lenses are of great importance—that lenses were seldom omitted after being worn. That is not according to my experience. It is to be hoped in the low degrees, that when the general health improves the ocular health will improve, and they will be able to leave them off, especially in the students and school children, and in book-keepers who get through with their work, so that the eyes are not used so much at the end of the day. I think the statement of Dr. Young that you can not tell within one-fourth D. was answered by others. One point you must have noticed, and it has not been alluded to, is the expression of the patient's face. How often you see the patient with that characteristic appearance of asthenopia, the corrugated brow, the

scowl—and when the 4 D. lenses are placed before the eye at the right angle, the face clears up and the physician can tell by the expression of the patient's face that you have something beneficial, and the patient returns to the other condition if the lens is reversed. In the test for astigmatism, the test by the radiating wheel, the reflex or shadow test was entered into quite fully. I know that persons become so expert that they can tell readily a one-fourth D. astigmatism.

ASTHENOPIA.

Read in the Section on Ophthalmology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY C. M. HOBBY, M.D.
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Asthenopia is to the visual function what dyspepsia is to the digestive, a congeries of symptoms differing somewhat according to the pathologic views of the physician in charge, and often like dyspepsia cured by the physician instead of by the prescription. As ordinarily employed, without reference to pathology, it comprises several groups of symptoms following the more or less prolonged use of vision at short range, but it is sometimes made to cover uncomfortable vision at all distances; the same symptoms occurring to a presbyopic patient are not usually considered asthenopic, although some logically include unrelieved presbyopia with asthenopia. Not infrequently reflex disturbances, unconnected with the visual organs, are considered as asthenopic phenomena; blepharitis marginalis, which is apparently frequently caused by refractive errors, and mild forms of conjunctivitis, are sometimes considered as symptoms of asthenopia rather than as causes for the ocular discomfort. Accepting hyperopia, especially when associated with astigmatism, as a cause for headaches, and even of the more violent migraines and hemicranias, and believing, as we may, that epileptic attacks have ceased after the correction of refractive error, do we not recognize under all these circumstances that the refractive error is only one factor in the cause, and that back of all there exists a predisposing systemic condition?

Without attempting to describe or define all the symptoms which are grouped around the term asthenopia, patients complain of "sandy feelings," "itching," "smarting," "sticks in the eyes," etc.; symptoms due to hyperemia of the conjunctiva, frequently accompanied by redness, lachrymation, and photophobia; again patients describe their difficulty as "pain in the eyes," "pain over the eyes," "drawing of the eyes," "brow ache," "headache," "shooting pains through the head," "hemicrania," "migraine," etc., some complaining that the pain comes on at once if they begin to read (or use the eyes at short range); others that they feel it if they use their eyes for half an hour; others who persist in reading or in work, especially sewing girls, that they have headache every afternoon except Sunday afternoon; these are the symptoms of overwork and occur normally when the individual uses the eyes too long, just as fatigue follows any excessively prolonged exercise; occurring after only a moderate amount of work, these symptoms are especially entitled to be called asthenopic. Another group of symptoms frequently referred to by patients concerns the visual act; "blurring after reading for a time," "have to change the position of the book," "see spots moving across the page," "some-

times see double," etc., and this group, like the last, may represent the effects of overwork, or when the symptoms occur after only moderate use of the eyes the symptoms may indicate disordered muscular coördination of either the intrinsic or the extrinsic muscles of the eye.

It would be of decided advantage if the term, asthenopia, could be restricted in its meaning to the effects produced by the use of one or both eyes burdened by some abnormal increase in the muscular labor of vision; that is, some burden upon the accommodative function, internal or external; but the symptoms called asthenopic occur in perfectly normal conditions, at least so far as the visual organs are concerned, and we are compelled to consider these cases with others.

No special form of refractive error appears to predominate in asthenopic cases; out of 1,205 cases of refractive error applying for relief from all causes, 58 per cent. complained of asthenopic symptoms; that is the continuous exercise of vision was accompanied with more or less discomfort. Of these cases, 77 per cent. could be considered hyperopic, and 23 per cent. myopic; 31 per cent. had hyperopic astigmatism and 14 per cent. myopic astigmatism; that is 45 per cent. of the asthenopic cases were astigmatic, against 40 per cent. of all cases, showing that asthenopic symptoms occurred in a little larger percentage relatively of astigmatic cases; but this is because the low grades of astigmatism, where there is little impairment of vision, only come under the observation of the ophthalmologist when the patient is suffering from some form of uncomfortable vision.

When we come to consider the great number of cases who have defective vision, from refractive and other causes, but who never complain of those symptoms called asthenopic we are forced, I think, to the conclusion that asthenopia indicates inadaptability to environment, and that it is the individual and not the eyes that are asthenopic. What is true in regard to errors of refraction is apparently true of the so-called muscular asthenopia; while records of heterophoria are not so extensive and the observations made lack the ripening effect of time, and while as in astigmatism of low grade the subject of heterophoria does not consult the physician unless there exists some form of uncomfortable vision, enough observations have been made to show that heterophoria without asthenopic symptoms is sufficiently common, and to lead to the belief that it is not to the muscular insufficiencies alone that the occurrence of asthenopia of the variety termed muscular is to be attributed.

When we observe the different expedients that at times afford relief to asthenopic symptoms, the same lack of coherence is to be found. Patients will often report that they have great relief from glasses that have increased instead of diminished refractive error; the spur of necessity often banishes difficulties of this kind; the uterine specialist, the rhinologist, and the electrician all number asthenopia among the ills relieved by their special methods; and tenotomies that have increased heterophoria have in some manner relieved discomfort.

As asthenopia is not a necessary result of any of the various conditions to which it has been attributed, and is yet often cured or materially improved by relief or attempts to relieve real or imaginary causes of increased effort, or by training the internal or exter-

nal muscles of the eye, as well as by systems of muscular exercise, we can not do too much towards establishing some basis for efforts at relief that shall be less empirical, without substituting a dogmatic physiology of the function of vision. And it is well at this time to protest against the tendency to consider everything connected with the visual organs, as governed by inflexible mathematical formulæ. The evidence is not in, which compels us to believe that the muscles of the eye are innately endowed with certain coördinative functions, or that they have a brain center which is prepared to correlate their movements without the necessity of the training that experience gives, or that their functional activity is exerted under different laws from those governing the rest of the muscular system. It may be believed that the coördinated movements of the muscles of the eyes to perform a given task is the result of the same kind of practice, the same kind of training that pursued through a long time gives to the fingers and hands of the typesetter or the musician their distinctive skill, the same kind of training and experience that the babe must go through with before standing on its feet and walking.

A man accustomed to the work may saw wood for ten hours, a woman may busy her fingers in knitting for the same length of time, but the man unaccustomed to the saw would soon find back and arms complaining of the unwonted labor, and the inexperienced knitter would soon feel fatigue in the fingers; the same is true with those who attempt to use the eyes at new and prolonged tasks; the adult whom will or circumstances kept from studious habits in early life, suddenly attempting to make up lost time; the woman who is suddenly deprived of her means of support and who attempts to gain her livelihood by sewing; the active man who attempts to confine himself to book-keeping; all of these are likely to exhibit asthenopic symptoms whether they have refractive error or not; correcting visual disorders is of undoubted service to them but complete relief awaits their adjustment to environment.

Another numerous class who continually excite our sympathies, and who are preyed upon by spectacle vendors are those who are attempting to work with their eyes for lengths of time out of all proportion to their physical strength; seamstresses who ply the needle from 7 in the morning until 6 at night, and desire glasses to enable them to put in extra hours by artificial light; such cases, like some opticians, look upon the eye purely as an optical apparatus that only requires a little mechanical adjustment to go on with its work.

Ill health is a fertile source of asthenopia, and with impairment of general health we find refractive errors assume a greater importance than would otherwise have been the case; here relief of the ocular strain often proves to be not only an assistance to the use of the eyes but also to the efforts to improve the general health.

Sometimes an individual is unable to concentrate his attention upon the work in hand and uses the eyes at irregularly varying distances, and in various positions as to light and direction of the object looked at, and thus multiplying work unnecessarily, suffers from fatigue where systematic work would have been borne with ease; the student who without interest pursues his task and constantly suffers may become interested in a novel and spend hours with

no symptom of "eye-strain;" there is less likelihood of fatigue when the mind is on the work, and there is much less irregularity of muscular work.

But in recognizing asthenopia as depending upon something more than disturbance of the purely mechanical part of vision, it is not necessary to reject the assistance afforded by mechanical measures in the treatment. We can believe that the most perfect possible adjustment of glasses will often fail to cure asthenopia, and that a large proportion of cases can be cured without glasses, without at all underrating the use of optical appliances. While fortunately, we are unable to trace very grave pathologic changes to misfits in spectacles, yet it seems as though it were time for the medical profession to call a halt upon the indiscriminate optical treatment of asthenopia by those who have no knowledge of general pathology, or even physiology, and who consequently see in "eye-strain" only disorder of the looking-machine. Where rest is needed, and where exercise and training are required, where asthenopia is a symptom of a general disorder, or where a patient numbers fatigue of vision as only part of general nerve disturbance, equally with the optical imperfections that take from the patient that soundness of body which with the sane mind is required for the perfect use of all the senses as well as all the muscles, all these conditions fall within the province of the physician and are entitled to his thorough scrutiny.

CYCLOPHORIA, ITS DETECTION AND TREATMENT.

Read in the Section on Ophthalmology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY GEO. H. PRICE, M.D.
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Cyclophoria or the rotary tendency of the eye upon its antero-posterior diameter under certain conditions, known also as insufficiency of the oblique muscles, is now a matter of record upon the case-books of so many, as to no longer be a question of speculation. When the question of insufficiency of the obliques in certain cases of oblique astigmatism, was first presented and fully elucidated by Savage, of Nashville, Tenn., there was in the minds of some room for doubt as to the verity of the statement, but I am now ready to believe that this statement is received as a fact, by those who have given the question sufficient thought and have applied to it those tests which we now have at hand for demonstrating this condition.

For a long time only the grosser errors of balance of the obliques were considered of importance, and the methods of arriving at conclusive evidence were of such a character as to render it difficult, if not impossible, to bring out this defect unless well marked, or the patient was of that class of observers upon whose statements one can rely with certainty. These difficulties have been overcome, and the means of detecting the condition have been so much simplified that to-day we can not only detect but determine in degrees even small variations from the proper adjustment of these muscles.

Cyclophoria is not only found in oblique astigmatism, where we would naturally expect it, but is also present in many cases where there is no obliquity of the astigmatic condition and also in cases in which

there is no astigmatism at all; so we must conclude that it is not only a complication in some but in all forms of focal error, to such an extent as to cause it to be looked upon as an important factor, which requires us to exert ourselves in detecting and applying the necessary treatment. I have compiled a table of two hundred cases from our case books, showing the various forms of focal error and the muscle conditions complicating each, as well as the percentage in the whole, of each muscular variation. This condition as a causative factor in the symptoms of eye-strain is of prime importance, for if neglected, though all other conditions have received proper consideration and have been eliminated from the catalogue of complications, yet there will be complaint from your patient until you have met this feature and applied the proper treatment. Hence it becomes necessary to recognize the cyclophoria and be prepared to give your patient the benefit of treatment which can be successfully carried out.

It is now a well established fact that the tests for exophoria and esophoria must be determined before the use of a mydriatic, since the suspension of accommodation alters these muscular relations to such an extent as to mask the true condition, but in the case of cyclophoria the test can be made before and also after suspension of accommodation and the result relied upon as trustworthy; however, it is well to note it both before and after use of homatropin or atropia, to be satisfied upon this point.

The causes of cyclophoria, like those of other phorias, are dependent upon a variety of conditions, one or several of which may obtain in the same case.

I will call your attention first to that cause which gave the initial impetus to investigation in this line, viz., oblique astigmatism. In the first place, it is to be noted that if the astigmatism is of such a character that the meridians of greatest curvature diverge above, the superior obliques are kept constantly in a strain in an effort to converge the naturally vertical meridians so that corresponding portions of the retina shall receive the same impression. This constant effort induces fatigue or wears out the normal contracting power of the superior obliques and thus induces an insufficient action, relaxation or cyclophoria.

Again, as the inferior oblique acts in conjunction with the inferior rectus, and is augmented in its action by the action of the former, and as the inferior rectus is constantly in action during all efforts at near work, an extra amount of duty is hereby imposed upon the superior oblique, which extra work it frequently finds impossible to sustain, the failure manifesting itself in cyclophoria. This complementary action of the inferior rectus can be easily demonstrated, and has been noted heretofore, hence it is a factor in cyclophoria of that variety involving the superior oblique.

Again a faulty insertion of the external and internal recti will augment one or the other of the obliques in their action, thus becoming a factor in the production of this condition. This condition of variable or faulty attachment has been observed by all who have operated on the tendons of these muscles. If the tendons of these muscles are inserted more below than above the horizontal diameter of the eye, then we find that the internal rectus augments the action of the inferior oblique while the external rectus will assist the superior oblique, but as cyclo-

phoria manifests itself principally when the eyes are in a state of convergence, when the internal rectus is stimulated into action and the external is in a state of more or less relaxation, we can readily see that as a result the muscular equilibrium of the obliques is overcome and the superior muscle fails to accomplish the extra duty demanded of it.

If we should have these muscles placed correspondingly above the horizontal plane, then the reverse would obtain.

So also can we find that faulty attachments of the superior and inferior recti may complicate the action of the obliques.

Faulty attachments of the obliques themselves are to be considered as factors; especially is this probably the case with the superior, since there are two points at which faulty adjustment may creep in, viz., their insertion on the globe of the eye and their physiologic origin, the trochlea. The latter may become elongated from protracted tension, or it may be located too far posteriorly, either of which conditions would result in deficient action. Failure of development of the obliques, or lack of innervation may also be remembered as probable causes of insufficient action. It is, of course, a difficult question to decide as to the immediate complicating causes of each case, but then the probable factors may be held in mind.

A very noticeable fact, in the study of this condition, is the frequency of that form involving the superior oblique and the rarity of that in which the inferior oblique is involved.

From a table of two hundred consecutive cases, taken from our records, before alluded to, I find cyclophoria, insufficiency of superior obliques, in 25 per cent. of all cases (the same percentage has been noted by others) while there is but $\frac{1}{2}$ per cent. of cyclophoria in which the inferior oblique is at fault. There must be a reason for this and I think it can be accounted for in the following way:

The third nerve, known as the motor oculi, presides over the greater portion of the muscular machinery of the eye and is that nerve which is called upon most frequently. In convergence and accommodation there is direct stimulation of all of its fibers except those which supply the superior rectus, hence we see the inferior oblique augmenting the action of the other muscles while the superior rectus, a part of whose duty it is to antagonize the inferior oblique and inferior rectus, is in a state of relaxation, partial or complete.

Again the superior oblique by its action aids in depressing the cornea, by drawing up the posterior part of the globe, at the same time producing slight abduction, and in this very fact while aiding in a general way, also partially counteracts, its own special function. How is this accomplished? In producing abduction it tends to turn the entire anterior part of the globe outward, but in this it fails, for the lower half is prevented from making this outward excursion by the combined action of the inferior and internal recti and inferior oblique. In this I think we have a sufficient reason, and it seems to be borne out by the additional fact that those who make near use of their eyes are those who suffer most from cyclophoria of this type, though there are exceptions.

Let us now look into the question of detecting the presence of cyclophoria in any given case. After

having tested the lateral muscles, before homotropin or atropia has been instilled into the eyes, and these are noted for the near and distance, then with the same double prism in front of one eye, thus producing a double image in that eye, we hold a card (on which we have a well defined red or black line) in front of the patient. The eye in front of which is the double prism will see two lines upon the card while the uncovered eye sees only one line. The card must be held in a plane parallel to the plane passing through centers of rotation or tangent to the corneas of the eyes, otherwise the two lines seen by the eye, in front of which is the double prism, will not be parallel. Now if there is no defect in the balance of the obliques then the middle line is parallel to the other two lines, and is half way between them (provided there is no hyperphoria or cataphoria) but if there is insufficiency of either of the obliques then the middle line will dip at one end or the other, according to the condition present.

If the double prism is in front of the right eye, the two images being seen by this eye, and the middle line seen by the left eye, is inclined to dip at the right hand end, then we know at once that the superior oblique of this eye is failing to do its duty, thus allowing the perpendicular meridian to rotate outward or the horizontal upward at the inner extremity, where the line is seen to rotate or move in the opposite direction, that is downward at the right end. If this dip is but slight the eye will adjust itself so quickly to the faulty condition by a demand upon the superior oblique, that the patient may fail to discover the lack of parallelism with certainty. Instruct him to close both eyes gently for a few seconds, this rest causing the muscles to assume their ordinary relations, then when he opens them tell you if the lines are still parallel. This little procedure takes the eyes off their guard, consequently when he opens them if the cyclophoria is present the middle line will be seen slightly dipping, but soon the guiding sensation of the retina calls upon the oblique and after a few slight oscillations it may assume a parallel position, or so nearly so as to render it difficult for some to discover the lack. If there is reason to suspect the presence of cyclophoria, and your patient is not a careful observer, then we have a proof test which can be applied with much satisfaction. To apply this test the frames should be adjusted to the pupillary distance of the patient, then with a cylinder, say 2 D. in front of the eye being tested, (which is the left in this case) having the axis at 90° , which position does not affect the result, turn the cylinder to 100° , thus throwing additional strain upon the superior oblique, and almost immediately the patient will say the line is dipping to the right. If now the cylinder is brought back to 90° the lack of parallelism is still observed and it will have to be moved to, say 80° or 75° , before the middle line will come up to its proper position. In marked cases of this condition the 2 D. cylinder, and in some rare cases, even a 3 D. cylinder must be rotated to 45° before parallelism is established and maintained. In case the inferior oblique is deficient the dipping is reverse; that is, in the left eye the middle line dips to the left, therefore in case the proof test has to be applied we would have the reverse position of the cylinder in the foregoing. If the condition is suspected and the proof is applied, the cylinder being turned to the right or 100° and then to the left or 80°

and the same amount of dip, first to right and then to left is noted, we conclude that there is no cyclophoria.

There is another test for this condition which I have devised and used in a crude form in some cases, which may prove of service. The testing apparatus is a combination of the double prism and the Maddox rod in front of one eye and the rod in front of the other, and is used in conjunction with the candle or gas-jet at twenty feet. The double prism converts the single line of light made by the rod into two lines, which lines are parallel and about 18" apart, while the rod alone in front of the other eye produces a single line of light, which should be half way between the upper and lower lines (provided there is no hyperphoria or cataphoria) and parallel to them. If cyclophoria is present there is a deviation or dip which will be of the same character as that shown by card test at eighteen inches. This little device I present for your inspection. Though this condition at first was looked upon as one to which no treatment could be applied, yet I am glad to say that through the study and investigation of my friend Savage we are now in possession of a plan which in our hands has proven most satisfactory, and to this I will now direct your attention. It will be remembered that in making the test for detecting cyclophoria we made use of a cylinder, by means of which we can increase or lessen the strain upon the oblique muscles. This principle is made use of in the treatment of this condition.

It is a well established practice now to exercise the recti muscles, and this is done by gradually increasing the strain upon the individual muscle by the use of prisms so placed as to call the muscle into action, and the same plan is followed in the case of the obliques, but we use the cylinder instead of the prism.

If the patient under treatment is suffering with cyclophoria superior (insufficiency of superior obliques) we then with a cylinder of 1.50 D. in the frames, and the patient looking at a light fifteen or twenty feet distant, we begin by turning the cylinder in the right to 75° and that in the left to 105° (thus putting the superior obliques slightly upon the strain) and instruct the patient to raise and lower the frames every four or five seconds. Looking through the cylinders at the light induces slight action or contraction of the obliques and raising the cylinders allows them to relax. This is continued for say five minutes, after which the cylinders are again turned, in the right to 60° and the left to 120° and the patient put through the same exercise as above mentioned, continuing it for three minutes. This causes increased action by reason of the fact that the cylinder in this position causes greater strain upon the obliques in their effort to overcome the greater deviation from the normal condition. Finally the cylinder in the right is turned to 45° and in the left to 135° , and the exercise repeated for two minutes. This position of the cylinder causes the maximum strain upon the obliques. If the cyclophoria is inferior, or insufficiency of the inferior obliques, then we pursue the following method of exercise:

With frames on and cylinders in them, we place the cylinder in right at 105° and in the left at 75° and exercise as before directed by raising and lowering the cylinders in front of eyes while patient looks at the distant light. Then move cylinders to 120° in

right and to 60° in left, and finally to 135° in right and 45° in the left. This exercise should be taken twice daily for a time, though the amount of exercise may be varied according to the symptoms manifested by the patient; for instance, if the patient complains that the exercise causes pain, then instead of taking the full amount, this can be altered to suit the case; thus allowing him to exercise only one-half or even one-third of the time divided between the three steps, or even allow him to exercise for the full time with the cylinders in the first position, and gradually increasing as the patient will bear it.

It will be well to bear in mind the fact that the symptoms of which the patient has been complaining will in many cases disappear before his cyclophoria does, hence it is well to keep him under the influence of the exercise for some months, resorting to it daily or every other day, or even once a week. This treatment has proven of the greatest benefit to many patients upon whom it has been tried, and I have great confidence in it.

We must keep in mind the fact that cyclophoria is a condition which must influence us in the adjustment of lenses, and especially those in which we find a cylinder needed for the correction of astigmatism. While in cases where the axes of the cylinders are seemingly at 90° in each, when the eyes are tested separately, both with lenses and ophthalmometer, yet we may find that the cyclophoria, say of the superior obliques, may prevent the comfortable use of the glasses if the axes are allowed to remain at these points. More particularly is this the case if you have noted any disposition of the cylinder in the right to go toward 100°, and that of the left toward 80°, which positions would be favorable to the weak superior obliques.

Again, if your ophthalmometer shows in the right the position of the cylinder to be, say 100° with tendency to 105°, and in the left the axis is to be at 80° with tendency to 75°, and the test lenses showing the same tendency on the part of the cylinders, it will be advisable to place the cylinders at 105° in right and 75° in left, thus removing the strain from the obliques, and at the same time correcting the astigmatism. If the axes of the cylinders converge above, from the nature of the case this increases the strain upon the superior obliques, and consequently this must be remembered, and due allowance made for it. In such a case say the cylinder in right by the ophthalmometer should be at 60°, and in left at 120°, that is the axes converging above, and that test lenses confirm this, but that the cylinder in right tends to 65° or 70° and in the left to 115° or 110°, then it would be good practice to favor this by placing the cylinder at 65° in right and 115° in the left, thus decreasing the convergence, thereby removing a part of the strain from the superior obliques. Unless these points are watched discomfort follows, as I have learned by experience. A case or two bearing on these points may be of service:

V. S. P., real estate agent, came complaining of his eyes. He was using lenses which were unsatisfactory. Under homatropin his condition was as follows:

O. D. V. 20-xx w. +.25 C +.50 cyl. ax. 80°.

O. S. V. 20-xx w. +1.50 cyl. ax. 90°.

Each eye was tested while the other was covered by disc. These lenses were given him and he began to use them. In a short time he found the left eye so painful as to hinder him in his work. This lens was changed and had substituted therefor +.50 C + 1.00 cyl. ax. 85°; this position of axis seeming to be preferred at this time. This was much more com-

fortable though vision was not so good. After a time we put in the +1.50 cyl. ax. 85°; this gave him comfort and good vision at the same time. You see this allowed the axis to converge less above, thus reducing the strain on the superior oblique which brought the ease. We did not fully appreciate the significance of this at the time, but now since we know the part played by the superior obliques in such cases it is apparent. We noted later cyclophoria superior.

Another interesting case is that of Mrs. B. H. R., who consulted us about her eyes; this was about the same time as the above named patient. She was refracted and the following record made:

O. D. V. 20-xx w. + 1.00 cyl. ax. 70°.

O. S. V. 20-xx w. +.50 C +.50 cyl. ax. 110°.

This was given for distance and a 2.00 D. each for reading to be worn in front. This was in 1891 and the patient, who resided out of the city, was not seen again until a few weeks ago, when she stated substantially as follows: Can not use the distant glasses all the while as they cause pain in eyes, most marked in right (where she has the strong cylinder at 70°, increasing the strain upon superior oblique). Has been more comfortable with a simple + 2.25 used for near work. Cyclophoria superior being present, and detected at this time, she was put on exercise for same, and told to use her glasses for distance.

Two weeks later she reported again with some improvement but not comfort as yet. At this time the cylinders were revolved in the frames, the right to 80° and the left to 100°, exercise continued, and patient to report in two weeks. The two weeks having passed she reported, and her condition was flattering; the annoying symptoms having subsided and she was wearing her distant lenses all the time. The cyclophoria being also reduced by the exercise showing increase in strength of the superior obliques; the lenses were turned about 2° back toward their original position.

The last case to which I will call your attention is that of Mrs. T. M. O., who came complaining of the ordinary symptoms of eye-strain. Under homatropin we found the following condition:

O. D. V. 20-xx w. +.75 cyl. ax. 90°.

O. S. V. 20-xx w. +.50 +.75 cyl. ax. 90°.

Four degrees exophoria in near, before use of homatropin. Cyclophoria superior, slight. This correction was given her and she was put on exercise for the exophoria as this was looked upon as probably the most annoying factor in her case. When she received the lenses and began the use of them they gave her trouble. She applied to an optical company and their refractor gave her a cylinder for the left of +.75, the axis being at 75°. This gave her relief since the position of this cylinder took the strain off the weak superior oblique and put it on the inferior, which was more able to perform extra duty. In this case it would have been better to diverge the axes in both, placing the right at 95° and the left at 85°. It must be remembered that this change in the position of the axes of cylinders where cyclophoria is present should be used only as a temporary means of relieving the symptoms (for it does not remove the cause), until the insufficient obliques can be brought up to normal activity by the proper exercise. Hence the lenses may be turned in the frames to induce comfort, while the exercise of the obliques is resorted to, and as the obliques recover full power the lenses can be gradually revolved to their original and correct positions; then with exercise, as may be demanded by the case, we should expect to see the patient get complete comfort.

There are in these cases, as in all cases, factors of individuality which can only be known and watched by the physician in charge, and upon close attention to these will often depend our successes or failures.

DISCUSSION.

DR. EATON—In my paper yesterday I put myself plainly on record as opposed to this theory of cyclophoria. It is hardly worth while to go into detail. I wish, however, to present two arguments which I did not present in my paper. There are a very large number of men in the profession who do not believe in this theory, far more than I think the reader of the paper will admit. One of the greatest reasons I have brought against this theory is the inability of many persons to find one who has not the phenomena—in whom we can not bring out the phenomena by the very means he

has described, of insufficiency of the sphere of light. The greatest objection that has been made (not by me but by others) to this theory, is the interference with these cylinders, the ignoring of the ancillary muscles in the interests of the oblique muscles. I also refer to the paper to-day by Dr. Hobby, who says that in cases of asthenopia supposed to be caused by cyclophoria, the majority of the cases are caused by ametropia and not by hypermetropia. Referring to the fatigue which Dr. Savage attributes from his exercise with cylinders, to the exercise or strain put upon the oblique muscles—nobody, who has not had astigmatism corrected by cylinders put on—can look through cylinders at any time without suffering a certain amount of strain. He details the fact that when the cylinders are turned or worn for awhile, the strain is felt to be upon the obliques. This is pure assumption. I will draw attention to the fact stated, of the rarity of the insufficiency of the inferior oblique muscles. Now, it has been practiced as I said yesterday, known for twenty years that rotation of the eyes upon their posterior axis takes place in convergence, and I have satisfactorily proven that such rotation takes place in convergence at a distance of twenty to eighteen inches, and increases in proportion as the objects are brought nearer. According to the experiments made by Dr. Savage's test, or by the cylindrical prism, that all this immediately disappears as soon as the object is 45 degrees below the primary plane of vision. Meissner attributed this fact to the action of the inferior oblique muscle. Another thing that Dr. Savage nor Dr. Price ever has done—submit to the profession a series of cases followed out an adequately long time in which, after the exercise has been followed out, any relief which is claimed has been secured, whether the same careful testing obliquity of the line is present or not. I venture to say, no person can be found in whom any amount of exercise can overcome the inevitable rotation of the eyes and convergence. If any person will put the candle at twenty-five feet and put the cylinders before their eyes they will find that there is not the slightest incentive to any fusing of the light—supposing the cylinders are put on an oblique so as to cause the lines of the candle to be drawn out at an angle—place the cylinder with the axis nearly vertical, and you get the horizontal line. There is no such incentive as in a line drawn upon a piece of paper, but there is a decided strain upon the ancillary muscles, caused by the cylinder.

Another thing I draw attention to is the insistence on Dr. Savage's part that such weak cylinders as one-half or one-fourth D. or 110 degrees or 105 degrees—that such a slight change will bring a strain upon one or the other oblique muscle. As I understand, the change made in the cylinders by Dr. Savage favors one muscle or the other, in the case of very weak cylinders. Again, he attributes a very weak amount of astigmatism, such as one-half or one-fourth D. as causing a strain upon the oblique muscle. I said decidedly yesterday that the amount of disturbance of the retinal image caused by a strong cylinder of 2 D. is considerably less at a distance of thirteen inches. The 60 degrees of variation becomes 40 degrees, at 45 degrees, its greatest deflection. You can therefore imagine how much deflection on the cornea is caused by an astigmatism of one-half D.

I wish to say in making the opposition I have to this theory, I am actuated by a conscientious motive. I do not believe in the indifference shown to theories which have not been worked out with due deference and care when they are originally presented to the profession. I may say that this theory was sprung upon the profession without due regard to the writings of physiologists, nor with due consideration of the facts which I have given, and I believe it takes the attention of the future ophthalmologists from things which they should attend to, to things for which there is no foundation.

DR. ERWIN, Mansfield, Ohio—Mr. Chairman, unfortunately, I was not here early enough to hear Dr. Price's paper. And I have not studied Dr. Savage's doctrine enough to know all that there is in it, but there is one point I notice. It is that the oblique muscles are affected by the cylinder, especially if the cylinder is an oblique cylinder. The disbursement of the image on the retina by the oblique cylinder gets up a new kind of action on the part of the eye. The muscular action of the eye is so habituated that it becomes almost, if not altogether, involuntary. Now the least deviation from the habitual impression of the object upon the retina causes a complete change in the use of the oblique muscles of the eye, so as to require a voluntary action on the part of the oblique muscles. When you have upset the habitual action of these muscles, and you make it necessary for a voluntary act on the part of the muscles, you see how likely you are to get a disturbance of that muscle in a short time. It is my observation that oblique cylinders had better not be prescribed at all, if there is only a low degree of astigmatism, unless you have a patient that is willing to suffer a good while before the muscles acquire their new use, that they have to acquire before they can become comfortable.

DR. SIMONTON—Mr. Chairman, I do not wish to make any technical argument on this subject, for I do not know anything about it. I confess I have not given it sufficient consideration, but wish to say that when Dr. Stevens first brought out his ideas in regard to hypermetropia, the whole profession pooh-poohed it—it could not be so, it was impossible—the results which he claimed could not be true. It has been demonstrated that most of the positions which he took are true. Now, this theory of cyclophoria is new to us and it is yet under discussion. It is not a settled matter, and it is quite likely it will prove true to a greater or less extent. I am open to conviction.

DR. EATON—Mr. Chairman, I would say that there is a little difference here. I was one of the first to recognize Dr. Stevens' views. I was operated on myself by Dr. Stevens. The conditions are quite different.

DR. PRICE—(In support of the theory advanced in his paper on cyclophoria, the Doctor then referred to his own case as an illustration.)—Twenty-five per cent. of all the cases of whatever error that fall under our observation are from insufficiency of the superior oblique, and we test every case of insufficiency of the oblique muscles as we do insufficiency of the other eye muscles, and we invariably do that before we put anything in that eye. The Doctor has referred to my not presenting cases. Gentlemen, if there is any one thing in the world that a Society or Section or body of men does object to, it is a great array of cases. I can produce from our record books hundred of cases in which we have detected cyclophoria, and in many cases where the cyclophoria has been relieved, I could relate case after case. The second case upon which we successfully used the cylinders for the purpose of correcting this condition by exercise was a lady who told us that for twelve years, she had not been able to read, write or sew. She had been in a condition of absolute idleness on account of her eyes. We did not know anything about cyclophoria then and we tried everything in the world that we could think of. She tried constitutional treatment for two or three years by physicians here, there and everywhere. She had consulted men everywhere; oculists, ophthalmologists, opticians and everybody else. When we did find out about this thing and put her upon exercise, the patient began to improve and in a short time left Nashville and went to the City of Mexico, and she says now she reads, writes and sews.

QUESTION—Is there any direct relation between astigmatism and cyclophoria?

DR. PRICE—Yes sir; from the fact of the perpetual oppo-

sition to the horizontal, the muscles have to bear the strain. If you use an ordinary ophthalmoscope you will get your axis of 90 degrees. Your weak muscle is not put upon such a strain and your strong muscle is not put upon so much tension, and you do not get the pronounced effect until the patient recovers. I have made mention of but three cases for the simple reason that I knew it would be tiresome.

QUESTION—Why not use a prism instead of the cylinder after exercise, if there is no astigmatism in the case?

DR. PRICE.—One point about this detection of cyclophoria is—I have thought that probably I could take an ordinary prism—

DR. EATON—You don't think I question that the superior and inferior obliques rotate the eye?

DR. PRICE.—Not a bit—I am satisfied that they do. The Doctor said and said decidedly yesterday in his paper that a cylinder twenty-five or fifty hundredths would produce no effect.

DR. EATON—I did not say anything of the kind. I said that a cylinder of 2 D. will produce three-fourths of a degree at the approach to the eye, but I said that I can not make the movement with a one-half D. cylinder.

DR. PRICE.—My experience is this: I have cyclophoria; I have never subjected myself to systematic and constant exercise, but occasionally I take exercise for this reason, that after prolonged work I slip up with a case of neuralgia. If I exercise for five minutes with these cylinders, exercise my inferior obliques, the trouble begins to disappear and I begin to come out of the shadow of the vale and feel better. The oblique cylinder in this case is like the oblique cylinder in the case represented in his paper by the Doctor. It makes no difference whether it is one one-hundredth or 10 D. If that cylinder is incorrectly placed, it will give trouble. I have seen patients with the axis 140 in one eye and 135 in the other, and I have seen them with twenty-five one-hundredths place 15, 20, 30 or 10 degrees even from the line of horizontal, or proper correction, and that patient never gets any satisfaction until the cylinder is changed in position. Why is it that exophoria should be such an annoying factor? If one muscle is insufficient, why not another muscle insufficient? There is not a man in the room that can stand perfectly still for five minutes. Watch a body of men in a military company—every man is swaying, because there is always a slight adjustment. The same thing occurs with the eyes. The opposing muscles on some side are a little too strong. Show me a man with his head on one side and he has hypophoria. It is a strange thing to me that the Doctor seems to think that because certain investigators have discovered that in most cases there is this variation from the normal, in all eyes that they have examined, that consequently it is normal. That is a great mistake. Gentlemen, I could relate case after case, but cases are not the thing. If you can get it into your mind that these cases do occur and are there, it is all right and you can demonstrate it. A man can oppose anything in the world, because he believes he says what is right and his experience is along that line. I trust the Doctor will yet become converted.

THE CHAIRMAN—We have one very interesting subject to come up this evening, but it is getting so late and we all want to attend the dinner, so that the first order of business to-morrow morning will be Dr. Southard's paper.

The Sir Astley Cooper Triennial Prize.—The next triennial award of this prize takes place early in 1895. The value thereof is £300. All competing essays should be in the hands of the physicians and surgeons at Guy's Hospital before Jan. 1, 1895. The subject for the competition is "the anatomic distribution of the lymphatic vessels and the physical forces concerned in the movement of the lymph." This prize is open to the whole world, except certain of the attachés of the Guy's and St. Thomas' Hospitals, London.

SCHOOL CHILDREN'S EYES—A PLEA FOR THE EXAMINATION OF EVERY CHILD'S EYES, WHEN COMMENCING TO ATTEND SCHOOL.

Read in the Section on Ophthalmology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY W. F. SOUTHARD, M.D.

SAN FRANCISCO, CAL.

Looking over the annual report of the public schools of the city of San Francisco for the year 1893, I find that there was an average daily attendance of 31,002 pupils between the ages of 5 and 17. Of this number 69 and sixty-three-hundredths per cent. were in the primary grades. This includes all children between 5 and 10 years of age. Twenty-six and six-hundredths per cent. were pupils in the grammar grades, while but 4 and thirty-one-hundredths per cent. were high school pupils. These pupils between say, the ages of 10 and 17 were divided between the grammar grade and the high school. I wish to emphasize the point that, though this does not state the total enrollment of pupils, it does very correctly give the daily attendance throughout the year. An analysis of these figures will give us some very important results. In the first place, you will observe that from the primary grades over one-half, or 50 and forty-three-hundredths per cent. fail to enter the grammar grades. These children at this time are about 10 years of age. At the close of the grammar grades, 71 and sixty-eight-hundredths per cent., or more than three-fourths, fail to enter the high school.

Finally, to show more vividly the enormous decrease of school attendance between the tenth and seventeenth years, we learn that there is a total loss of 96 per cent. as between the primary school attendance and the high school attendance. Let us see if we can discover the cause for such a tremendous variation in attendance between the three departments of our public schools. We shall find, I think, that not one only, but many circumstances, conspire to bring about these results. The average person will be very likely to say that removals, deaths, sickness and discouragement ought to be a sufficient explanation. I am sure that a more thoughtful examination into the causes will convince us, that not only the above mentioned, but other reasons exist for such a condition of affairs. To my mind this fact is a cause for greater surprise and alarm than that but 4 per cent. of our primary pupils reach the high school, insignificant as is that number. At the age when pupils enter high school a very large number are withdrawn to become wage earners; they must assist in providing for the family. A very large percentage of the parents of these pupils think that completion of the grammar grade is all that their children need to fit them for all ordinary vocations. But this can not be the case at 10 years of age, for the percentage of permanent bread winners of 10 or 12 years of age must be very small in this State.

We find on examination, that is, by questioning teachers, superintendents and those who are daily brought into contact with children, that the number dropping out because of their inability to keep up in their studies must be very large. It is possible that as we examine this particular cause for loss more carefully, we may discover the very material we are after by which our proposition may be maintained. I have held for some time in my arguments with edu-

cators, that if curves showing the mental capacity of a thousand children of the same age, could be drawn, they would show but a very slight variation one side or the other from a given mean. I believe that we shall find that the brain capacity of our children can be measured with as good results as we have obtained in other branches of anthropometry, a study which has been brought to a very high degree of accuracy. For example, Prof. Bowditch, of Harvard University, Prof. Gihon, of Annapolis, and Prof. Hitchcock, of Amherst, have together measured some 40,000 persons between the ages of 5 and 25; the design being to show the rate of growth of the body, for the different ages. From these measurements a certain mean standard of physical development, height, weight, chest measurement, length of body sitting and standing, etc., to which the great majority nearly attain has been found. The deviation above or below this mean is found to be about the same.

That there is a tacitly recognized uniformity in brain capacity, powers of comprehension and general intelligence among children of the same age is proved by the fact that school books have been prepared, hours of study, and the studies themselves arranged to meet this. We may question the wisdom of making text-books on such a rigid plan; we can not deny the facts. It follows therefore, very clearly, it seems to me, that very nearly equal results should be attained by the great majority of pupils. If this is not true then there can be no law governing our intellectual powers. If, then, we find in the same grades at school a very wide departure from the standard, we must conclude either that the general standard is too high or a very large percentage of our children have some disability. Why should so many children become discouraged? Their work is not particularly difficult, their hours are comparatively short, and in the primary grades they are not expected to study at home. Ill health is an important factor; thousands of children are already invalids before going to school; inherited weak constitutions; impoverishment of bodies from deficient or unwholesome food, bad hygienic surroundings at home, all unite to handicap such children in school work. The stooping forms, eyes bent close to the desk before them; the shuffling walk; the notched teeth; thin faces and other physical defects are to be seen every day and in every primary school. If we examine this class of children we find that they have in nearly every case marked deficiency in visual acuteness. We cease to wonder that such pupils can not compete in the struggle for an education.

There is again, a large percentage who fall out of the ranks from among the apparently healthiest and brightest children. For a term or two they may have no trouble, but later on they drop behind, when they in turn become discouraged. We are able to positively state that they have no impoverished bodies, that they have always been well and have never complained before going to school. As they fall behind their classmates they are called mischievous, stupid and other epithets of like character are bestowed upon them. Many of these children come home every afternoon complaining of headache, or if they have no headache they complain of feeling tired, they get listless and hang about the house. They are being constantly corrected for not paying attention. In fact one of the most frequent complaints from teachers is, that such children never look upon the

work before them more than a moment or two at a time. They are being constantly diverted to whatever is going on about them. It is needless to ask what is the outcome of this condition; the teachers get impatient and become constant fault finders, the child gets discouraged, and the parents in many cases become dissatisfied and remove their children from school. It is among just such material as this that we find the evidences which confirm us in our theory that there can be but one way to treat this whole subject. We find that the very largest proportion of these children have errors of refraction or some disturbance of the visual organ. We find also on looking into the matter more closely that the school environment is not of the best, school rooms are imperfectly lighted in most every case, the proportion between windows and floor space is less than the standard. Many rooms are so situated as regards light that they can not by any means get good direct light. But too often the best light in the school rooms is a reflected light from some adjoining high building. Such a light is most injurious to the eyes and to the nervous system. Then there is the question of heat and ventilation, serious questions too. The proper seating of the pupils at their desks, the character of the seats themselves are in too many cases the cause of permanent injury to the growing child. Poorly printed books, and poor paper have much to do with strain upon the eyes. Though much has been attempted to remedy some of the most evident of these defects, we can not but feel that the rights of the child have not been considered when we let contracts for building school houses. Politics govern our school system, in most places, to too great an extent. We spend money enough to get the very best results; it is, however, becoming evident that enormous sums are most unwisely spent. Each of these points just mentioned needs more discussion than can be given at this time. Given these imperfect surroundings together with some defect of vision, and we have a combination which must sooner or later be detrimental to the child, physically or mentally. Is it any wonder that he has no concentration?

In pursuing this subject of our public schools a little further, we have to note that in the primary grades there was enrolled at the commencement of the year a number equal to thirty-two and thirty-five hundredths in excess of the number in regular attendance. They mostly dropped out during the first two or three weeks of school. Such a number of units thrown upon the community unable to read or write must become in time a serious burden upon it. I am most firmly convinced from personal observation that poor eyes must be a leading factor in causing this great loss. A law compelling a rigid examination of the eyes of every child when he begins to go to school would seem to be demanded. Let every child come to school bearing a certificate stating the exact condition of its eyes. By such means the teacher will be put in possession of facts which will be of inestimable use to him and to his pupils. A plan so simple ought to commend itself to every physician, to every educator and to every parent.

Having shown the intimate relationship existing between imperfect eyes and lack of power to apprehend, a long step forward has been taken. Statistics have been made of many thousands of school children in Europe and America, by a large number

of competent observers during the past twenty years. An examination of these results most clearly shows that there is a most intimate connection between education and defective vision. It has been proved that myopia (that form of defect to which all eyes tend) exists in but 1 per cent. of the primary scholars in country districts. This is due to obvious causes; country children go to school a less number of hours daily, or if they attend, less is expected of them. They also attend a less number of weeks during the year and they read or study but little at home. An examination of the city schools shows at a glance a different condition of affairs. Myopia is found in these schools in far greater proportion. As we ascend from grade to grade, from primary school to grammar school, from grammar to high school, from high school to colleges and universities, up to the highest institutions of learning, myopia is found ever on the increase, until in the very highest schools in Germany over 90 per cent. have been found myopic. In other words it is now an accepted fact that myopia is a product of civilization, one of the results of our modern methods of education. It is not our purpose to discuss these methods on this paper, simply to draw your attention to a fact now generally accepted.

Having shown that there is this relationship between myopia and education it may be said, But this does not account for the first proposition, viz.: That such a vast percentage of pupils drop out of the ranks at the early age of 10 years. At 10 years of age myopia has been found even at its maximum to be only 10 per cent. Myopia, then, can not alone be a sufficient cause for so great a loss at so early an age. This is very true, but myopia is not the only error of refraction causing disturbances. It has been very satisfactorily shown that all infants are born hyperopic. We may also assume that a very large percentage are born astigmatic; of these probably 75 per cent. have hyperopic astigmatism. From 5 to 15 years the child's body is developing most rapidly. A greater amount of nutriment is now being taken in proportion to its weight than by adults. Tissue changes are taking place in a most rapid manner. Physiologists claim that during these years a large part of the twenty-four hours should be given to body building by means of sleep, food and exercise. The visceral organs, for example, may be altered by too great and too continuous compression. It needs no philosopher to tell us that we must expect more or less alteration in the shape of the eye-ball from too great and too continuous use of the eye at the near point. If we admit that this may take place in the so-called normal or emmetropic eye, how much the more likely are changes liable to follow over use when the eye is in its undeveloped stage? We know that the ciliary muscle of the hyperopic or undeveloped eye, from its very nature must be in a constant state of activity during all the waking hours. At the far point as well as the near point the effort is being constantly made to force the rays to a focus upon the retina. This effort means strain, and the strain means disturbance of the nervous system. The effort to maintain visual acuteness by the expenditure of force upon the ciliary muscle is not the whole story. According to the degree of hyperopia there is a change in the angle, "alpha," which means that the attempt to maintain binocular vision must be attended with expenditure of force, and this often

leads to strabismus. This proposition brings us to the point I am to make, viz.: That children's eyes are from their very construction just the sort of eyes which will cause the greatest discomfort from over exertion. The two factors, the attempt to produce visual acuteness by forcing the ciliary muscle to powerful contractions, and the effort to maintain binocular vision by forcing the extra ocular muscles, is liable to produce varied and peculiar symptoms upon the nervous system. I assert, then, that those children having hyperopia and hyperopic astigmatism are the real sufferers. Their constantly nagged nervous apparatus tends to become wearied to the extent that they can not give close attention to the work before them. They must look up often to rest their wearied muscles. Therefore, to expect continuous application and good attention is most unreasonable. That such children may lose interest in their school work on account of the difficulties surrounding them we can readily understand. We could, did space permit, show that these imperfections may have a very marked effect in the development of the child's character.

In my examination of the eyes of the students of the University of California, for the past five years, I found that the percentage of refractive errors was 68 per cent. Of this number only 6 per cent were myopic. In a detailed analysis of 1,300 errors of refraction I have shown that 75 per cent. were hyperopic in some degree. I found in looking over the list of symptoms attending these cases that pain of eyes, headache, muscular spasms and nervous symptoms generally were confined to this class of cases. The myope but rarely complains of anything more than inability to see at a distance.

It is not to be denied that myopia is greatly to be dreaded; since it can not be stayed in its progress in many cases, even though corrected with glasses. We are willing to believe that it is the end toward which a vast proportion of eyes tend when overworked. We claim, however, that our sympathies are rather to be directed to the youthful hyperope. Could we but examine every case during the first few years, we would not be sending to our universities young men and women with eyes just ready to break down. The remedy is examination and constant watchfulness. We must bear in mind that the tremendous waste unnecessarily taking place through the effort to work under the disadvantages of a refractive error is not easily measured. Individual suffering, and loss of power to work, may cause great material loss. From this cause the community has to be taxed to support asylums; from this cause many eyes tend toward disease and ultimate blindness. These are among the possible results of neglect on our part to do our whole duty. We may build asylums for the blind, we may do everything possible to remedy the defects already existing, yet unless we go down to the very foundation of the trouble and alter existing causes for disturbance we shall in time have as great a percentage of spectacled beings as is now seen in Germany. Remember that this is an age of conservation of energies, not waste.

DISCUSSION.

DR. MILLER, Los Angeles—This subject is of great importance. The too familiar statistics of Germany are highly instructive. While examination of the eyes of young school children is highly important we must inquire still farther

as to the causes of these troubles. I am not satisfied in my own mind just what those causes are. Our people seem to be becoming more and more neurotic. Children living in cities should have more outdoor exercise. The result of our higher state of civilization is to develop a decidedly neurotic state in our entire population. I think we must look well to this and develop a state of general health if possible—greater freedom and more outdoor exercises. I think also that particularly in this State the great variety of work ordinarily given to children at schools is prejudicial. It seems to me there are educators undertaking to cover too much ground, and there are too many studies in our schools requiring numerous and rapid transitions of the mind from one subject to another, and maintaining constantly a high degree of nerve tension. It takes some little time for the pupil to get his mind onto a given subject, and about the time he begins to get well under way he must suspend that and take up something else, and so on—we have a constant rapid change from one subject to another, which brings about the nervous tension. This I believe to be operative, as well as several other causes. Much more attention must be given to lighting, warming, and ventilating your school rooms. It might be well when the child enters school to have him present not only a certificate from his physician that he has no ocular impediment, but that he has no nervous or other impediment to his doing the work ordinarily done by children of a corresponding age.

DR. L. R. RYAN, Galesburg, Ill.—I think the question is not so much to get at the cause of myopia because that is well known among the fraternity. The main thing is to get the people to appreciate the disease and take the means to prevent it, and we have to get the people who have an influence with the children interested, especially the teachers. I can recall a great many cases where children had been forced out of school absolutely on account of defective vision; the teachers have classed them as dullards simply because they could not read or study. And it is only a few days ago that a little girl came to me almost crying because the teacher said she was lazy, and she had a very high degree of hypermetropic astigmatism. It was absolutely impossible for the little girl to study; her sister who was a twin was very bright indeed and the two were compared and she was almost driven out of school. I think we ought to enforce upon the teachers the idea of paying attention to hygienic conditions as far as the eye is concerned—to have the light properly arranged, to have the desks arranged so that the children can study in school without getting into a cramped position; to instruct them in hygienic means and to have the idea carried to the parents at home so that everything can be arranged and they can study properly. You will find in a great many cases, especially among children of the lower classes, that the children are packed off in a dark corner and compelled to study there, while the old people are given all the advantages as far as light is concerned. I think if you will visit the great majority of our public schools and examine the hygienic arrangement as to light and desk facility you will find that they are sadly at fault. I can recall cases where the primary children have been put away down in the basement where the light was very poor indeed and where it was absolutely impossible to see an ordinary pin. Then, too, I have studied the question of the arrangement of the desks. You take the little children in the primary department and you will find that they have their chins right on the edge of the desk and the book is set at such an angle that it is absolutely impossible for them to read without getting their noses onto the books, and in writing or getting their lessons their chins will be down at this angle. (Describing the angle). Now any one who knows the question at all knows

that the eyes are used under such circumstances at a very great strain, and the development of myopia is very easily produced, and I think as a Society we ought to try to get the people and especially the teachers to appreciate those hygienic conditions.

DR. F. P. EATON, Portland, Oregon—Mr. Chairman: What the doctor preceding me said in his closing remarks I think has hit the main point of this matter. We are quite well aware of the injury done to the school children, but the problem is how to work upon the public. Ordinarily the public understands that the myopic eye is the product of school work. It is not, however, clear at all to the public that the hypermetropic eye, and the astigmatic eye are both of them equally productive of misery and discomfort and injustice on the part of adults to children. I hesitate myself to make a motion as far as this Section is concerned in any way that would call attention of the educational portion of our communities to the importance of having the eyes of children examined. It has occurred to me and I suggested it to Dr. Southard that some such committee be appointed by this ASSOCIATION or by this Section to endeavor to have the various State Medical Societies formulate certain resolutions so that the various Legislatures, or at least the municipal authorities, might act upon the school teachers in such a way for the benefit of the children as we have heard this morning.

DR. H. M. STARKEY, of Chicago—Mr. Chairman: I am very glad indeed that I am one of the few here to hear this paper of Dr. Southard's. It is a very important subject. I don't know that I can add anything to it that hasn't been entered into in the question of the general examination of the eyes of school children. I think the point of the education of teachers is a very important one. We see a great difference in teachers, and their treatment of pupils; for instance I not infrequently have children sent to me and say the teacher told them they could not come to school again until they had their eyes examined. The teacher has seen that there is something wrong with their eyes, and having said two or three times that they should go and see a doctor and they not having done it, the teacher after a time has said: "You can not come back until you have your eyes examined and see what is the trouble." It certainly is a most important point as we all know from experience. We see the pupils ordinarily—that is if we see them at all—when they have been overtaxing the eyes which are hypermetropic or having hypermetropic astigmatism, go on for years perhaps until a permanent injury has occurred. And if by precept and example or even by legislation at a later time, when we have inculcated into the public mind the necessity for such legislation, if anything can be done so that every school child in his study whether in the public school or otherwise shall have the eyes thoroughly tested it will be a great advance.

DR. H. B. YOUNG, Burlington, Iowa—Mr. Chairman: Following the line of thought suggested by Dr. Eaton and the last speaker, I desire to call the attention of the Section to the fact that in many of the States the school teachers are very strongly organized; in fact it is a compulsory organization known as the State Normal, and by addressing our communications to the State Teachers' Association we perhaps could get an entering wedge which would be very valuable in this connection. As far as I individually am concerned, I have for some years past at the invitation of our local Normal Teachers' Association, had some talk on the subject; and I think every member of this Section would be very willing to volunteer such instructive talks to the Association in his own respective district. I know I have done so upon the express invitation of the Superintendent of the Normal department.

DR. SOUTHARD—I would like to hear from the President; I think he has had some experiences in that line.

THE CHAIRMAN—It only occurs to me to say that I have had some experience in the examination of school children's eyes and I think that this subject would perhaps be a very profitable one for a special discussion such as we had this year for the objective tests, and to make that suggestion to the Nominating Committee, which I think would be the proper one to bring forward the subject at the next annual meeting. It is certainly an extremely important subject, and one which can be elucidated by general discussion—at least by general discussion we can arrive, I think, at practical means of working out the result that we want to accomplish.

DR. SOUTHARD—I will not occupy much of the time of the Section. I am not egotistical enough to believe that I have written anything at all in this paper that is new to any of the gentlemen present. I did not expect to bring in any array of scientific data, but thought it would be well to have the subject started. There is no member of the Section, but who is fully aware and well posted on all statistics that have been made, and during the past twenty years the enormous amount of the statistical matter which has been made is sufficient in itself to prove the point that there is abundance of errors. I want to bring it in shape to get an expression of opinion as to some method of procedure. I myself believe that that idea of engaging the attention of the government of municipalities is a very good method; but my purpose has been to show that the great failure is in the schools in the early age, that is the primary schools. I do not expect that we can correct it after 20 years of age; we don't expect to make changes then. We then give them glasses and let them go on as best they can. It is at the primary schools that we must commence if we are to make the change. Now the fact is as I said, I do not present any array of statistics but I simply say this: As between the primary schools in this city which have an average attendance of 31,000, and the grammar grade which is the next grade above that, and begins at 10 years of age—I say that with an average of 31,000, say up to 10 years of age, that that attendance at the next grade above, within a comparatively few weeks drops over 50 per cent. That can not be all due to the causes which I have enumerated—a desire to work, and so forth—because we don't have much of that in this State with children at that age. I have had the privilege of speaking to the State Teachers Association in this State; and several times I have talked upon the subject with different County Teachers Associations; I have had the privilege of bringing this question in a little different but analogous form to the Stanford schools, and I have endeavored to show them that the immediate cause for a great deal of our disturbance, this inability to concentrate the mind, is that children get disturbed because they can not concentrate their minds where they ought to be able to use their eyes, for instance ten or fifteen minutes at a time, and they are the ones who deserve our sympathies whatever it may lead to. I speak of myopia in my paper, but as we know it does not exist in our country to a very large extent. A myopic child can see pretty well. It is hypermetropic and astigmatic cases and, as I have stated, the results that I have obtained are entirely under the average. When I say that hypermetropic and astigmatic cases are 75 per cent. of all, I am within the bounds of my own personal examination of those cases. And I believe this, that if we were to make a change by which we could analyze a larger percentage of the pupils through the schools up to the high school though not beyond, but to the high school point, where they are then fitted to go to work, that this is a very important point. Now I acknowledge that there are a great many other

causes as Dr. Miller says; for instance, the hereditary tendency to disease is very apparent, especially among certain classes. If our Section could give some inducement to this question of the necessity for a compulsory law, there is no doubt in my mind but what the law can easily be carried out. In this State we have a compulsory law for vaccination. It is a law that does not need the approval of every member of the community, but it meets the approval of such a large number that we carry it out very effectually, and it is a law which has been passed upon by the Supreme Court as a constitutional law. Therefore it is not a law that might be put under the head of class legislation. A law which would perhaps be of greater value than even that, if we can allow such a thing, would not only meet the support of physicians and teachers and educators, but of those who are interested and who have children themselves. The methods of getting at it are to be developed later on. I am sure that it could be done, but the teachers and educators and politicians and all this class of people must have this thing brought to them by inducement of those who have had experience, such as the men in this Section have had.

In answer to a question as to what kind of certificate would be required of children, the Doctor replied as follows:

The provision should be that every child when it first comes to the primary school shall bring a certificate to the teacher; that when that child enrolls its name it shall have a certificate saying that its eyes are in a condition which will permit it to take up the ordinary course of studies that children of the same age usually do. Now it does not mean that there are to be paid oculists for every school. But it means that their eyes are normally constituted to do that, and if they are not normally constituted that they are to have glasses fitted to them to pursue the studies which children of the same age take up. You see how it is. I have found in my experience among teachers in the schools here, those so ignorant on the subject, that they have pointed out to me in the schools that such and such children were probably deficient in mental power, and I have seen those children and can call to mind several of them in fact. But there is one case that came under my observation—a child who was sent to the Home for Feeble-Minded Children. That child is wearing glasses and is now one of the brightest pupils of his age. There was nothing at all the matter with the child but inability to concentrate himself upon his work; he could not see; his whole horizon was bounded by just the little about him and his contact with the world was such that he knew very little of it. He was sent to the Home for Feeble-minded Children and the intelligent man at the head of it saw at once there was eye trouble, and that was corrected at once.

(Question was asked as to re-examination.)

I have no doubt but that every five years they should be re-examined. That would be included in the law. It would be easy enough to have the thing worked up in time. The object is now to get at the point that there is a necessity and that we are in favor of this law.

SHOULD CASES OF TUBERCULAR CONSUMPTION BE REPORTED TO LOCAL BOARDS OF HEALTH?

Read at the Meeting of the Northern Tri-State Medical Association, held at Angola, Ind., July 17, 1894.

BY J. F. JENKINS, M.D.

MEMBER OF THE MICHIGAN STATE MEDICAL SOCIETY, NORTHERN TRI-STATE MEDICAL SOCIETY, AMERICAN MEDICAL ASSOCIATION, THE NINTH AND TENTH INTERNATIONAL CONGRESS, TUCUMSEH, MICH.

The question with the above heading should be stated somewhat after the following manner: Should a case of pulmonary tuberculosis be reported to the local board of health as a case of contagious disease?

It has been estimated by very competent men, that tubercular consumption carries off about one-seventh of the human race. When we take into con-

sideration the great number of diseases that "flesh is heir to," this must be considered a very high death rate from a single disease.

The efforts put forth by the various governments of the civilized world to prevent the spread of Asiatic cholera are very great indeed, yet the death rate from cholera with all its ravages is never equal to the death rate of "the great white plague," pulmonary tuberculosis. The disease has invaded almost every part of the habitable world; it enters the palace of the prince, as well as the hut of the peasant; it casts its blighting scourge over the fairest lands in both temperate and torrid zones: It is doubtless as fatal to-day as when Abraham fed his flocks on the plains in Judea. Notwithstanding these facts, the disease never creates public alarm nor has it at the present time attracted the attention of a single national government, either in Europe or America, so much so as to enact laws in order to control the disease, although something has been done notably by the governments of the United States and Germany, in order to prevent the spread of tuberculosis among the lower order of animals. In the past there has been only one locality, which I am able to cite to you, where any effort has been made to control the spread of tuberculosis, viz: the city of Naples. Long before bacteriologists had demonstrated that pulmonary tuberculosis is a contagious disease, the government of Naples had passed restrictive laws in order to control the spread of consumption among its inhabitants. "Smell Naples and die," is a proverbial remark long in use, uttered in every European tongue, in order to point out the unsanitary condition of that city, yet, restrictive laws relative to pulmonary tuberculosis reduced the death rate from this disease, which had heretofore been high, to a very low mortality.

Without doubt, heredity is an important factor in the production of tuberculosis, that it is only one, but not the least important factor in producing consumption is doubtless true. Since the discovery of the tubercular bacilli by Koch, it has become an established fact that pulmonary tuberculosis is a contagious disease; that the tubercular bacilli enter the lungs through the larynx, thence into the bronchii, where we frequently find tubercular deposits upon post-mortem examination.

Tubercular consumption is spread by means of the sputa that contain the bacilli. When dried the virus is carried in all directions by the atmosphere. Osler states that between three and four billions of tubercular bacilli have been thrown off by a single patient in twenty-four hours. A large proportion of patients disseminate the disease throughout the suppurative stage by means of the sputum, which is usually sown broadcast wherever the infected subject may choose to travel, either by sea or by land. Tubercular patients frequent churches, schools, opera houses, dance halls, and court rooms, wherever business or pleasure calls them, disseminating tubercular virus in all directions. These microorganisms are certain to find a proper soil where they take root and grow; but unlike the virus of scarlet fever, smallpox, cholera, and many other contagious diseases, the incubative stage lasts months, yes, and even years; hence it is that the public, and even the professional mind is seldom aroused by this fatal disease which has proved in the past, as well as in the present, the greatest enemy of the human race.

Probably the most instructive as well as the most

exhaustive experiments relative to the contagiousness of tuberculosis have been made by Cornet of the Berlin Hygienic Institute. His material was gathered from various sources; from three asylums, two prisons, and from twenty-one wards in seven hospitals, from the surroundings of sixty-two private patients suffering from tuberculosis and twenty-nine different localities which were the resort of transient patients. From Cornet's experiments, negative results were found in those places occupied by transient patients, while virulent tubercular bacilli were found in the dust from the walls of fifteen out of twenty-one wards occupied by tuberculous patients. Dr. Cornet cites the case of a tuberculous female patient. Six weeks after her death he examined the dust from the neighborhood of the bed and found it highly infective. While it has been proved beyond the possibility of a doubt that the dried sputum from tuberculous patients is highly infective, it has also been found that the expired air of these patients is not infective.

The death rate from pulmonary tuberculosis in prisons, almshouses, cloisters, and among nurses in tuberculous wards in hospitals is unusually large.

During the past twenty-five years Dr. Flick, of Philadelphia, has been studying the distribution of tuberculosis in a single ward in that city. He found nearly one-third of the houses infected with pulmonary tuberculosis, and that 33 per cent. had more than one case in it; he also found that more than one-half the deaths from consumption in the year 1888 occurred in these houses. Osler states that out of 427 cases of pulmonary consumption at the Johns Hopkins Hospital, in 25 either the husband or wife had been afflicted with it or had died from the disease. Cases are reported where the husband has lost four wives, others three and some two. I think there are very few physicians whose experience has run through a score of years, but what can relate cases where two or more in one family have died of pulmonary tuberculosis.

It is frequently mentioned by those opposed to the idea of tubercular infection, that monkeys in the African jungles frequently die of pulmonary tuberculosis. It is a singular fact that the venereal passion is strong among tuberculous patients; doubtless the same passion exists in the tuberculous monkeys inhabiting the jungles of Central Africa. If true, they would live in sufficiently close proximity to infect one another with tuberculosis.

The evidence is strong that tubercular infection is principally confined within the walls of buildings, and that outside of enclosures the chances of infection, if any are almost *nil*. Among bacteriologists at least, if not among medical men, there is a consensus of opinion that pulmonary tuberculosis is a contagious disease, and that patients and nurses should be instructed in every means necessary to prevent infection.

That pulmonary tuberculosis can and should be restricted is generally believed, and in order to accomplish this object it becomes necessary to report every case of pulmonary tuberculosis which may occur in a community, to the local board of health. It is not necessary to placard the houses of tuberculous patients, or to restrict individual liberty, and as long as the patient is able he should be permitted to follow his usual avocation, providing he implicitly follows out the instructions given him by the local health officer.

The State Board of Health of Michigan has made it obligatory on the part of physicians and householders to report to the local board of health all cases of pulmonary tuberculosis, so that the State Board may give information to patients and attendants through the local health officer relative to the prevention of the disease.

"FEMALE WEAKNESS."

BY C. E. RUTH, M.D.

PROFESSOR OF DESCRIPTIVE AND SURGICAL ANATOMY IN THE KEOKUK MEDICAL COLLEGE, AND CLINICAL SURGERY IN ST. JOSEPH'S HOSPITAL, KEOKUK, IOWA.

For relief from the above feminine terror we find three-fourths of the married and a large proportion of the single women consulting the family oracle. Frequently he looks at the tongue, feels the pulse and orders some internal medication with the promise of prompt relief. Not benefited she returns or seeks one who has the reputation of being a good woman doctor, and after the patient's diagnosis has been confirmed she is started at once on the road to certain cure (?) the means being, astringent injections, orange blossom, vaginal tablets, etc., which are sure to rid her of the unnatural whitish or yellowish discharge which she is told comes from the womb. Months and years go by, menstrual pain and leucorrhoea now better, then worse, till it is finally discovered that she has a fearful ulceration of the womb that is the cause of all her trouble. Then the robbing begins in earnest; the vaginal speculum is introduced at once, twice or three times per week and the iodine, hamamelis, glycerin, wool, and cotton series are fairly ushered in with their deception and allurements. Another decade has passed; she is physically no better, financially much worse, but the iodine wiper is tolerably well fixed. All that he has ever seen pathologically of that patient was the os uteri, and its pathologic condition was due to remote causes of which her attendant had never dreamed. But the symptoms were being faithfully treated. These patients are nearly always examined in the recumbent posture, which is the most comfortable to the patient usually but often gives the physician a very incorrect idea of the usual positions occupied by the woman's pelvic organs when about her work, or in the position in which she has the greatest suffering. The speculum is nearly always used which obscures the condition of the perineum, rectal and vaginal walls, with the tendencies of the latter to prolapsus, and frequently also hides the urethra, besides making the examination of the outlines of the fundus uteri, ovaries and tubes an impossibility.

If the iodine wiper is a fraud, obtaining money under false pretenses, what shall we say of the man who undertakes to cure all of the ills to which human female flesh is heir, by amputation of the cervix, or the fellow who pretends to do perineorrhaphy and after a little scratching makes a skin perineum which only puts the defects out of sight. They both go a step beyond the former villain and add mutilation and possibly murder to robbery. In these days of brilliant surgical triumphs the doctor is hard to find who has not had his head turned just a little, and is only waiting for a victim to enable him to step at once into the field of surgical glory, especially if he can record a successful laparotomy; rather, I should

say a case that did not die. The cases that are not buried in a short time after their abdominal contents are aired, can not all be said to be well. Often they are worse than before. We hear these men explaining all mystery in female genito-urinary pathology by their wonderful knowledge of the ovaries and Fallopian tubes. Most of these men who are so anxious to rip open some belly have never seen or by touch recognized an ovary or tube in the human subject, in either a normal or pathologic state. It is seldom that they can outline the subjects of their mental aberration by the most painstaking examination. They will go into the abdomen and remove appendages for pathologic conditions that exist only in the mind of the medical attendant. They jump at the conclusion that what their superficial examination and reasoning fails to reveal must be due to grave tubal and ovarian disease. The spectacle they present when lost in the abdomen and are stirring its contents for an idea is sickening, to say the least.

Is it any wonder that the laparotomy death rate is so high in some of our communities that it is almost impossible to have the most necessary operation done? It is interesting to examine the specimens in some of our laparotomists' office jars, and listen to the explanations of their pathology. Longitudinal bands of muscular fibers are mentioned as bands of dangerous adhesions that necessitated the operation. If the patient survives the criminal effort which unsexed her, the bands of adhesion will probably be ample for easy demonstration. How do some of these men become possessed of the knowledge and daring that makes them such dangerous elements in society? It seems to be born with a few, developed in some by remarkable reports of our shining lights, but usually they are hatched in a few days in Chicago, New York, or St. Louis, etc. They boast of their great opportunities, when in reality they have scarcely enough anatomic knowledge to make safe general practitioners. The masters at whose shrine they worshiped for a few short days, have toiled alone patiently for years to master the fundamental principles on which their success has been based, and those who would succeed in the same line and do not wish to be mere traffickers in human life and happiness must go and do likewise.

Much brilliant operative surgery in which is left out of sight the tiresome, difficult, and uncertain diagnostic hill which was climbed in each case, is in part to blame for the errors mentioned. These abuses and criminalities must continue till the mass of the profession are taught that ocular inspection and digital examination of the perineum, anterior and posterior vaginal walls, and urethra will enable them, without the vaginal speculum, to recognize the lesions which cause most of the trouble for which they now treat the os uteri and are anxious to remove the uterine appendages. We certainly have no use for the speculum to enable us to determine the condition of the tubes and ovaries. Bi-manual examination with one or two fingers in the vagina or rectum, if need be under anesthesia, will enable the educated touch and brain to recognize the nature of most female genital pathology that can be diagnosed without the use of the knife. It leaves very little from a diagnostic standpoint for the sound and speculum to do. It would be better if there was one vaginal speculum where there are now one hundred. With a vaginal

speculum introduced under cover, and the examination made complete with it in position, the best gynecologist will fail to correctly diagnose three-fourths of the abnormalities needing attention. The diagnosis first, and inspection of the os afterwards. It is to be hoped that the younger members of the profession will not become factors in engrafting on the profession such abominable terms as "female weakness," which had its origin in an attempt to cover up ignorance. The time for these things to be winked at has gone by, and the man with imperfect preparation for great responsibility in gynecologic practice should receive encouragement only in the line of preparation for good work, rather than professional sanction for mutilation and murder of human beings. The man who takes money for medical treatment that he knows will be useless is no less a confidence man than the one that the law of our land would seize.

I call to mind a goodly number of cases of irritable bladder, cystitis, or nephritis so-called, permanently relieved by removal of an urethral carbuncle, repair of lacerated perineum, removal of hemorrhoids, repair of lacerated cervix, or amputation of some one or all as the case seemed to require.

Formerly I did these operations singly, or but two at a time, but for past three or more years have been doing them all at one sitting, if need be, and the patient's condition justified it. The causative factors must all be removed in any case if we expect satisfactory results. Amputation of the cervix, curettement, etc., will not cure a case of subinvolution due to causes that still continue active. The most that it could be expected to do would be to bring temporary relief, and thus gynecologic surgery is brought into disrepute. If we carefully reach and eliminate all the causative factors in each case, whether it be by surgery or medicines, we will be successful. If not, our results will rate us in the community unpleasantly close in importance to the average charlatan. Flexions have caused me more trouble than all other cases. Gradual dilatation with the Tait dilator has given me more satisfaction and my patients more relief than all other plans that I have tried. Though my patients are satisfied with it, I am not. They must, like the male urethral stricture case, have another *séance* once in one, two or more months. I have not done the Alexander operation in retroflexed cases on account of theoretical objections, but am inclined to think more favorably of it than formerly. From the operations that I have seen done extraperitoneally on the round ligaments, I am sure that the man who undertakes this operation should have the most accurate anatomic knowledge possible. No one should do an ablation of the appendages who can not palpate the normal ovaries and detect marked enlargement of the tubes. Ventral fixation bids fair to become quite popular in the near future, as it can now be done without an incision into the abdominal cavity.

From experience and observation, I am satisfied that intelligent surgery will permanently relieve or cure three-fourths of our gynecologic cases. I believe that obstetricians, midwives and the general ignorance of the community are responsible for one-half of the misery and ill health of our women.

All women should be examined in two weeks after delivery, and all lacerations of the cervix should be repaired before the woman is allowed to be on her

feet, especially if the tears be laterally placed. All lacerations will be repaired by nature if located anteriorly or posteriorly, and I am satisfied that if the woman did not assume the erect posture for four weeks, those that are placed laterally would also unite. The difficulty is in the woman's assuming the erect posture, and as the utero-vesical and rectal ligaments, so-called, furnish the uterus with its principal support, as soon as the woman is on her feet the anterior and posterior lips are forcibly separated and union is prevented, and finally we see the condition remaining one of permanent eversion. With care in our obstetric and gynecologic practice the life-long invalidism and justly dreaded maternity may soon become things of the past. Then the term "female weakness," and the occupation of the iodine gynecologist will be gone forever.

SOME UNCOMMON OR SINGULAR CASES.

Read before the Pennsylvania State Medical Society, May, 1894.

BY JOHN M. BATTEN, M.D.

PITTSBURG, PA.

Dysmenorrhea, Catalepsy, Hysteria.—In 1867 a female, single, age 18 years, of nervous temperament, came under my observation and treatment for a period of three years. There were dysmenorrhea with scanty and irregular discharge, tenderness over spine, hyperesthesia over surface of body, and great tenderness over the region of her genital organs. There developed during the early part of this period, many strange and unusual symptoms and she exhibited many remarkable freaks. One day she would have a jumping toothache, the next day she would be hysterically insane, almost uncontrollable, the following day she would be in a profound catalepsy, the day after she would be a songster and the following day she might be rational. Another day she would suffer colicky pains in the abdomen, followed by all sorts of contortions of the body. These conditions would repeat themselves, period after period, in various forms. In the evening of her catalepsy day while lying in bed quietly, she would suddenly spring from the bed, surrounded by the bed-clothing, and alight head foremost on the floor. On another evening following her song day, she would stand before a looking glass in the dim light from a smoldering fire in a grate and arrange her toilet, sing a song, or read a chapter out of the Bible. At other times she would run around on the furniture of her room, or dance on the "piano." One evening she endeavored to drive me from the room with a poker. Sometimes, in the evening, when sitting in a chair after the well day she would become paralyzed and have to be carried to bed. These varied conditions continued without interruption for about two years, when she commenced to convalesce. The last symptom or condition which manifested itself was invariably lighted up when a young man visited her. On the occasion of his visit she would become paralyzed or powerless to remove herself from the chair on which she was sitting, and would so remain until after the young man had left, after which she would be carried to bed. During the night she would recover the use of her limbs. This female afterwards married the then young man and now is the mother of three intelligent, healthy children, and is enjoying reasonably good health herself. I have no doubt if a similar case now, should fall into the hands of a laparotomist there would be an operation performed.

Dysmenorrhea.—In 1888 Mrs. J., age 21, used ice cold water as an injection immediately after having had intercourse with her husband and a short time before her expected period. In a short time thereafter a group of very painful and distressing symptoms presented themselves which were difficult to control. Among these were dysmenorrhea, tenderness on pressure over the abdomen, colicky pains in abdomen, borborygmus, functional derangement of the heart, insomnia, irritable temper, and loss of appetite. After a time, under my observation and treatment, she became dissatisfied and wanted to be relieved quickly; she consulted a laparotomist who advised laparotomy with a view to removing the left ovary. After considering the matter for some time she returned to me for further treatment. She is now enjoying good health and has had one miscarriage.

Stenosis of Cervix, Supposed Phthisis.—In 1869 M. C., a female, single, age 21, had been treated by a celebrated physician for two years for what he diagnosed as phthisis pulmonalis, and had made a very unfavorable prognosis. At this time I was called in to treat her. She presented the following symptoms: Emaciation, cough, expectoration, amenorrhea, tenderness over abdomen and over spine, anorexia, constipation, periodically colicky pains in the abdomen and inability to walk. This condition had continued with varied symptoms for a period of two years. I made a thorough and careful examination and, after weighing and examining all the conditions presented, I considered that this group of symptoms might have been caused by a stenosed cervix. Upon this conclusion I acted; dilated the cervix completely with a sponge tent and thereafter my patient soon recovered; she is now the mother of two children and weighs 160 pounds.

Prolapse of Uterus in Parturition.—Early one morning in the fall of 1872, I was called to see a case, a German woman in labor with her fifth child; she was attended by a midwife who undoubtedly to hasten labor had been giving the woman ergot. I found the head of the child outside of the mother with a portion of the womb covering head of child. The os was only partially dilated, not enough to allow the head to pass through. The part of the womb covering head of child outside the mother was thin and dry. The mother was still having light parturition pains. I quieted the mother with sulphate of morphia and anointed the parts of the uterus outside of the mother with lard. In about an hour the child was born. The uterus assumed its normal position and the woman recovered.

Fracture of Olecranon.—In 1882 J. S., a boy aged 15 years came under my care at the Pittsburg Infirmary with ankylosed right elbow joint, from an injury received while working on a farm. The fore-arm was in a straight line with the arm. I put him under the influence of chloroform and in breaking up the adhesions of the ankylosed joint I fractured the olecranon. I put the arm in a rectangular splint and kept it there for three weeks. At the end of this period on becoming alarmed because some cases of smallpox had been received into the hospital, he surreptitiously made his escape. About three years ago I saw him for the first time since his escape from the hospital, and he told me he had quite a useful arm.

Retained Pessary.—Mrs. T. J. A., age 30, was confined with her third child, Feb. 16, 1885. The breech of the child presented, and after a tedious labor the child was born. One year afterward I was called to see patient with inflammation and great tenderness of the vagina. The hasty and imperfect per vaginam examination I was compelled to make led me to think that the hard ring-like condition at the upper part of the vagina which presented itself on this examination might have been produced by an inversion of uterus after the last labor, causing thereby the constricted parts of that organ to slough away. After having been annoyed with the case for a week and no improvement noted, I chloroformed my patient and extracted a hard, irregular round pessary. The pessary had been the cause of all the irritation and distress, and had been surreptitiously placed there by a midwife during a vaginal examination. The woman recovered soon afterward, but has since died of phthisis pulmonalis.

Obstruction of the Bowels, Intussusception.—W. K., age 32 years, a large fleshy man, a saloon keeper and beer drinker, was attacked June 6, 1890, with cramps and nausea at the stomach; did not know exactly when his bowels had been moved. On Sunday, June 8, 1890, was called and found him in the above condition though more intensified. I prescribed calomel and opium in 1 grain doses each, in powder every three hours, followed by warm water enema. I continued with this treatment till Monday when the pains had become very much more severe. He was in a kneeling posture with his belly resting on the side of the bed to gain relief. The hot water enema was continued. For the calomel and opium, I substituted a pill of a quarter of a grain each of extract of belladonna and sulphate of morphia to be given every hour. In the afternoon Dr. A. M. Pollock, of Pittsburg, was called in as counsel in the case. He suggested that the warm water injections and morphia and belladonna pills be continued as before, and in addition thereto he recommended one-half grain of sulphate of morphia hypodermatically, administered every six hours or until the pains might be controlled by the morphia and belladonna pills. This treatment was kept up uninterruptedly night and day till June 12, when there was some indication of fecal odor in the warm water enema passed from the bowels. The treatment

was continued. On June 13 there was a thin fecal passage from the bowels with the warm water enema, and the hard and inflated bowels had subsided. He was considerably narcotized. At this time the morphia and belladonna pills and the hypodermatic injections of morphia were withdrawn. Strong coffee and Rochelle salts with hot enema were ordered to be given every three hours. On the afternoon of June 13 the bowels were well evacuated, pains subsided and the patient is in a fair way to recover. On the evening of June 13 he was attacked with delirium tremens which continued during June 13, June 14 and June 15. On that afternoon he slept three hours and also all of Sunday night. June 16, he was about the house and was well.

Some points in this case should not pass unnoticed. The amount of morphia and belladonna taken into the system in the four days was thirty-two and twenty-four grains respectively. The fact of his having delirium tremens would have precluded laparotomy.

Here we have the history of a case of obstruction of the bowels for just one week at least, and at no time during this obstruction did there arise a condition in the case which demanded an operation. If there had been a time during this obstruction in which the operation might have been demanded, it would have been early in the disease about Monday June 9, and that demand would have been only arbitrary. The point I wish to make is that there is no period in a case of obstruction of the bowels where an operation is called for until inflammation has set in, that we can prognosticate certainly that a case may not recover without an operation. Suppose this case had been operated on Monday, the third day of the obstruction, what would have been the result? Why certainly death! For no case of a recently opened belly could have survived such a strain as the belly of this man was subjected to during the time of his wild unmanageable delirium Friday night, Saturday and Saturday night, and Sunday forenoon, June 13, 14 and 15, so that in this case, at least, it may be said conversely to what I have heard a member in this Society state, that the laparotomist arrived just twenty-four hours too late to save life. The laparotomist, if one had been employed in this case, would have arrived just four days too soon in order to save the patient's life.

Abscess of the Liver.—In May, 1877, J. S., a farmer age 30, was admitted into the Pittsburg Infirmary suffering with what had been diagnosed phthisis pulmonalis by his medical attendant. He was very much emaciated, had cough, fever, expectoration, night sweats and anorexia. After he had been in the hospital a short time there was an abscess in the liver discovered to be forming and finally its contents, three pints of pus, were evacuated and the patient afterward rapidly convalesced.

Laryngeal Diphtheria.—M. R., a male aged two years and eleven months, was taken with slight cold, as the parents thought, on Sept. 5, 1892. The slight cold or cough got worse and worse, when on September 18 a doctor was called in, who told the parents that an operation was the only thing that would be likely to save the patient. The parents therefore looked with anxiety on the case and expected every moment that death would relieve the suffering of their child.

On September 19, 11 A.M., I saw the child, who was very restless, with extreme dyspnea; abdominal breathing, aphonia, beads of sweat standing out on the face, anxious countenance, ringing hard cough, injected eyes, patient reaching out from mother's arms to go to father, and from father back to mother again. No diphtheritic deposit could be seen in pharynx. I ordered 3 grains of calomel to be given every hour and inhalations from slaking lime every three hours and whisky *ad libitum*.

September 21. Patient whispers; cough croupy, breathing abdominal, bowels moved about five times since last visit. Countenance anxious, eyes injected. Has coughed up some membrane, pulse irritable and quick. Calomel and whisky

continued, together with inhalations from slaking lime. Membrane extends from larynx along trachea and bronchii.

September 23, 10 A.M. Patient rested better previous night. Had five stools. Breathing still difficult; patient restless. Slaking lime inhalations, calomel and whisky continued, together with lime water spray to throat.

September 25, 10 A.M. Breathing more freely, not so restless. Voice at intervals natural. Had seven stools since last visit and has expectorated membrane about twenty times, each of which added to the relief of the patient. The patient has taken a pint of whisky since I first saw him. Treatment continued.

September 27, 10 A.M. Took three-quarters of a pint of whisky and has had seven stools since last visit. Patient slept all last night. Has no difficulty in breathing. Voice aphonic. Ate well this morning for the first time since illness. Bronchii, trachea and larynx clear. Treatment continued.

September 29, 10 A.M. Has been speaking in higher nearly natural tones since Tuesday afternoon, coughs some and expectorates a little mucus. Breathing freely and natural. Bronchii, trachea and larynx still clear, sleeps and eats well. Has had ten stools and has taken three-quarters of a pint of whisky since last visit. Treatment, calomel and whisky every three hours.

October 1, 10 A.M. Appetite good. Has had six stools since last visit and took a quarter of a pint of whisky; sleeps well; voice a little husky; whisky and calomel ordered to be given every four hours.

October 3. Patient has had five stools and took one quarter of a pint of whisky since last visit. Patient has about recovered, except there is still a huskiness in the voice due to a relaxed condition of the vocal chords. Dropped calomel and whisky and put patient on the following prescription:

R. Tinc. ferri chlor gtt xxx ij
Potassii chlorates gr. x ij—(12).
Syrupi toluanus.
Syrupi simplex āā ʒij.
Aquæ ʒiss.

M. Sig. A teaspoonful three times a day.

October 7. The patient has entirely recovered.

During this child's sickness he took 876 grains of calomel and about a quart of whisky. I assert that calomel, in large and frequent doses, given a child suffering with laryngeal diphtheria prevents further exudation of membrane which will finally become detached and expectorated, and hence in the majority of cases thus treated if seen in the early part of the disease there is no necessity for intubation or tracheotomy.

The above makes a record of three cases of laryngeal diphtheria that have recovered under my care with the calomel and whisky treatment.

Renal Colic, Morphia, Convulsion.—I. K., age 32, well built and weight 160 pounds; suffering with orchitis, was attacked with renal colic on the evening of Feb. 14, 1894. At 8 P.M. he took an ordinary dose of morphia to relieve pain which afterward became more intense so that at 9:40 P.M. I gave him a hypodermic injection of one-quarter of a grain of morphia with one one-hundred-and-fiftieth of a grain of sulphate of atropia. For two minutes after the injection he felt nausea at the stomach when he was seized with a convulsion and remained in this convulsion three minutes, after which he returned to consciousness and said he felt better.

DISLOCATION AND DOUBLE FRACTURE OF THE UPPER THIRD OF THE HUMERUS.

Read before the Cincinnati Academy of Medicine, June 4, 1894.

BY B. MERRILL RICKETTS, M.D.

CINCINNATI, OHIO.

For the surgical history of this unfortunate state of affairs I can not do better than to refer those who wish to inform themselves upon the subject, to Dr. McBurney's paper and report of a case of this kind published in the *Annals of Surgery*, April, 1894. This is the most complete and concise article that I have read. It is more especially interesting as he

offers the means of a plan of reducing the disarticulation which he himself was the first to devise and execute. This was done July 1, 1893, and has been the means of revolutionizing the treatment of this class of cases when the condition of the patient will permit. That no surgeon thus far reported has met with more than five cases shows that the accident is exceedingly rare. The cause is obscure, the statements of the injured being very unreliable.

It seems probable that in the larger number of instances the dislocation is produced by the usual mechanism—that is through violent sudden abduction of the arm; as in a fall upon the hand or elbow, and the head of the bone having become fixed in its new situation that fracture takes place through continued abduction, combined perhaps with force rotation, the edge of the glenoid cavity or of the acromion acting as a fulcrum.

The complication has also been produced a good many times by the surgeon in his efforts to reduce a simple dislocation. The dislocation has been usually subcoracoid, occasionally subglenoid and very rarely subspinous. Unless there is very much swelling there should not be much difficulty in making a diagnosis, as the head of the bone can be felt and crepitus defined.

The treatment formerly practiced was either immediate reduction or reduction by using the arm as a lever after the bones have become firmly united.

Thirty-six of the eighty cases reported were reduced, while forty-four were failures and as six of the eighty died as the result of traction, rotation, etc., it will be seen that any attempt at reduction by any means other than open arthrotomy is exceedingly dangerous.

The fracture in the 117 cases reported was in 69 at the surgical neck; in 27 at the anatomic neck; at the "neck" in 11; both anatomic and surgical neck were fractured in 6 cases; 1 case was comminuted, and the 'upper part' of the humerus was fractured in 3, "thus showing the line of fracture to be varied."

The very unsatisfactory results from former treatment, together with a mortality from manipulation alone being almost as high as that of hip joint, amputations should convince the surgeon and practitioner in general that other means should be adopted.

PLANS OF TREATMENT.

1. Immediate reduction by direct pressure upon the head.
2. Manipulation after union of fracture.
3. Arthrotomy and reduction of the head.
4. Resection of head of humerus.

Immediate reduction by direct pressure upon the head should be attempted but without extension upon the arm, even though it is known that the periosteum has not become detached. If the fragment is short, reduction may be accomplished but perseverance should not be indulged in.

2. Manipulation after union of fracture being so dangerous and unsatisfactory must, I believe, be relegated. Arteries, nerves and veins may be injured to an irreparable degree, beside the loss of a life may be the result. The present mortality being something like 15 per cent.

Resection of the head of the humerus should be made in old standing cases of dislocation causing pain and the loss of the use of the arm; in cases where reduction can not be accomplished by any

means at any time and especially in young subjects. As a rule the arm is more useful after the resection of the head in adult life than where the head is allowed to remain intact. It is invariably better after resection in young subjects.

Arthrotomy and reduction of the head is surely the most rational means of treating this complicated injury if age or the condition of the patient following the injury will permit. The sooner after the injury the operation can be made the greater are the chances for a reduction and a useful arm.

If the dislocation is reduced the fracture can be more satisfactorily treated, especially if the fracture does not pass directly through the head. If reduction can not be accomplished by means of an arthrotomy, resection of the head should be made, as reduction could not in all probability be made later or by any means, and as the head left in these dislocations is a source of great pain and annoyance it is all the more advisable that it should not be allowed to remain if reduction can not be accomplished:

Case 1.—Mr. D., age 49; white and slender; in a fair physical condition; fell from a trestle fourteen feet upon the hard ground, receiving the blow upon the left shoulder, at noon time on Feb. 21, 1894. I examined the patient at 5 p.m. on the same day, finding a subcoracoid dislocation together with what afterward proved to be a fracture of both the surgical and anatomic neck. Crepitus could be felt, thus satisfying me of at least one fracture. The head could be plainly felt beneath the much swollen tissue. I at once decided to take him to my private hospital; night overtaking me I gave the patient morphia to relieve the pain about the shoulder until the following day. On the morning of the following day the swelling was much more extensive and the temperature was $101\frac{1}{2}$ F. There was also great tenderness, pain and discoloration over the entire upper arm, shoulder and scapular region.

Chloroform was given and an attempt made at reduction, first by manipulation of the head without traction. Then with both manipulation and traction, the traction not having been made to any considerable degree. Two or three attempts proving fruitless I decided to discontinue all efforts and await developments.

I could not at this time satisfy myself that more than one fracture existed; in fact I did not suspect the second one being present; however, I believed that there was a fracture of acromion, which was afterward found not to exist. The upper arm was placed in metallic splints and abducted. His physical condition was at a low ebb, the shock having been severe. Indeed it was a question as to whether or not gangrene would not result. While I informed the family of the gravity of the case, I suggested that arthrotomy could be made at any time his condition would permit.

The pain continued to be severe, the temperature 102 and the injured parts cold, swollen and very much discolored. This state of affairs existed for two weeks in spite of the application of dry heat. Morphia was used freely for the relief of pain. At the end of the fifteenth day the depression was so great that the head could not be raised from the pillow. It was not until the end of the sixth week that the patient could sit up in bed.

It was at the end of this time Dr. McBurney's article appeared in the *Annals of Surgery*. I immediately proceeded to have a hook made and prepared to at least attempt an arthrotomy, believing that firm bony union had resulted, especially as I had kept the patient under the influence of mercury during the first three weeks, a rule I usually adopt in cases of fracture in long bones. Realizing that within this short time the glenoid cavity could be practically obliterated by newly organized tissue, I believed the end justified the means, so proceeded to make the arthrotomy under the influence of chloroform.

An incision three inches long, one and one-half inches below and parallel to the clavicle enabled me to reach the head of the humerus without difficulty. Both the anatomic and surgical necks were found to be fractured and ununited. The surface of the head had become adherent with the soft parts which were greatly infiltrated with a dark bloody serum.

Non-union of the fragments prevented further operative

procedure. The wound was closed with silkworm sutures, the arm brought to the chest and the lower placed at a right angle to the upper arm and firmly secured with adhesive strips. Much comfort was experienced in the change of position of the arm and the patient left for his home at the end of ten days, hoping that the country air would add to chances of complete union of the fragments. During his five weeks absence from the city he has gained in weight and general appearance, but has suffered a great deal except during the last week when he has been practically free from pain. The question now is, Should the head have been resected at the time of the attempted arthrotomy? As the indications for the resection of the head of the humerus in irreducible luxations forms the topic of another paper, which I will soon present, I do not care to further occupy your time.

BOOK NOTICES.

A Treatise on Appendicitis. By GEO. R. FOWLER, M.D., Examiner in Surgery, etc. Cl., pp. 190. Philadelphia: J. B. Lippincott Company. 1894. Chicago: A. C. McClurg & Co. Price, \$2.

The book consists of thirteen chapters which have been reprinted from the *Annals of Surgery* after correction and revision. Chapter I considers the Anatomy of the Parts Involved; II, The Inflammatory Lesions of the Appendix; III, Acute Appendicitis, Clinical History; IV, Special Types of Appendicitis; V, Complications and Sequestræ; VI, Etiology; VII, Bacteriologic Conditions; VIII, Pathologic Anatomy; IX, Diagnosis; X, Prognosis; XI, Treatment (General); XII, Operative Treatment; XIII, After Treatment.

In regard to the etiology of the affection, the author asserts the rarity with which foreign bodies, such as seeds, are found within the appendix, and he asserts that the disease is due to: 1, infection from intestinal microorganisms; 2, to circulatory disturbances, 3, accidentally imprisoned fecal matter. Notwithstanding the dictum of our author, the reviewer insists that he has many times observed seeds in the appendix, and indeed has seen them forming the center of an extremely hard ball of fecal matter.

In the matter of treatment the author states, that in the majority of cases operative treatment is required, and he properly insists on such patients being taken to a well equipped hospital rather than to attempt "makeshift" operations at the patient's house. He gives a couple of sketches showing McNaughton's invalid coach, with its pneumatic tires, whereby the patient may be taken to hospital without a jar.

The book is an excellent one as far as it goes, but it falls considerably short of being exhaustive.

Flint's Practice of Medicine. A Treatise on the Principles and Practice of Medicine. Designed for the use of students and practitioners of medicine. By AUSTIN FLINT, M.D., LL.D., Professor of the Principles and Practice of Medicine, and of Clinical Medicine in Bellevue Hospital Medical College. New (7th) edition, thoroughly revised by FREDERICK P. HENRY, M.D., Professor of the Principles and Practice of Medicine in the Woman's Medical College of Pennsylvania, Philadelphia. In one handsome octavo volume of 1,143 pages, with illustrations. Cloth, \$5; leather, \$6. Philadelphia: Lea Brothers & Co. 1894.

The only radical change made in this well-known textbook consists in the entire omission of the section on General Pathology and confining the work to Special Pathology. The editor has added articles on Pulsating Pleurisy, "Weil's Disease," Syringomyelia, Beri-Beri, Hereditary Chorea, Acromegaly, Raynaud's Disease, Leprosy, Influenza, Lithemia, Rickets, Actinomycosis, Anthrax and Glanders. Throughout the book the editor has not hesitated to make additions where it was necessary to bring the subject *en rapport* with the accepted pathology of the day. The great charm of the book has been retained, however, by handing down unimpaired the clinical description of diseases. In

this particular, none of his countrymen have surpassed Flint, and his careful, clear expression will remain as a model for many years to come. It is to be regretted that the editor has not made use of the metric system in the prescription writing, the old British weights and measures being invariably retained.

Text-book of Normal Histology including an Account of the Tissues and of the Organs. By GEORGE A. PIERSOL, M.D., Professor of Anatomy in the University of Pennsylvania. With four hundred and nine illustrations, of which three hundred and fifty-eight are from original drawings by the author. Second edition. Cl., pp. 439. Philadelphia: J. B. Lippincott Company. 1894.

The first edition of this book was issued in 1893, and so favorable has been its reception that a second edition was made necessary within a year: few changes therefore have been made.

The study of normal histology, the essence of anatomy, naturally precedes that of pathology, and no student can more thoroughly prepare himself for the study of morbid changes, than by making the intimate acquaintance of the natural structure. As a guide to this study, Piersol will be found a learned and trustworthy one. There are nineteen chapters on histology proper, and an appendix on methods which will be found most useful. The plan of the book is admirably adapted for students and in the practice of the plan adopted in most medical colleges of regular recitations, there is no work on histology known to us, that fills the purpose better.

Addresses, Papers and Discussions in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the AMERICAN MEDICAL ASSOCIATION, held at San Francisco, Cal., June, 1894. Cl., pp. 414. Chicago. 1894.

It was a happy thought on the part of the Business Committee of the ASSOCIATION, to commend the re-printing of the Section books. This volume, containing as its title indicates, the work of the Section under the Presidency of John B. Roberts, of Philadelphia, is one of the best surgical year books issued. The papers have all been printed in this JOURNAL. A comprehensive index adds to the value of the book. Chairman Roberts is to be congratulated on the high scientific value of the work of this Section.

McDonald's Cook County Medical Directory. A list of physicians in the county arranged alphabetically by post-offices; Chicago Physicians and Druggists arranged alphabetically and by streets; Chicago Dentists arranged alphabetically. Also, Medical and Pharmaceutical Laws, Medical and Pharmaceutical Colleges (with Faculty of each), National, State and County Medical Societies, with officers, time and place of meeting, Hospitals (with attending Staff), Asylums, Dispensaries, Homes and other Charitable, Benevolent and Humane Organizations. August, 1894. Eighth Edition. For sale by E. H. Colegrove & Co. Price \$2.50.

The annual edition of this well known directory lies upon our table. The present volume follows the well known lines of its predecessor, and is indispensable to all consultants, and those who wish to keep posted in the whereabouts of the medical men of Cook County.

Transactions of the Medical Association of the State of Alabama (the State Board of Health), held at Birmingham, April 17-20, 1894. Cl., pp. 418. Montgomery: The Brown Printing Co. 1894.

The annual reports of this Society are unique, for this Society by law controls the State Board of Medical Examiners and the State Board of Health; the executive officer of the latter body is our well-known fellow member, Dr. Jerome Cochran. The "Message" of the President is a model which it would be well if other Presidents of societies could follow. The annual reports of the senior and junior Vice-Presidents contain much interesting matter; they mention the work of the County Examining Boards.

The reports include: The report of the Board of Censors; The report of the State Board of Medical Examiners; The report of the State Board of Health and supplementary papers. The oration by Dr. W. H. Blake is one worthy of the Society and of the occasion. The current volume of the Alabama Association may well head the list of State Society Transactions by virtue of general superiority of work no less than by virtue of the place of the State in our National Alphabet.

Transactions of the Medical Society of the State of California, Session of 1894. Cl., pp. 337.

This is a handsomely printed volume containing the proceedings, papers and addresses of the annual meeting held in San José, April 17, 1894. The papers are excellent and well edited. The address of the President, Dr. Kinyoun, eloquently points out the necessity for organization and shows that of about 2,700 regularly qualified practitioners in California only 360 belong to the State Medical Society. Medical union is the great need of the profession throughout the United States, not less than in California.

Transactions of the Forty-fourth Annual Meeting of the Illinois State Medical Society, held in Decatur, May 15-17, 1894. Cl., pp. 568. Chicago: P. F. Pettibone & Co. 1894.

The frontispiece to this volume is a steel engraving of the late Charles Warrington Earle, whose biography is well told by the committee on necrology. There is also an excellent half tone portrait of the late John H. Rauch. The general addresses in this volume, by Prof. Victor C. Vaughan, Prof. Edmund Andrews, and Prof. Wm. E. Quine are above the usual level of annual medical society orations. As they have already been published in full in the JOURNAL our readers are qualified to judge of their exceptional merit. The papers are unusually good and the discussions have been fairly reported. The list of names of gentlemen reading papers includes most of those best known in the State, and many of international reputation. The Society will next year meet at Springfield under the Presidency of Prof. Daniel R. Brower.

Transactions of the Michigan State Medical Society for the Year 1894. Vol. XVIII. Cl., pp. 589. Detroit. 1894.

This portly volume contains rather more than the usual number of papers, and constitutes one of the best hitherto issued.

The President, Dr. Boise, in his address recommended that every local society should be a part of the State Society, and that every member of the local and State Societies become a member of the AMERICAN MEDICAL ASSOCIATION, by the title of FELLOW OF THE AMERICAN MEDICAL ASSOCIATION.

The paper by Dr. Victor C. Vaughan on Nuclein and Nuclein Therapy, is the same as that read by him at the meeting of the Illinois State Medical Society and published in this JOURNAL, June 2, 1894.

The discussion on Tuberculosis by Drs. Shurly, Gibbs, Vaughan and Baker was an interesting one, and we might well say that the discussions on papers in the transactions of our various societies, are frequently of more practical value than the papers which call them forth. The Secretary, Dr. Hitchcock, should be complimented on the promptness with which the volume was issued and the careful manner in which it is edited.

Transactions of the Forty-ninth Annual Meeting of the Ohio State Medical Society, held at Zanesville, 1894. Cl., pp. 488. Toledo. 1894.

The volume has for its frontispiece a portrait of the President, Dr. N. P. Dandridge. The annual address of its President is mostly occupied with a discussion of the professional need for more perfect organization, the duty of support of the State Board of Health, and the necessity for preliminary training in biology, chemistry and physics. Prof. Kellicott, of the State University, has a paper on the method of study recommended in that institution, as a course preparatory to the study of medicine.

There are many interesting papers in the volume by well-known authors.

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SATURDAY, SEPTEMBER 8, 1894.

THE FOREST FIRES.

This week is one that will long be remembered in Northern Wisconsin, Northeastern Minnesota and Northwestern Michigan. This region, bordering upon Lake Superior, comprises about all there is left within the United States of the magnificent pine forests of the country of the great lakes. There had been a long drouth; the dead leaves, always thick in a pine forest, became thoroughly dry, the small pools had evaporated under a hot sun, and many of the marshes had become dry as dust. In such conditions, an accidental spark from a passing locomotive engine; ashes blowing from the camp fire of a hunter, or from the pipe of a careless woodsman, was all that was necessary to start the forest fire. A strong breeze fanned the flames into fury; houses, trees and bridges were wrapped in fire and smoke, and every living thing was in danger. More than six hundred square miles of pine land have been burned over, a dozen villages destroyed and many lives lost.

It is not probable that the mortality will ever be accurately stated, as the victims in many instances were living in the forest far removed from human assistance. The relief committee which has been formed at Pine City, Minn., has authorized the statement that at least four hundred and fifty persons have been burned to death, or died asphyxiated, and that twelve hundred persons have escaped only to be absolutely penniless and homeless. Many bodies have been recovered from wells and cisterns, where the unfortunate wretches had fled for safety when the flames rushed upon them. Fifteen dead bodies were found in a well, in the ruins of the village of Sandstone. Hundreds are suffering from severe burns.

So widespread and distressing a calamity could not fail to excite the utmost sympathy, and hospitals have been hastily organized and carloads of provisions are on the way. Our own profession, as usual, have been foremost in deeds of mercy, and Drs.

LEWIS, NORTON, PERKINS and ALLEN, who are in the midst of the scene of suffering, have done and are doing full credit to the noblest instincts of our profession, which in times of distress discusses nothing but the best and most speedy means of relief to suffering humanity.

AN HITHERTO UNDESCRIBED FAMILY FORM OF
MOTOR NERVE TROUBLE DUE TO COLD.

DR. EZRA CLARK RICH, of Ogden City, Utah, *Medical News*, August 25, describes a unique and hitherto unnoticed form of motor trouble that adds to the rapidly growing list of family forms of nervous trouble.

DR. RICH designates the condition as one of paralysis, and if we apply the criterion of loss of voluntary motion alone we must regard the term as correct; at least the limbs are immovable. Now this may arise from a condition of hyperkinesis; the movement of a limb depends quite as much upon the ability of the person to relax the opposing muscles as in contracting those necessary to effect the movement. In catalepsy, katatonia and allied conditions there is no paralysis in the strict sense of the term, yet the affected person is in whole or in part unable to make voluntary muscular movements. In the affection described by DR. RICH we may have an allied condition. It would have been exceedingly interesting if the writer could have given us a study of the electric nerve and muscle reactions while the patients were in this state.

The affected persons number twenty-two, all in one family, embracing five generations. The disease never skips one generation to appear in the next, but when a child does not inherit the affection it is ended so far as its offspring are concerned.

The affection is alike in all the affected members of the family. When brought in contact with a cold damp atmosphere the muscles most exposed soon become fixed and immovable. The muscles of the face are most frequently affected, and in that case the expression becomes fixed, one side of the face may be drawn up and the other straight, and the suddenness of the disorder is indicated by the fact that the features may be fixed in the act of crying, laughing or whistling. Next in frequency the arms are affected, the muscles of the hands and forearms, owing to their exposed position being first attacked. The muscles are always attacked in groups; thus one thigh may be affected and the legs escape, or this may be reversed. One finger, arm or hand may be affected and the remainder of the body be normal. The tongue is easily affected by taking snow or ice in the mouth; when any of it is swallowed the function of deglutition is abolished for a time.

A severe attack is related as having occurred in the person of a young woman, who after dancing

and becoming fatigued had gone to bed in a cold room without removing her under clothing. She was soon helpless and could not move any part of her body except her tongue. The intellect remained clear and conversation could be carried on as well as at other times excepting that the lips could not be moved.

The sensation in affected parts is not altered, though the patients complain of a "drawing feeling" in the limb. Recovery is always complete and there is no pain either during the period of fixation of the muscles or afterward.

It is not every exposure to cold that brings on an attack, but fatigue, cold and dampness combined. Therefore the affection frequently occurs during the summer months. Muscles that are comparatively at rest are affected more frequently than those which are actively exercised. Walking on a cold day and sitting down to rest would be certain to bring on an attack and would be almost suicidal in one of these patients if assistance were not at hand.

Regarding the pathology of the affection little is to be said. DR. RICH suggests that it may be an obscure vasomotor change in the muscles. The fact that it is a family disease stamps it as one of those rare and peculiar affections on which the present knowledge of the pathology and physiology of the nervous system throws no light.

THE NATURE OF INFECTION AND IMMUNITY IN CHOLERA.

The continued presence of cholera in Europe has been the occasion of many new researches on the biology of the cholera bacillus and its mode of action in the animal body. Foremost among these are several publications from KOCH's laboratory by R. PFEIFFER, in conjunction with WASSERMAN, ISSAEFF and KOLLE (in recent numbers of the *Zeitschrift f. Hygiene*). Their experiments were made mostly with injection of cholera bacilli into the peritoneal cavity of guinea-pigs. While the mode of infection, so different from the natural way of entrance of the germs in man, has no direct bearing upon the etiology of human cholera, it has led to important knowledge concerning the struggle between the bacilli and the animal system.

Older cultures long kept in the laboratory lose their virulence gradually. Recent (solid) cultures, however, made from the discharges in cholera were found fatal to small guinea-pigs if injected in the quantity of about one-sixth of a milligram. The measure used in the laboratory was the quantity adhering to a platinum wire loop—by weight two milligrams, which dose was suspended in broth and subdivided. The injection in fresh animals causes no visible symptoms for the first four hours, except slight rise of temperature. After this time the temperature sinks

many degrees and excessive prostration leads to death within twenty-four hours or less. The effects of the bacilli are produced by a poison contained within their bodies which is not soluble in the culture fluids. This toxin of cholera bacilli is very easily altered by almost any mode of killing the germs, except by means of chloroform vapor. If altered by any destructive influence a comparatively stable but less poisonous body is formed.

Of the toxin of bacilli killed by chloroform, about thirty to forty times as large a dose is requisite in order to kill the animal, than when the living bacilli are used. This is due to the fact that the living germs *multiply* in the peritoneal cavity for some four hours, after which time only the peritoneal fluid begins to destroy them. Accordingly there are scarcely any effects produced during the first hours after inoculation with live germs, while if the larger quantity of dead bacilli is injected the symptoms of poisoning begin at once. If the culture is injected into the blood vessels, instead of into the peritoneal cavity, the dissolution of the bacillary cells begins immediately, the germs can not multiply, but the poison is set free and hence in this case there is no period of incubation and the required dose is the same, whether the bacilli be injected alive or after they are killed by chloroform.

When an animal recovers from inoculation with an insufficient quantity of germs or from poisoning with a non-fatal dose of the cholera-toxin it is found less susceptible to subsequent inoculations. By repeating the infections with increasing doses of living germs every three to four days about six or seven times, a degree of immunity can be established which permits the animal to resist a quantity of live germs forty times larger than the minimal fatal dose. Beyond this limit, however, the immunity can not be increased.

Unlike the state of affairs as it exists in diphtheria and tetanus, the animal which has been made refractory against the live cholera bacilli is not proof against their toxin. The inoculated bacilli can not multiply in the immune body, but their toxin results in poisoning proportionate to the dose employed. Hence although the immune animal will not die from thirty or forty times the fatal dose, it is severely poisoned thereby.

It had been previously learned by other observers that within a few days after recovery from cholera infection the blood serum acquires protective powers. When it is mixed with a fatal dose of living bacilli and this mixture is injected into the peritoneal cavity of a fresh animal this animal will escape death, but like other immune animals it shows the symptoms of poisoning. The serum therefore while possessing protective properties is not *anti-toxic* in the proper sense of the word, and even in large quantity can not

protect against infection with more living bacilli than correspond to the fatal dose of toxin. On the other hand, PFEIFFER found that within the limits described, the serum of highly immune animals is really protective in remarkably small quantities—even three milligrams serum being sufficient to avert death.

It has been asserted by KLEIN and repeated by HUEPPE and SOBERNHEIM, that other bacteria injected into the peritoneal cavity produce the same symptoms and results as the cholera bacilli, and that if an animal recovers from such a (mild) infection it is now proof against cholera infection. They conclude, therefore, that there is nothing specific in either the intra-peritoneal cholera infection nor in the subsequent immunity.

While PFEIFFER confirms it as a fact that intraperitoneal injections of typhoid bacilli, colon bacteria and various vibrios resemble clinically and pathologically the infection by cholera bacilli, he still asserts that the latter is a specific process due to a poison, perhaps comparable, but not identical with the toxin of any other bacterial species. In making this plea he first contends that while it is true that recovery from intra-peritoneal inoculation with some other bacteria protects to some extent against cholera infection, there is still a radical difference between the transient protection and the real immunity against cholera. Intra-peritoneal inoculation with these different bacteria, as well as with cholera bacilli produces a suppurative peritonitis, or at least an intra-peritoneal exudate rich in leucocytes. PFEIFFER, however, shows that any disturbance which causes an exudation of leucocytes, such as the injection of urine, normal blood serum, nuclein solution or even large quantities of $\frac{2}{3}$ per cent. salt water gives a temporary increased resistance against subsequent cholera infection. But this condition lasts only up to ten or at the most fifteen days, while the immunity after recovery from the specific infection exists still after the lapse of three or four months.

Furthermore, the protection following any such non-specific peritonitis can not be carried to the same degree quantitatively as the immunity after specific infection.

In another even more conclusive manner, PFEIFFER showed that recovery from cholera poisoning is followed by a specific immunity not obtainable by intra-peritoneal infection with any other germs. If after complete recovery the serum of the now immune animal be tested as to its protective effects it will be found that the serum, when used in suitably small doses can protect other animals *only* against that variety of bacteria, with which the first animal had been inoculated. In other words, the protective effect of the serum is strictly specific. Indeed PFEIFFER claims that the specific protection afforded

by the injection of such serum against a simultaneous inoculation with living germs is a most delicate test as to whether these germs are identical with the variety used for inoculating the animal which furnished the serum. By this method he has been able to distinguish between true cholera bacilli and other vibrios which resembled them to a confusing extent, both in culture-appearances and in their action upon animals.

One of the most interesting points in PFEIFFER'S researches is the explanation of the recovery and immunity. Aspirations from the peritoneal cavity with a fine pipette showed that the cholera bacilli multiply apparently unhampered for some four hours in animals not previously infected. At the end of this time the bacilli begin to disintegrate, breaking up into small globules and ultimately disappearing. If the dose has not been too large the peritoneal cavity may become entirely sterile one or two hours later, even though the absorbed toxin finally kills the animal. In immune animals, however, the disintegration of the bacilli begins at once after the injection. Likewise whenever there is partial protection by reason of a suppurative peritonitis from other causes, or when protective serum is injected with the living bacilli they are seen to break up within a few minutes. All these instances are accompanied by intense emigration of leucocytes.

At first sight, these observations seem to be a strong support for METCHNIKOFF'S phagocyte theory, and indeed this observer has previously held up experimental cholera infection as a confirmation of the importance of phagocytes.

PFEIFFER, however, considers the rôle of the leucocytes as a secondary one, and bases his position on the important point that in the immune peritoneal cavity the disintegration of the bacilli begins and proceeds very far before the migration of wandering cells has fairly set in. Within the first ten minutes after the injection the peritoneal fluid contains scarcely any cells and still the majority of the introduced germs are broken up within this time in the immune animal. He hence reaches the apparently inevitable conclusion that in the immune animal the peritoneal tissue secretes a substance destructive to the bacilli. This substance is not a common bactericide body but exerts a specific effect on one variety of bacteria only and not on others. For when PFEIFFER injected into a guinea-pig immunized against cholera a mixture of cholera bacilla and other vibrio only the cholera bacilli were at once broken up, the other surviving, while conversely when an animal had been made refractory against another vibrio, it was only this variety which succumbed while the cholera bacilli continued to multiply. The specific bactericide is formed by the peritoneum itself, its secretion continuing for some 20 minutes after the circulation

has ceased. It does not exist in the body pre-formed, but is secreted only in the presence of the specific bacilli and is evidently used up as the bacilli are being destroyed. Still when the peritoneal fluid of an immune animal is aspirated just at the end of the time when the introduced bacilli have been disintegrated it can be seen under the microscope that this fluid will break up cholera bacilli, but is without influence on other bacteria.

PFEIFFER hence refers the recovery from cholera infection and the subsequent immunity to the property which the tissues acquire by virtue of their struggle with cholera bacilli, viz., of secreting a substance specifically destructive to these germs. The same property is given to the tissues temporarily by the injection of serum from another immune animal.

ARGUMENTUM AD HOMINEM.

Dear reader, have you done your whole duty by the JOURNAL and the ASSOCIATION? If each member will influence *one* physician to become a member or subscriber, the JOURNAL would go at once to the front. It is already great, if we refer to the achievements of the past year, but the whole profession would be prouder of it, if it so far led all the rest as to make rivalry out of the question. Let us all help.

AN OPPORTUNITY FOR MEDICAL STUDENTS.

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CORRESPONDENCE.

"Inebriety."

ORAN, SCOTT CO., Mo., September, 1894.

To the Editor:—Dr. Crothers' articles in the August 18 and 25 numbers of the JOURNAL suggest the following thoughts: *Old* theories (or facts) are not necessarily false. Because whisky drinking (to excess) has long been considered a vice, time alone would not make this idea false one. Truth does not lose value by age. If drunkenness was ever a vice it is evidently one to-day. The preponderance of evidence is still in favor of the *old idea*. A few leading physicians believe that drunkenness is a disease. The only cause of this error is the mistake often made of taking the *effect* for the *cause*. Excessive drinking is a *cause* of disease, not a *disease per se*. Let us theorize a little. I have a patient who is drunk for the first time. I am trying to make a diagnosis. The man is unconscious, limber and has all the symptoms of being drunk. I say he is drunk. What caused it? Too much liquor. Is he diseased? No. I have another patient who is under the influence of ether administered by me. He, too, is drunk. Is he diseased? No; merely under the influence of an anesthetic. Neither patient is harmed unless the dose is too large or kept up too long. No one would think of calling these cases diseased because there is no harm done either of them by this first dose of alcohol or ether. But suppose we keep up the dosing (the cause) of

trouble. Soon we have disease. The ether patient develops pneumonia or nephritis, the other patient any one of the many troubles caused by the excessive use of alcohol. Next we find a toper who has been drunk off and on for a number of years. Examining him closely we find a diseased liver or kidney or both, but he is sober now, his reasoning faculties are good. He has as perfect a horror of crime as any one. He has no use for a drunken man, will not associate with one. You inquire farther into his condition. Ask him if has any desire for drink. Oh, yes; his appetite is good for whisky, cider and watermelon. (I live in the melon country.) He takes the two last mentioned but no whisky. Why? Because he knows it will cause him trouble. Now the question arises: Is this man insane or not? He has drunk whisky until his liver and kidneys are diseased, but he is not insane any more than the man who has liver and kidney disease from other causes. His brain has undergone the influence of many doses of alcohol but yet has not lost its functions. Judging by his acts you can see no evidence of insanity. He behaves like a sane man and does business like a sane man. Everybody, *physicians* and all, say that he is a reliable, straightforward, upright, truthful gentleman. Then how can Dr. Crothers say this is a mistake; that this man is really crazy, and if he in anger commits crime he ought not to be punished for it the same as some other man who has never been drunk?

Now we will go a little farther. Suppose this man knows that whisky will make him drunk and crazy while under its influence, and then voluntarily gets drunk and commits crime, get sober again and being questioned replies, Yes, I knew that whisky would craze me but I did not care. I wanted to get on a drunk and have a big time, but while I was drunk I struck my neighbor who insulted me. I would not have done so if I had been sober, but when I am drunk I am quarrelsome. Is this man innocent or guilty? Is he not guilty of two crimes: One was getting drunk, the other fighting. The law, experience, common sense and reason say, Yes; but Dr. Crothers and a few others say, Oh no; this is not a bad man, he is insane; he ought to be sent to the hospital and cured instead of being punished. Give him *pure air*, good food, nice tonics and cheerful surroundings and after a while his mind will be restored and he will not commit crime. This last theory is founded upon a false premise and will never be adopted. The results of such a theory are too apparent for the law-makers ever to adopt it. The hospital is the place for sick people, but the criminal deserves punishment. If not, all theories of right government heretofore are false and there is no sense in any of it. Kindness is due to the innocent and ignorant, punishment is due the vicious and criminal. These facts are so old and so true that all former laws are based upon them. The new order will be: Hospitals for the vicious, pleasant things for the wife-beater, food for the street-loafer, a new constitution dictated by the modern physicians who have discovered that *vice* and *insanity* are one and the *same thing*.

Now a few words in regard to the "poisoned air" theory. This is "*airy*," sure enough. Did Dr. Crothers ever visit the blue grass region of Kentucky where the air is as pure as the whisky, and where the "Kentucky Colonel" shoots his opponent just to see him fall? *Pure air*. It will not keep a man from getting drunk, neither will poisoned air make him drink. The air has a good deal to do with health, but cuts a small figure in *habit*. Men get drunk in all kinds of air. The correct solution of men sobering up who leave town is in the fact that they leave the *whisky* and *evil associates* behind. Let a man take his *bottle* and his *chums* to the mountains with him, and they will drink as long as the whisky holds out. It is no trouble to explain something that is so, but when men undertake to explain something

that is not so, they deal in *big words* and befog themselves and some of their hearers. Better let the law alone, gentlemen, and attend to sick people. The drunkard is not being imposed upon but is an imposition himself. Let your sympathy run out after those who deserve it.

Very respectfully, W. P. HOWLE, M.D.

SOCIETY NEWS.

American Public Health Association.—RAILROAD RATES AND OTHER ITEMS OF INTEREST.—The twenty-second annual meeting of this Association will convene in Association Hall, Y. M. C. A. Building, Dominion Square, Montreal, Canada, Tuesday, September 25, at 9 A.M., and continue four days. The following topics have been selected for consideration:

1. The pollution of water supplies.
2. The disposal of garbage and refuse.
3. Animal diseases and animal food.
4. The nomenclature of diseases and forms of statistics.
5. Protective inoculations in infectious diseases.
6. National health legislation.
7. The cause and prevention of diphtheria.
8. Causes and prevention of infant mortality.
9. The restriction and prevention of tuberculosis.
10. Car sanitation.
11. The prevention of the spread of yellow fever.

Special committees have been appointed to discuss these subjects. The Executive Committee have announced the following additional subjects, upon which papers are invited:

12. On the education of the young in principles of hygiene.
13. Private destruction of household garbage and refuse.
14. Disinfection of dwellings after infectious diseases.
15. Inspection of school children with reference to the eyesight.

Papers will be received on miscellaneous, sanitary and hygienic subjects, but preference will be given to the topics announced above.

The headquarters of the Executive Committee will be at the Hotel Windsor, immediately opposite the place of meeting. Railroad rates will be a fare and one-third. Tickets issued on the certificate plan, and include practically all the railroads of the country east of a line running north and south through Chicago, Ill. Western visitors will please note that the Western Passenger Association up to present date has declined to grant reduced rates. Delegates and members and their families residing at points west, northwest and southwest of Chicago who contemplate attending the meeting should purchase tickets to Chicago (providing they go that way), then procure through tickets from that city to Montreal, taking a receipt from the ticket agent for the amount paid.

Dr. Liston H. Montgomery, of Chicago, has sent to the editor of the JOURNAL a complete description of a proposed attractive itinerary that has been tendered to himself and others. The route going from Chicago is the Wabash railroad to Detroit, thence via the Canadian Pacific line through to the city of Montreal without change of cars. Starting from Chicago on Sunday afternoon September 23, at 3 o'clock, in a vestibule train, consisting of Wagner sleeping and parlor cars, as well as those operated by the Canadian Pacific railway system, this train will arrive at Detroit at 11:20 o'clock Sunday evening; Toronto, Monday morning at 8 o'clock, and Montreal at 7:55 o'clock Monday evening the 24th inst., passing through a number of important cities and beautiful country that comprises the "Garden of Ontario."

Stopover privileges will be granted to those desiring it, to remain in Toronto one day either going to, or returning from the meeting. Several attractions will be afforded the visitors while at Montreal. Notably that provided by the local Committee of Arrangements for a grand excursion to Grosse Isle. This excursion alone embraces a tour upwards

of 400 miles that will be provided (gratis) to all members in attendance at the meetings and their ladies, down the St. Lawrence, and includes the privilege of a stopover at quaint old Quebec. Arrangements for other detour trips are in progress, notably to Ottawa, the capital city of the Dominion, about one hundred and fifty miles from Montreal.

Returning, members can avail themselves of the privilege of visiting the city of Detroit for a day.

The round trip railroad fare from Chicago to Montreal for this occasion is \$24. Tickets are good going as early as Friday, September 21, and valid, leaving Montreal not later than Friday evening, October 2.

The meetings of the Association are open to the public. All persons of whatever profession or occupation interested in hygienic and sanitary matters are cordially invited to be present. The Secretary of the Association, Dr. Irving A. Watson, has announced in his circular:

"The indications are that a large number of the membership and their friends from the United States and Canada will attend, including a number quite remote, from our sister republic of Mexico, as the proceedings and discussions will officially embrace the French and Spanish languages in addition to English. That ladies are especially invited to be present and participate at the evening meetings, and all persons of whatever profession interested in the work of the Association will be made welcome."

We trust that a representative number from the Western States will find it convenient to attend the forthcoming meeting of the American Public Health Association. The good people and profession of the Dominion are enthusiastic over the meeting and will be prepared to extend a hospitable welcome to all who favor them with their presence.

The Medical Society of the Missouri Valley will hold its seventh annual session at Council Bluffs, Iowa, Thursday, Sept. 20, 1894. The following papers are promised:

A Plea for Patience in Obstetric Practice. F. Damour M. D., Bolckow, Mo.

Early or Preventive Treatment of Diphtheria. J. H. Talbot, M. D., Castana, Iowa.

Chronic Articular Osteitis of Hip, Analysis of 208 cases. W. Ross Martin, M. D., Omaha, Neb.

Report of an Interesting Case. W. O. Henry, M.D., Omaha, Neb.

Erosions and Lacerations of Cervix Uteri. Geo. H. Simmons, M.D., Lincoln, Neb.

A Case of Spurious Pregnancy. Adda Bowman, M.D., Reynolds, Neb.

Amaurosis, from Abscess of Frontal Sinus. Flavel B. Tiffany, M.D., Kansas City, Mo.

Two Interesting Cases which underwent Celiotomy. Donald Macrae, M.D., Council Bluffs, Iowa.

Absorbable Sutures. J. P. Lord, M.D., Omaha, Neb.

Sarcoma of Eye—Traumatic Origin. D. C. Bryant, M. D., Omaha, Neb.

The Treatment of Typhoid Fever. W. F. Milroy, M.D., Omaha, Neb.

Mental Deficiency in Children. George Mogridge, M.D., Glenwood, Iowa.

The Proper Management of Cases of Miscarriage. Mary Strong, M.D., Omaha, Neb.

Anal Fistula. J. C. Robertson, M.D., Council Bluffs, Iowa.

Two Cases of Intestinal Surgery in which the "Murphy Button" was Used. J. E. Summers, Jr., M.D., Omaha, Neb.

The Medico-Legal Aspect of Paranoia. J. Puntun, M.D., Kansas City, Mo.

Ovariectomy, with Dermoid Cyst. W. S. Ross, M.D., Omaha, Neb.

The Morbid and Curative Influence of Mental and Moral Emotions. W. H. Kerr, M.D., Fall City, Neb.

Muscular Asthenopia. C. M. Hobby, M.D., Iowa City, Iowa.

"Anthrax" or Malignant Pustule. W. Jepson, M.D., Sioux City, Iowa.

The Beginnings of Disease. A. B. Somers, M. D., Omaha, Neb.

Hyperemesis Gravidarum. B. F. Crummer, M.D., Omaha, Neb.

Operative Treatment for Vascular Naevus. A. F. Jonas, M.D., Omaha, Neb.

A Case of Quadriseptorial Hemianopia. M. F. Weymann, M.D., St. Joseph, Mo.

Total Hysterectomy without Ligation of Uterine Arteries. J. E. Summers, Jr., M.D., Omaha, Neb.

National Association of Railway Surgeons.—The Executive Committee of the National Association of Railway Surgeons met September 4 to make arrangements for the 1895 annual meeting of the Association, which will be in Chicago. The members of the committee are:

Dr. J. M. Dinuen of Fort Wayne, Ind., Secretary of the Association; Drs. W. B. Outten, St. Louis; S. S. Thorn, Toledo; R. Harvey Reed, Toledo; J. H. Ford, Wabash, Ind.; J. B. Murphy, Chicago; Alex Mullen, Jr., Michigan City; H. N. Warehouse, Danville, Ind.; B. Emmett Welsh, Grand Rapids, Mich.; E. R. Lewis, Kansas City, and Dr. Bouffleur of Chicago.

The Tri-State Medical Society (Illinois, Iowa and Missouri) meets in Jacksonville, Ill., Oct. 2 and 3, 1894. A large and interesting meeting is promised. Leading members of the profession of Chicago, St. Louis, Indianapolis, Kansas City and elsewhere have signified their intention of being present.

PUBLIC HEALTH.

Typhoid Renewal of Vaccinal Susceptibility.—Dr. William Finder communicates to the *Medical Standard* the results of his observations on typhoid fever patients with reference to vaccination. He finds that after recovery the susceptibility to the vaccine is markedly renewed. He has verified his observations many times during a number of years and suggests that others should test his conclusions. So satisfied is he with the correctness of his observations that he always re-vaccinates his typhoid patients on recovery.

Typhoid Fever at Elizabeth, New Jersey.—During the past month, this city has suffered from a re-awakening of typhoid fever; there having been sixty-two cases with five deaths. There are several now under treatment in hospital. The disease is alleged to have taken its start in a row of houses, whose back yards run to the margin of the Elizabeth River. This is porous "made-ground," and is permeated by the filthy sewage of a large portion of the city, for when the tide ebbs some of the bed of the stream is exposed to view, with repulsive sediment and giving off foul odors. The wells in this vicinity are supposed to be contaminated by the imbibition through the loose soil of typhoid germs from the noisome river bed. The inspectors have reported in favor of cleansing the river bed, at an expense of \$7,000. The Board of Health has ordered the closure of some of the wells, until cold weather sets in.

School Children and Vaccination.—On the 28th ult., Judge Bartlett of the Brooklyn Supreme Court, handed down a decision regarding the application for mandamuses in two actions, brought through the Anti-Vaccination League to compel school principals to admit pupils who refuse to be vaccinated. In denying the application Judge Bartlett said:

"The avowed purpose of the application is to test the constitutionality of Section 200 of the Public Health law of this State, which provides that no child nor person not vaccinated shall be admitted or received into any of the public schools of the State, and commands the trustees or other officers having the charge, management or control of such schools to cause this prohibition to be enforced. Upon the oral argument I expressed the opinion that this enactment was a valid exercise of the police power of the Legislature, and that view has only been confirmed by an examination of the authorities cited in the briefs of counsel. A common school education, under the existing Constitution of the State of New York, is a privilege rather than a right. It is created by legislation, and subject to legislative regulation. . . . It follows that the State can certainly exercise this discretion by debarring from attendance at the public schools such persons as are unwilling to adopt a precaution which, in the judgment of the Legislature, is essential to the preservation of the health of the large body of scholars."

Milwaukee's Unfortunate Notoriety.—Under the heading 'Anarchists, Anti-Vaccinators and Anti-Pasteurists,' the *British Medical Journal* (August 25), editorially comments upon the foregathering of these three classes of obstructives, as exhibited in an assembly of anarchists at a "friendly evening" at the house of the President of the Anti-Vivisection League in Paris, and in an outdoor gathering including a quaint collection of "Anti's" generally, to protest against the British Institute of Preventive Medicine. At this latter function a letter was read from Mr. G. W. Russell, a member of the English Ministry and—we have the *Journal's* word for it—"a man of culture," in which he announced that he detested Pasteurism—and, of course, also Listerism. Whereupon the *Journal* asks: "Why not add that he has a contempt for the equator and grave doubts about gravitation? To be logical, Mr. Russell should add the inevitable converse of his proposition, and declare that he loves smallpox, is much attached to hydrophobia, and adores blood-poisoning and high hospital mortality."

The article is here referred to as a striking illustration of the natural affinity certain classes of mischief-makers and destructives have for each other—not at all as affording any consolation, on the *tu quoque* basis of retort, for the disgraceful condition of affairs in Milwaukee. There is a common bond between the "Anti's." Scratch an opponent of vivisection and you will find an anti-vaccinist; and under the anti-vaccinist's skin will frequently be found an anarchist. To pose as "against all science," and to be "agin the government," whatever it may be, are correlative attitudes and, in their essence, are anarchism, pure and simple.

So far as its public health interests are concerned the city of Milwaukee has, for some time, been in the hands of the anarchists. Law is defied, its officers have been assaulted, excited mobs have been harangued in the most incendiary language to "resist to the death" the enforcement of vaccination and the removal of smallpox patients to the isolation hospital; and bloody riots and scenes of the most disgraceful violence have been the result. The State Board of Health and the State Executive have been appealed to, to take charge of affairs, to restore order and to enforce the laws.

And all this in the closing days of the nineteenth century and in a city of magnitude in the United States of America!

In the end there will be a return of sanity in the conduct of affairs in Milwaukee; the Health Department will be sustained and the supremacy of the law vindicated. But, meanwhile, although the State Board of Health, after a patient and searching investigation, finds that the Health Commissioner, Dr. Kempster, "has been faithfully, honestly and ably endeavoring to use all necessary precautions and to enforce needed sanitary regulations;" that it completely exonerates him from the trumped-up charges of incompetency, and finds the cause of the troubles that have arisen in "a most unfortunate lack of harmony between the Health Department and certain officials and other citizens"—whom it refrains from specifying; that it declares that there has been "unreasonable opposition and hostility to the efforts of the Health Commissioner," and that it pronounces, after special investigation, the condition of the isolation hospital excellent and commends "the methods of treatment there used and the care given the patients"—notwithstanding all this the state of anarchy at this writing still continues.

Milwaukee has suffered from labor riots that required the most heroic treatment to suppress; from a series of destructive fires; from several more or less questionable bank failures; from the smallpox itself. But none of these, nor all combined, could give it its present unfortunate notoriety.

Cholera Prospects.—If "no news is good news" as regards cholera, then this country is to be congratulated on the dearth of intelligence during the past week concerning the progress of the present epidemic. Except for a short-lived sensation over the disposal of a scow-load of sand—part of the ballast of the ship *Allers*, which arrived recently in New York harbor from Antwerp, described in the newspapers as

"a cholera-infested European port"—there has been nothing to give the *quid nuncs* any occasion for gossip. The scow was towed out to sea, the sand dumped into the Atlantic, and there an end on't.

But while we may congratulate ourselves upon this uninterrupted progress toward the end of the period of watchfulness and anxiety, the situation in Europe is, unquestionably, serious. At the beginning of July Asiatic cholera had prevailed in epidemic form in twenty-five districts in Russia, five in Austria-Hungary and three in German Poland; it had appeared sporadically in the departments of Morbihan and Finisterre in France, in two provinces of Belgium, Liège and Limbourg, and in European Turkey. Up to the close of August fifteen more districts of Russia and all the western part of the Empire, including St. Petersburg and Cronstadt, had been invaded; the disease had ravaged the basins of the Zbrucz and the Vistula in Austria-Hungary and Germany—those rivers having evidently become polluted; in the Low Countries the Meuse and the Sambre had become highways of infection, the disease appearing at many places on their banks and at their estuaries; while numerous scattered cases had occurred in various parts of France, as at Marseilles, where true cholera undoubtedly exists, and exclusive of the so-called "cholérine" in Paris and in the departments of the Meuse, Muerthe-et-Moselle, Vaucluse and Seine-et-Oise; imported cases, mainly from Russia, had appeared in Berlin, Bremen, Fejan (Sweden) and in London.

Since the last of August there have been further developments of the disease in the Low Countries, one case reported on the 2d inst., at Nieuport in West Flanders, one case at Spykenisse and one death at Boksmeer. On the 1st inst., it was reported that "cholera of a virulent type" is raging in Russian Poland. The medical authorities are said to be unable to cope with the disease owing to the fact that the inhabitants conceal their sick and treat them in their own way. The chief centers of the disease are Pinczow, Michow, Stopnica and Dzialeszyce, where the inhabitants are camping in the woods. And there is no abatement of the epidemic in Galicia where, during the first three days of the month there were reported 623 new cases and 313 deaths; during the same period there were 46 new cases and 25 deaths in Bukowina.

The English authorities do not attempt to conceal the gravity of the situation, but regard with concern the next four weeks, knowing that the westward march of the disease, when it prevails to its present extent, has usually brought it to their shores toward the termination of the summer months, thus making its seasonal incidence in the period between the middle of August and the middle of September. For this reason, among others, the utmost vigilance is maintained; medical inspectors are ready at a moment's notice to investigate suspicious cases, and it is reported that cases not to be distinguished from true cholera have been thus discovered—some of them in London itself—within the past few weeks. It is added that "the most rigid sanitary measures have been adopted in each case, and as yet, happily, there has been no extension."

It is obvious that in these precautions lies a great measure of safety for this country, but not sufficient to justify any relaxation of vigilance upon the part of our maritime sanitary authorities. It is recalled that two years ago this month, cholera actually invaded New York from Hamburg, and that there was an outbreak of the disease with a number of deaths in the city itself. It is also recalled that it was in September one year ago that the disease "got a foothold in England and prevailed most widely and with deadliest effect throughout Europe." If it be true, as suggested in the *JOURNAL* last week, that the cholera germ has become domesticated in Europe, and thence that the danger of cholera importation to this country has become permanent and continuous, our precautions must be permanent and continuous, and more especially must they not be relaxed during this period of seasonal incidence.

MISCELLANY.

Dr. O. W. Holmes.—Dr. Oliver Wendell Holmes was 85 years old August 29, and celebrated that event in his summer home in Beverly Farms.

For Congressional Honors.—The following doctors have been nominated for Congress: Dr. L. F. Weaver, of Niles, Mich., Dr. Bernard Groeser, of Le Mars, Iowa, and Dr. J. A. Hatch of Kentland, Ind.

Immoral Massage.—Possibly moved thereto by the unwelcome notoriety given to its "massage parlors" the city of Chicago has begun what the newspapers call "a crusade" against these dens of vice. An investigation has been commenced by the police and the licenses of nine of the most notorious have already been recommended for revocation. They are characterized in the report of the investigation as "little if any better than the lowest 'dives' in the city." The term "massage" had come to be so closely identified with the practices of these "parlors" that physicians were growing shy of recommending the treatment.

Reproduction of the Bacteria.—In a rather ill-natured report of the proceedings of the recent meeting of the British Health Institute, published in the *Sanitary Record*, August 4, there occurs this passage:

"The close of the day was devoted by some to seeing what was to be seen at the Covent Garden Theater—not Drury Lane, as originally announced. But previously there was a lecture in the Great Hall of King's College, on "Microbes and the Spread of Disease," by Prof. E. M. Crookshank, who among other minute but too pregnant facts, informed his audience that a single bacterium stood in about the same relative proportion to a man as did a grain of sand to the highest mountain, a postage-stamp being large enough to hold, spread singly upon it, no less than four hundred thousand bacteria. Though often appearing in questionable form and often in dangerous development, their existence in some form was essential to both vegetable and animal life, though bacteria were extremely lively, too, one (or did the lecturer mean two?) being able to reproduce more than sixteen millions of the same lively kind in twenty-four hours!"

Judging by the query enclosed in parenthesis, this reporter's knowledge of the mode of reproduction of the bacteria is extremely hazy to say the least.

Bellevue Hospital Alumni.—The society of this Hospital has published a circular, dated Aug. 1, 1894, stating an active membership of 200 with other evidences of virile youth. The society has prospered, and an invitation has recently been tendered to all former internes of the institution, wherever they may be located for practice, to join the society, as a means of bringing up the numerical strength and of increasing the contributors to the scientific outgivings of the meetings, the proceedings of which will appear regularly in one of the New York medical weeklies. For the present, no fee for initiation is required; the annual due of resident members is \$10, that of non-resident members is \$3. A general re-union of all the alumni has been canvassed to be held in January or February next, with a subscription dinner. The alumni, widely scattered throughout the country, will be glad to receive timely notice of this rather novel Medical Congress of Internes.

A New Use for Ammonia; a Defense Against Burglary.—A Brooklyn druggist recently succeeded in putting to flight two ugly burglars who endeavored to loot his store, in the dead of the night, by means of copious external applications of aqua ammoniac. The druggist was awakened by a man who had made entrance into his store by forcing the fanlight of the front door. The second thief also came in by the same ingress, while the druggist was considering his best ways and means of defense. A large bottle of ammonia was on

an inside counter, the cork of which he quietly drew, and filling up a large beaker he waited for one of the thieves to approach the prescription department. One of the men sought to break open the money-drawer, but without success. Then the pair of them set to work to rifle the show-cases. They had piled up a lot of valuable goods, when one of the men came quite close to the corner where the druggist stood. The latter, without delay, deluged the head of the man with a beakerful of the ammonia, causing him to fall gasping and unconscious to the floor. The comrade rushed up to see what had happened, when the druggist also gave him a beakerful in the neck. He was staggered, but not so far overcome, but that he was able to rush out and make his escape. The man who received the first invoice of ammonia did not succeed in getting away, and was held for trial.

Not for Mesdames.—In confirmation of the fact, heretofore noted in the JOURNAL,¹ that "the more beautiful women of a most beautiful country do not take kindly to the practice of physic," it is noted that in the enrollment of women attending university lectures, just made in Paris, of 155 on the list of the medical faculty only 16 were of French birth, while of the 164 on the faculty of letters 141 were French; 7 studied under the faculty of science and 3 under that of law. On the other hand, Russia, in response to a growing demand and long-cherished desire, is opening the doors of her universities to women medical students. A medical faculty for women is about to be established in St. Petersburg, a departure which is regarded as a proof that the opposition against the higher education of women in Russia is about to be dropped. The change in policy is said to be due to the influence of Prince Wilkowsky, whose speech at the Chicago Exhibition on the importance of education for the welfare of the State attracted a good deal of attention at the time in America.

A Confusion of Identity.—In its editorial notice of the special report of the State Factory Inspectors on "Smallpox in the Tenement-House Sweat-Shops of Chicago," our usually accurate and well-informed contemporary, the *Boston Medical and Surgical Journal* (August 30) does a serious injustice to the Illinois State Board of Health. In the first paragraph of the editorial it is said that, "The State Board of Health testified that no contractor or housefinisher had ever voluntarily complied either with the State law or with the city ordinances," etc. This testimony was given by the statistician of the City Board of Health, and not by the State Board (see page 7 of Report.) In the next paragraph the State Board is again referred to as receiving the reports of cases of smallpox, which, as communicated to the Factory Inspectors, proved to be "so small a part of those which actually occurred that other sources of information had to be sought for;" and it is added that, "After the middle of June, the State Board of Health declined to give information and is generally censured by the report as inefficient and even culpable." Without entering upon the question of the merits of this report or upon the justice of its strictures, it is due the Illinois State Board of Health that the statement above quoted should be corrected. There is nothing in the report to warrant it; the only reference to the State Board is that upon page 9, where it is stated that its representatives met with the representatives of the State Boards of Michigan, Wisconsin, Ohio and Indiana and the garment manufacturers of Chicago on May 10, and agreed "to institute an efficient daily inspection of all shops and work-rooms." There is no other mention of, or reference to, the State Board, either in the way of censure or commendation, from beginning to end of the report.

The Modern Jenner will Subjugate Leprosy and Cancer.—Dr. Keeley has one friend left, the Rev. Dr. Talmage. The latter having gone on a money making tour to the Sandwich Islands and to the far East, has taken the trouble to write back to one of his weekly papers in fulsome laudation of Keeley. In order to leave no doubt in the minds of his readers that he, Dr. Talmage, is wholly unfit to express an opinion upon any medical subject, the venerable divine goes so far as to try and draw a parallel between the great Jenner and the modern pretender whom he has befriended, and who has perhaps financially befriended the divine. The opening paragraphs are taken up with the consideration of the Molokai Island retreat for Hawaiian lepers, and of the incurable malady affecting about one thousand residents on that island. His aim is to show that leprosy and cancer will meet their conquerors, just as surely as that smallpox was virtually overthrown by the great Jenner. He says:

"But do not let us give up discouraged. Leprosy as well as cancer and all the other unconquered ailments will yet be cured. I do not know where the cradle now holding the coming doctor is being rocked, whether at Molokai, or in Honolulu, or on the banks of the Thames, or the Rhine, or the Tiber, or the Ural, or the Hudson, or the Savannah. Nor do I know from what college he will unroll his diploma, nor in what laboratory he will make his experiments, nor in what decade he will give proclamation of the world's emancipation from diseases as yet incurable, but he will go through the same persecutions that Dr. Jenner did because of his discovery of a way to halt smallpox, and as Dr. Keeley has endured because of his almost supernatural cure of alcoholism, and the new discoverer will run the gauntlet of caricature, and expulsion from medical societies, and will, like the most illustrious Being of all ages, become the target for expectoration, but the discoverer will give leprosy the command, "Thus far shalt thou go, and no farther," and that disease will wriggle and crawl and shrink out of the world, and after the medical emancipator is dead, the nations will build a monument so high to his memory that the granite shaft will dispute with the skies the right of possession, and in the epitaph thereon the clicking chisel will try to atone for the slanderous tongue, and the world that held back from the discoverer the bread of honest praise, will give him a storm of post-mortem commemoration. Forward, the whole column of surgeons and physicians for the conquest of leprosy and cancer.

New Orleans Notes.

DR. R. W. WALMSLEY, of New Orleans, has recently been appointed a member of the Louisiana State Board of Health, succeeding Mr. King.

THE LATE DR. ALBERT B. MILES, House Surgeon of the Charity Hospital of New Orleans, left \$10,000 each to the following institutions: Medical Department Tulane University of Louisiana; Charity Hospital of New Orleans; and the Hotel Dieu, also of New Orleans.

St. Louis Notes.

THE BEAUMONT MEDICAL College has found it expedient to lower its fees.

THE MISSOURI MEDICAL COLLEGE is making good progress with its fine new college structure on Jefferson Avenue near Washington Avenue. The building is of sandstone and brick, and its front already presents an imposing and attractive appearance. It adjoins the Polyclinic, and hereafter the school will have the advantage of being practically under one roof. The new building will not be ready for use before the latter part of the coming college year.

APPOINTMENTS.—Dr. C. B. Burns has resigned as Medical Superintendent of the Eastern Michigan Asylum, at Pontiac, and is now in charge of the private hospital for the insane at Flint, Oak Grove, until now under the direction of Dr. George C. Palmer, formerly Medical Superintendent of the Michigan Asylum at Kalamazoo. Dr. E. A. Christian, formerly Assistant Superintendent, has been made Medical Superintendent of the Eastern Michigan Asylum. Dr. W.

¹ JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. July 28, 1894: "Woman in Medicine."

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No. 11.

ORIGINAL ARTICLES.

REPORT ON EXAMINATIONS OF THE 'EYES OF 1,900 SCHOOL CHILDREN OF THE PUBLIC SCHOOLS OF SAN FRANCISCO.

Read in the Section on Ophthalmology, at the Forty-fifth Annual Meeting of the American Medical Association, held in San Francisco, June 5-8, 1894.

BY KASPAR PISCHL, M.D.
SAN FRANCISCO.

Since Professor Jaeger, of Vienna, in 1861 had begun the first scientific examination of the eyes of school children, over 200,000 pupils in all parts of the civilized world have been examined. All those investigations have proven that myopia stands in direct proportion to the education of the people. If I venture to ask your attention for a few minutes only to hear the report of the examinations made in the schools of San Francisco I do not pretend to show you anything new, but I hope it will be interesting enough to compare the conditions of the eyes of the children in this new country with those of other countries.

To enable you to judge about the value of the data of my examination, I will explain in a few words the method I employed. I examined the sight of every child, each eye separately, with Snellen's letters. When I found normal sight not impaired by putting before the eyes + 1° I marked hypermetropia. If + 1° blurred the sight, emetropia. This last column is not reliable. I am sure that many hypermetropic and astigmatic eyes were classed among emetropia. Those who with one or both eyes did not show normal sight were examined with the ophthalmoscope. Every pupil was examined regarding the conjunctiva and lids. A glance at Table 1 shows us at once an increase of myopia with the grade of the class; from 3.98 per cent. in the grammar school to 11.59 per cent. in the normal school. At the same time, the number of pupils with normal sight decreases from 90.20 to 75.71 per cent. This deficiency of sight and increase of myopia is most prominent among the girls of the high and normal schools.

SAN FRANCISCO SCHOOLS, 1891-92. PERCENTAGE OF.
Table 1.

| Schools. | No. of Schol- ars. | E. | An. | H. | M. | Conj. | $\frac{6}{6}$ B.E. | $\frac{6}{6}$ One E. | $\frac{6}{6}$ Both E. |
|-----------------------|-----------------------|-------|-------|-------|-------|-------|-----------------------|----------------------------|-----------------------------|
| Grammar. | 1,280 | 68.60 | 6.32 | 20.9 | 3.98 | 26.25 | 90.20 | 7.03 | 2.77 |
| Boys' High. | 305 | 76.06 | 13.12 | 4.56 | 6.23 | 31.11 | 85.91 | 7.86 | 6.23 |
| Girls' High. | 290 | 69.68 | 9.28 | 14.02 | 7.02 | 41.00 | 80.66 | 5.00 | 14.34 |
| Normal Class. | 69 | 63.76 | 18.86 | 5.79 | 11.59 | 41.42 | 75.71 | 1.00 | 23.29 |
| Total. | 1,953 | 69.52 | 11.89 | 11.12 | 7.20 | 34.94 | 83.7 | 5.22 | 11.65 |

This fact is quite in accordance with the observations of Dr. Gould and Dr. Southard, our esteemed colleague present, who in his examinations of the eyes of the students of the University as well as his analysis of 1,300 cases of refraction found myopia or refraction

errors in general more frequent in the female sex than in the male. He gives a clear explanation for it: They use their eyes more. In Europe we find the contrary to be the case. There the boy gets a much better education, boys only are admitted to the gymnasium and then to the university, and among those students we find over 50 per cent. myopia.

Table 2.

| | | | | |
|--------------------------|------------------------|------------------|--------|---------|
| 1890-24 German | Gymnasium | 9,344 | 22-58% | Myopia. |
| 1891 Gelphe | Karlsruhe | 2,406 | 8.9% | " |
| 1885 Axel Key | Stockholm | 11,210 | 15% | " |
| 1879 Nicat | Marseilles | Lyceum | About | 30% |
| 1881 Ritsley | Philadelphia | Grammar School | 430 | 11% |
| | | 14 years. | | |
| 1882 Dr. Derby | New York | Normal School. | 553 | 19% |
| Mittendorf | | Grammar School | 1,594 | 10.5% |
| 1892 Southard, | University of | | | |
| San Francisco | California | | | |
| 311 Students. | | E. | II. | M. |
| | | 84.35% | 35.63% | 6.9% |

Of all the myopic pupils, 25.25 per cent. are of American parentage, 25.25 per cent. of mixed American and European parentage, and 49.50 per cent. are of European parentage.

With conjunctivitis I marked irritation, simple and follicular conjunctivitis. This affection increases in number with the classes.

The fact that myopia is much less prevalent here among children than in Europe or even in the East, may be explained by their better physical development, caused by abundance of good food, due to our fertile soil, and the almost constant outdoor life permitted by our wonderful climate.

In conclusion, I have remarked that these school examinations do not pretend to be of the exactness of the office examinations, but I consider them exact enough for statistical purposes. The column for myopia I believe to be reliable, the column for hypermetropia probably shows too small a percentage as some hypermetropic and astigmatic eyes are classed among emetropia having normal sight. An exact examination of refraction with mydriatic was impossible, as it would not have been permitted by the school authorities.

The great increase of the conjunctival affection with the grade of the classes points to the existence of eye strain which in a great many cases may be caused by hypermetropic astigmatism, therefore an exact examination of every pupil would be desirable.

DISCUSSION.

DR. S. B. DAVIS—In the Young Ladies' High School, I found many cases where astigmatism was reducing the vision to twenty-two-hundredths. In some cases, their vision was practically good and a slight correction made wonderful results. The difficulty was chiefly with those whose studies were pressing them, and we came to the conclusion before we examined 500 students in that way that they were getting their education at the expense of their sight.

DR. H. H. WEER—It strikes me that physicians assume too much in regard to the eye. If there is anything that makes an eye man tired, it is to see some one attempt to do some-

thing according to some hypothetic theory and make a dismal failure of it. I can not understand how the use of test cards is any test for hypermetropia or myopia. It strikes me that a person having astigmatism of very low degree and in ill health, would have disturbance of vision. I have been acquainted with one of the assistants of the Manhattan Eye and Ear Hospital in New York City who had 12 D. astigmatism and never wore a glass.

I would like to ask how in determining the hypermetropia and myopia, do you dispose of the accommodation? If I remember correctly, there is a vasomotor nervous system, and I have had pupils stand up in front of me whose vasomotor and spinal nervous system were so thrilled that they had lost entire control over every sphincter muscle in the body.

Now, you will all agree that one of our great troubles is our accommodation. This seems to me to be a point that should be taken into consideration in determining the hypermetropia of school children. In the dark room of the Manhattan Eye and Ear Hospital, we were requested to examine a very marked case of myopia. I examined the case with my ophthalmoscope, and I pride myself on the use of it. If I see the blood vessels and the velvety appearance I turn the glass, and if the velvety appearance comes out stronger than the white lines, then I say I have not here a case of myopia. I ran up to 8 D. and got a clear perfect vision of the disc, and the velvety condition of the retina. I remarked that it was a case of high degree of hypermetropia, and it was decided by the great Dr. Morrison that it was hypermetropia. There we had a patient who had been diagnosed by several physicians as myopia. That is merely a mistake. It illustrates the fact that if you rely on the test card to decide what the error is, and pronounce that child myopic and attempt to give it correction with the minus glass it would be entirely an error. There is another interrogation I would like to make for my own information. I notice, according to the chart, that as the school life advances, the conjunctivitis advances. Might not that be from eye-strain? Another thing—I have been so unfortunate as to just conclude fitting patients, when they took a spell of sickness. Upon recovery I found that my glass was entirely useless. This brings up another matter I wish to advance: Is not the hypertropic eye the normal eye? Is not the metropic eye, the uncommon eye, called the normal eye?

DR. H. B. YOUNG—I look upon all these statistics with regard to school children with a little allowance. If we could be sure that those marked for myopia were myopia—but with the methods hitherto employed, I think there is room for doubt about it. There is but one way I can imagine, without an enormous amount of work that we can get at it with anything like accuracy, and that is that we must make ourselves expert skiascopists. I should not be in dependence myself upon the lenses for half the cases. I believe when we get statistics by this method of examination, we will get something very much more reliable.

DR. W. F. SOUTHARD—The fact about statistics is this, that we have had gathered up by a very large number of gentlemen in the last twenty years an enormous amount of statistical matter, which has proved that there is a vast percentage of errors from refraction existing among school children, covering the ages between 5 and 25, besides others that have been carried on in the higher schools to which I referred this morning. The point that has been established is that nearly every child of 5 years of age is hypertropic. The second point that has been established is that myopia is but rarely seen in childhood. It has also been very accurately determined that myopia is a condition which does advance step by step in school life, as we go from grade to grade.

Now, throwing aside all the statistics relating to hyper-

metropia and astigmatism, one phase of myopia is not so difficult to arrive at. Myopia is very much more easily determined. In fact, it is found that using the same methods which do not show myopia at 5 years of age, it does show a percentage of myopia increasing with each grade of school life as we ascend from the primary schools into the grammar schools. If we take the European statistics, especially on myopia, because in Europe this examination has been more especially applied to myopia than to anything else—the most exhaustive paper written in the past ten years has been written and re-published in this country, and it covers the error of myopia more especially. I wish to call attention to the test which shows that more myopia exists in the peasant schools, and shows it to increase from grade to grade in rapid ratio in Germany. That is an important factor, whatever the methods established may have been. If we analyze the greater portion of these statistics that have been made, it is very curious that they have not given their methods of procedure more accurately, so that we could know what their methods were. I should say the work had been by the use of a test card and probably glasses. We have found by a less number of examinations, covering over a considerable portion of our own country, that we do have in America a vastly less percentage of myopia for the same grades as they have abroad. Dr. Shrady, of New York, in reviewing some statistics I have made, said he believed that was the result of older civilizations—that there would be found in them a much greater percentage than in the newer countries. We have a much larger per cent. in New York and Boston than here on the Pacific coast.

Now, it being certain that myopia is the accompaniment of civilization, we as oculists should advocate laws compelling the examination of school children. I have not much faith in examinations that are not made by ophthalmoscopic examination in the dark room. I have not examined a single patient without the use of the ophthalmoscope. I do not rely upon a test card. I think that in the entire series of examinations the test has but one value, which was to determine the equivalents. That does not determine the ametropia at all. Out of a large number of students the equivalents run to 60 and 70 per cent. and 20-20. I agree with the writer who states that ametropia is simply a stage in the progress towards myopia. I want to say that I am not particular about the statistics. I think the statistical matter has been carried to the extent that we now know we have this enormous percentage of errors. The question is to know how to prevent it. I have about seven or eight hundred papers of figures in my desk that have not been tabulated, because I concluded that there is enough of that work done to show the facts, and I want to bring before the teachers and others, methods by which the troubles can be prevented in an expeditious manner. I do not think that there is any need of our having any more than a very small percentage of error, if we do examine under the proper tests. It is proven that we have an enormous percentage of children in the primary and grammar schools who are suffering from hypermetropia uncorrected. My position in regard to children's eyes is that if we are to bring about any change in those who are older, we must begin with the school children. If we can have an examination made of the eyes of the school children, it is of just as much value as is the physical examination made in larger schools for the determining of their body power to study, as far as the functions go. Upon that point I have dwelt for some years and feel it is important for us as oculists to attempt to sustain any effort to secure legislation that will obtain compulsory examination of children at school.

H. L. BURRELL—Mr. Chairman, I believe that statistics of

myopia in children are absolutely unreliable, unless a course of mydriatics is given.

A MEMBER—Mr. Chairman, we did not say in our reports myopia, hypermetropia, or astigmatism. Our reports simply say "errors of vision brought out by the tests." My reports read "such a per cent., as nine, seven, six, five or one-tenth" as the case might be.

DR. FISCHL—Mr. Chairman, I started the examination in order to compare especially the myopia which I might find here with the schools in Europe. I knew from the beginning, and I said this in my paper, that in the schools I could not possibly find out exactly the hypermetropia or the astigmatism. That can only be done in the office. It can not be done in the school room, and would not have been permitted. It would have kept the child away from the school rooms and would have been impossible. Many of my scholars were hypermetropic or astigmatic as I said in the paper. As to those which were not, that could not be decided. But I think that the numbers for myopia are reliable. I do not think it is necessary to apply the ophthalmoscope for the myopia. The trouble in the conjunctiva, or the irritation, increased with the glasses to 41 per cent., showing clearly or at least hinting that there is eye-strain in many cases, and giving us the hint that not such a great portion have normal sight. They have errors which could only be corrected in the office.

SUB-CONJUNCTIVAL INJECTIONS IN THE TREATMENT OF EYE DISEASES.

Read before the Section on Ophthalmology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY WM. ELLERY BRIGGS, M.D.

SACRAMENTO, CAL.

Subconjunctival Injections in Ocular Therapeutics.—During the past four years Drs. Darier and Abadie, two very progressive Paris oculists, have been extensively using subconjunctival injections of mercuric chlorid solution in the treatment of many eye diseases. As I watched their work in their large clinic, during the experimental stage of the method I saw it tried in many diseases in which there was obviously little or no hope of benefit to be derived from any treatment. But from my observations I became convinced that good results were obtained in a certain class of cases. Since that time I have treated quite a number of cases by the method and have been led to the conclusion that many of them had done better than they would under the other treatments alone.

Most of the cases under my care have been of septic or syphilitic origin, so other treatments had been used in conjunction with the subconjunctival injections.

I deem it an injustice to a private patient to neglect the use of a remedy which is known to be beneficial in order to try some uncertain treatment. It is the class of cases to which this treatment is applicable that require prompt and efficient care. It is impossible to determine with any degree of certainty the amount of influence the injections may exert on the course of a disease process. We can arrive at our conclusions only in a general way by comparing the progress of a number of cases treated by usual methods with others similarly treated with the injections added. My conclusions may not be shared by many, but I believe that this method of treatment is a real advance and will establish a permanent place in ocular therapeutics. In Germany as well as in France

a number of prominent oculists have reported very favorable results from the method, but I have been surprised that so little attention has been paid to it in this country.

Previous to the adoption of subconjunctival injections Drs. Abadie and Darier had injected sublimate solutions directly into the vitreous. They claimed that this rather bold procedure had yielded good results but it was abandoned for subconjunctival injections as being less dangerous.

Dr. Darier injects two to five drops of a 1 to 1000 sublimate solution beneath the conjunctiva and not nearer than seven millimeters to the corneal border. If the injection is made too near the cornea the pain is likely to be severe. Care should be taken not to puncture a conjunctival vessel or unpleasant ecchymosis will follow. In case this does unavoidably occur it will soon disappear under applications of hot water. The conjunctiva should be thoroughly anesthetized by cocain previous to treatment. It is hardly necessary to mention that the solutions and instruments used should be perfectly sterilized.

In my practice I have generally employed three to five drops of a 1 to 2000 bichlorid solution. The frequency of the injections should be regulated by the urgency of the case and the severity of the reaction. In a few cases they can be made daily for a few times but in most cases not oftener than two or three times a week. Immediately after the injection a little bleb appears at the point the fluid enters. Frequently sharp pains are experienced for a couple of hours after the injections. This can be mostly relieved by cocain drops and hot or cold water. The position of the injection should vary to prevent excessive irritation—a point covered by one of the lids is most favorable.

Local treatment has been made in different parts of the body by injections in the location of the disease process with more or less success for a long time. We owe our knowledge of the method of action of subconjunctival injections to the experiments of Phlüger and some others. These experiments have demonstrated that after subconjunctival injections of bichlorid solution the salt is found in the cornea, aqueous humor, suprachoroidal space, vitreous humor, and the superficial layers of the lens. The mercuric chlorid reaches the tissues of the eye before being taken up by the general circulation. We can thus readily understand how diseases of septic or syphilitic origin are promptly benefited. These are the cases which experience shows are most improved by this method of treatment.

In years past patients suffering from local inflammations of septic origin were given mercury internally to counteract the septic process. I have no doubt that by administering bichlorid solution subconjunctivally in septic ocular disease the same end can be attained with greater certainty and rapidity than by means of general medication. In nearly all cases the subconjunctival injections should be supplemented by other treatment appropriate to the case. The constitutional treatment is of the utmost importance in most affections of the uveal tract. The injections are frequently of the greatest benefit on account of the promptness by which the mercury can be made to reach the disease process. But the constitutional treatment is of quite as much importance in order to eradicate the constitutional disease upon which the local affection depends.

In treating septic conditions of the eye, either after operation or from injury, other treatment such as cauterization of an infected wound, paracentesis of the cornea and washing out the anterior chamber, antiseptic dressings, etc., should be combined with subconjunctival injections.

The cases in which I have found the method of treatment to do the most good are syphilitic diseases of the choroid and septic ulcers of the cornea. It seems usually to exert a salutary influence on most syphilitic processes of the uveal tract except in the acute stage of iritis. In some subacute and late stages of acute iritis I have had prompt improvement from the administration. It often seems to help in a marked manner cases of choroiditis of rheumatic origin, and in recent vitreous opacities from syphilitic retinitis good results may be expected.

When there is great danger of infection after operation Dr. Darier recommends injections previous to the operation as a prophylactic against sepsis. Such cases are those in which we are obliged to operate when disease of the lachrymal apparatus or conjunctiva exists. In septic infection after cataract extraction Dr. Darier has found the injections to act well.

Dr. Darier has laid down this rule, that in case improvement is not manifest by the tenth injection that we need not expect good from the method. This conforms to my experience as we generally get perceptible improvement in from four to ten injections.

Case 1.—R. H. S., age 28. He had suffered for three weeks from iritis of the left eye due to syphilis. Posterior synechia were so firm that a 2 per cent. solution of atropin had little effect on the pupil in twenty-four hours. The pain and inflammation being of a moderate degree subconjunctival sublimate injections of 1 to 2000 were made daily for three days when the adhesions were mostly broken up. The injections were kept up every other day for ten days longer. Mercurial inunctions were also administered. The iris was entirely freed from the lens and vision was nearly normal at the end of two weeks' treatment.

Case 2.—Mrs. L., age 48. Had been suffering with rhinitis and vitreous opacities for three weeks. Vision reduced to 1-8. Patient was placed on mercurial inunctions and subconjunctival injections were made every other day for five treatments, then twice a week for two weeks more. Vision was then two-thirds normal and retinal exudate had nearly disappeared.

Case 3.—E. N. W., age 32, single, contracted syphilis seven years previously. He had been treated constantly for two years and believed himself "cured." For ten days previous to consulting me he had noticed dimness of vision which increased rapidly. Extensive choroiditis disseminata was found. Vision in right eye 1-8, in left 1-6. Patient was given mercurial inunctions daily and subconjunctival injections every other day for two weeks; at that time vision was found to have improved in right eye to 1-2 and in left to 2-3. The choroidal inflammation had greatly improved.

Case 4.—D., age 42. Physician. Had never had syphilis. Patient had noticed his vision getting blurred for a couple of weeks. When examined inflamed patches of choroid were seen in both eyes. Patient was given pretty large doses of iodid of potash and subconjunctival injections. The injections were made twice a week for a few injections and every week or two weeks for six weeks from the beginning of treatment. The vision was then found to be perfect in both eyes. The choroidal patches of inflammation had almost entirely faded.

Case 5.—G. B., age 55. Patient denied ever having had syphilis. He had noticed increasing dimness of vision for past three weeks. Extensive disseminate choroiditis was found in both eyes. Vision was equal to counting fingers at fifteen feet. Patient had been treated with blisters to temples and some eye drops. He was put on mercury and iodid of potash and subconjunctival injections in each eye every other day for five injections when vision was found to be two-thirds normal.

Case 6.—M. C. R., age 35. Patient had the right eye injured by a piece of rock in a mine. A small wound was

made just below the center of the cornea but as little irritation or pain resulted from the wound the patient continued to work for two days when he consulted me. The conjunctiva was found quite swollen and red with a free muco-purulent secretion. The corneal wound was about three millimeters long and ulcerating. The anterior chamber was half full of pus. The eye was intensely painful. Cocain solution was applied and four drops of 1 to 2000 bichlorid solution was injected. Iodoform was dusted into eye and dressed with antiseptic dressing. The next morning the eye was markedly improved. The same treatment was continued for three days when the hypopion had entirely disappeared and the eye was nearly well.

DISCUSSION.

THE CHAIRMAN—The method has not commended itself very strongly to my judgment and I have been slow about adopting it, but have noted this one interesting fact that it seemed very promptly to relieve pain especially in cases of keratitis, where pain has been very severe. I think that has been noted by every observer. It is a striking fact and one that seems rather anomalous that such effect should be produced without any apparent effect on the course of the disease.

DR. PISCHL—I wish to say that I tried it only in one case but the patient was so frightened by the swelling that I did not venture to continue it, and I am afraid that many patients will revolt against the injection.

DR. BRIGGS—Mr. Chairman, I have nothing particular to add. I am sorry that there is no more discussion on the subject. I think if Dr. Pischl tried it in cases of keratitis or some such trouble, he will continue to use it. My experience has been in certain cases quite favorable, and I am thoroughly convinced in my own mind that it acted very beneficially in quite a number of cases. A number that I have tried it in found no benefit, but I have not found the severe reaction that Dr. Pischl mentioned, and I have no patients who revolted or objected seriously to the treatment.

OPTICO-CILIARY NEUROTOMY, WITH EXHIBITION OF SCISSORS.

Read in the Section on Ophthalmology, at the Forty-fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1894.

BY WM. ELLERY BRIGGS, M.D.

SACRAMENTO, CAL.

I wish to present for the consideration of this Society a modification of my ablation scissors: Scissors for performing optico-ciliary neurotomy. The original instrument was described in the *Archives of Ophthalmology*, Vol. xvi, No. 1. It consisted of two curved scissors placed parallel so as to enable one to cut a section of the optic and ciliary nerves without cutting any of the ocular muscles. The modifications consist in the addition of a pair of claws between the two scissors to insure the removal of the cut section of the nerves.

Any one who has to perform the operation of removing a section of the nerves by first dividing the internal rectus and then uniting the muscle with sutures, as is done by some operators, has found it quite a formidable operation if it has to be done without the aid of trained assistants. These operators, I think, will find these scissors of great convenience. In a few cases where I have been able to trace the condition of the patient for a few years I have found no return of pain in the eye, and as far as I could tell, the result has been as permanent and satisfactory as it could have been had the much more formidable operation of cutting the internal rectus been performed.

I believe the operation of optico-ciliary neurotomy deserves more attention than it receives from the profession. It should be done in many poor people who are unable to purchase artificial eyes, in preference to enucleation. A deformed eye if free from pain and danger of producing sympathetic ophthalmia is greatly preferable to an empty socket. In very young children it should usually be selected in preference to enucleation. It should be performed also in a very large class of cases which would require enucleation on account of pain or danger of sympathetic ophthalmia and in which the diseased eye looks better than an artificial eye can, or when the patient will not submit to an enucleation. In case of ocular tumors, enucleation is the only operation to be considered.

PURULENT OPTHALMIA AND ITS TREATMENT.

Read in the Section on Ophthalmology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY X. C. SCOTT, M.D.
CLEVELAND, OHIO.

In speaking of purulent ophthalmology I embrace under the one name all forms of this disease as described in most text-books, under the name of purulent ophthalmia, gonorrhoeal ophthalmia and ophthalmia neonatorum. It has always been a mystery to me why authors persist in making this unnecessary division, unless it is to mystify the general practitioner or increase the number of pages in their books. It seems much more simple to designate all three forms of this disease under simply purulent ophthalmia or conjunctivitis blennorrhoea, for the parts involved are the conjunctiva and subconjunctiva, with a serous effusion into their tissues and also into the stroma of the lids. The only difference that can be found is the presence of the gonococcus of Neisser in cases of gonorrhoea, but these gonococci are not always present, and even their presence I am unwilling to admit renders the disease more dangerous if properly treated. Every one agrees that purulent conjunctivitis in any form is one of the most serious and dangerous diseases of the eye. I shared this opinion in common with others until within a few years, when I adopted a plan of treatment which has robbed this disease of all its terrors, whether it occurs in infancy, childhood or adult life, provided the cornea has not become dangerously complicated.

These cases have been cured within a week or ten days in every instance, instead of running, as the books say, a course of four or five weeks in the most favorable cases. It is not necessary for me to describe the ordinary course of a case of purulent ophthalmia, as you are all conversant with it. You well know the great source of danger is the corneal complications which may arise from the swollen chemotic condition of the conjunctiva, cutting off the blood supply for its necessary nutrition; 2, the swollen hot lids and the cornea being continually bathed with pus causes a continual fomentation of the corneal tissue, and thus favors ulceration and destruction of this membrane; 3, the corrosive effects of the pus itself.

The great question that concerns us is how can we overcome or prevent these three important, dangerous and injurious factors which have caused such terrible havoc with so many eyes of mankind? By

what treatment, or what is the best treatment, to cause these cases to run a short course and with a favorable ending without injury to the cornea?

You can not open any text-book but that you will find advocated, that in the formative stage of this disease, the conjunctival sac should be frequently cleansed of pus, at the same time using some imaginary antiseptic, but that it is extremely dangerous to apply any astringent remedies; that cold applications should be made continually to the lids until the conjunctival membrane becomes soft and succulent. This cleanliness and these cold applications are proper and certainly indicated, but in many cases if you wait until the conjunctiva becomes soft and succulent before making any applications to the surface of this membrane, changes will have taken place in the corneal tissue which can not be controlled and may finally end in the destruction of the eye affected.

Instead of a do-nothing and an expectant plan, in addition to trying to have perfect cleanliness and cold applications made continuously, I commence the use of the following prescription from the very beginning:

| | | |
|----------------------------------|----------|----|
| R Hydrastia sulphatis | grains 5 | 30 |
| Acidi boraci | grains 5 | 30 |
| Sodae biboratis | grains 5 | 30 |
| Tinct. opii. deodorate | drachm ½ | 2 |
| Aquae distillata | ounce 1 | 32 |

Mix and filter.

The attendant or nurse is instructed to cleanse the eyes every fifteen or twenty minutes day and night, by opening the lids and wiping away all the secretions possible; to make cold applications to lids by means of compresses which have laid on ice, and from four to six times a day with a long nozzled dropper and hot water to wash out all the pus held in the conjunctival sac under the lids, and afterwards to inject up and into the conjunctival sac of both the upper and lower lids an ordinary medicine dropper full of the above prescription. The nozzle of the dropper should be long and smooth and of sufficient length that it may be easily introduced without breaking under the upper lid.

The above mentioned solution seems to have a most beneficial influence on all acutely inflamed mucous membranes where there is a secretion of pus. I have used it in cases of other acutely inflamed mucous membranes with the same benign results and effects that have been experienced in the mucous membrane of the eye. When this solution is properly used in cases of purulent ophthalmia, there will be a marked improvement in the case within twenty-four hours, and within forty-eight hours there will be a remarkable diminution of the secretion of the pus, chemosis of the conjunctiva and swelling of the lids.

Once a day I turn the lids, and having cleansed away the pus apply a 1 per cent. solution of nitrate of silver to the palpebral conjunctiva by means of a large camel's-hair brush. Now you may say that this is falling back on the old treatment and that all the good comes from the employment of the silver salt. If this is true why did or do we not have the same benign results in the treatment of this disease from nitrate of silver, as it is the treatment recommended by all authorities as soon as the conjunctiva becomes succulent? I do not believe that the nitrate of silver has anything, to any great extent, to do with the aborting of the disease and the rapid

diminution of the secretion of pus, but I use it for two reasons: 1, it is recommended by every author writing on this subject as the sovereign remedy to be relied on in the treatment of this disease and if perchance, by any mishap, an eye should be lost and a case of malpractice should result the first question to be asked would be: "How did you treat this eye?" and when it was discovered that no nitrate of silver had been used as recommended by all authorities, the hue and cry would be raised that gross malpractice had been done, and that the eye had been treated in a way not recommended by any authority, consequently there would be a possibility of being mulcted for damages by an intelligent American jury; 2, I want to see my patient every day, and if something different is not done at each visit from that which the nurse did, many families not understanding the importance and danger threatened would think that there was no necessity for the physician visiting the patient so frequently, if the nurse could make all the necessary applications of medicine. In this connection allow me to enter my most earnest protest against either strong solutions or the mitigated stick of nitrate of silver ever being used in any disease of the conjunctiva. It always does more harm than good, and in cases of purulent ophthalmia may be the cause of starting corneal complications, which it is our great object to avoid. In cases where you are not called until the disease is well formed and the conjunctiva and lids are so swollen and edematous that they can not be opened, it is imperative that the outer canthus should be divided, and I would recommend that you go even a step farther than simple division and divide the ligament (if I may call it such) which holds or binds the upper lid to the outer margin of the orbit, so that all constriction is removed and thus free the cornea from this danger. The bulbar conjunctivæ should also be incised to favor the flow of their serum and thus lessen the chemotic condition. When the case is seen at the very start and before the lids and conjunctiva have become greatly chemosed and swollen, the above mentioned local medical treatment will cause the disease to abort in from three to five days, often within two or three days. In cases where the disease is in full blast with the conjunctiva and lids swollen, with a large secretion of pus, unless the corneal membrane has become affected all purulent discharge and swelling will disappear within a week. With this mode of treatment, as the disease abates, the conjunctiva presents an entirely different appearance from that which it presents under the ordinary manner of treatment, recommended in all our text-books. It becomes smooth and presents a normal appearance, like to what it was before the attack. Its mucous surface presents no velvety or villous appearance with deep sulci between the swollen papilla and folds of the membrane.

My experience and results with the treatment proposed have been so satisfactory that for several years past, when I have had a patient with one eye affected with purulent ophthalmia I have not in any case taken the precaution to hermetically seal the well eye, nor have I in any case applied leeches, nor has the well eye become affected. The integument of the lids of the affected eye should be frequently dried and anointed with lanolin or something similar in order to prevent excoriations and irritation of their dermal surface.

By employing the treatment recommended in this paper you will find that, if sufficiently early employed, it will prevent chemosis of the conjunctiva and swelling of the lids if they have not already taken place. It will prevent the formation and secretion of pus, and dividing the outer commissure of the lids or incising the chemotic conjunctiva or applying leeches. In cases where the disease has reached the acme, with greatly chemosed conjunctiva, large quantities of pus secreted and swollen lids, if the cornea is still intact, I have never seen it become affected when this treatment has been followed; but on the other hand the chemosis of the conjunctiva, swelling of the lids and secretion of the pus have rapidly disappeared, leaving no impairment of the eye. In regard to the complications that may arise from the cornea becoming affected it is only necessary to say that when this membrane does become affected the manner of management and treatment is sufficiently described in all ophthalmia text-books and it would be a waste of time to repeat them.

Since Von Graefe's time and because he recommended it, every writer writing a text-book has extolled the virtues of chlorinated water in the various forms and stages of this disease. After a faithful trial of it, in many cases, it has proved extremely unsatisfactory in my hands.

There is no doubt that many cases of purulent ophthalmia in the new-born child, can be prevented by proper washing and cleanliness of the parturient tract before birth, and proper washing of the infant's eye, before washing any other part of the body. I am prepared to go farther than this and say that with the care above mentioned of the mother and child, and a drop of this yellow solution instilled into the infant's eye three or four times daily for the first three or four days of its life, that there would be no more cases of purulent ophthalmia in new-born children, and our blind asylums would be deprived of 25 per cent. of their inmates, thus bringing untold blessings and happiness to these poor unfortunate ones who pass their lives in darkness, a burden to themselves and their friends. You may think that I am too much of an enthusiast for this treatment, and that it is impossible to obtain such wonderful results. To those who doubt and question that such an effect and results can be obtained, I can only say try it on your cases of purulent ophthalmia, and you will become as strong a believer and enthusiastic as I am. You will feel like publishing it from the housetops as a blessing, and a prevention of misery to our fellow-men.

DISCUSSION.

DR. H. V. WURDEMANN, Milwaukee—The result of any method of treatment depends upon the stage of the disease in which the same is used and the condition of the tissues. I consider the cleansing method of treatment with very weak solutions of corrosive sublimate or nitrate of silver the most important. I can not conceive that in all cases it would be possible to obtain such flattering results as reported by Dr. Scott by any method of treatment. All cases may not be aborted as is evinced by the occurrence of ophthalmia in the hands of our most antiseptic accoucheurs. I call to mind several cases. I am inclined to take the middle ground, and while always endeavoring to protect myself in the family by explaining the fearful nature of the disease, I have never yet, in a comparatively large experience with this disease during the last few years, had a case

go on to destruction or injury of the cornea where it has come into my hands at a sufficiently early date, before ulceration of the cornea had ensued. Despite this, I do not forget the fact that cases have occurred and have been reported by some of our foremost men in which the child has been properly attended from the inception of the malady and yet which have gone on to destruction. As has been noted, some of these patients are subjects of general cachexia and such, as I have had reason to note, are apt to prove intractable to any form of treatment. We should be a little careful in setting forth such rose-colored views of the question as have been advocated by the author of the paper lest material injury be afforded some of us by the occurrence of one of these unfortunate cases. I, for one, can not say that I have ever seen a case "aborted" where the disease had so far advanced as to be recognized by the family or attending physician and consultation called. Those of you having had experience in urethral therapeutics will agree with me when I say that after the first manifestations of gonorrhoea have appeared, the disease is seldom or never aborted, although testimony to the contrary has been brought forward. Such is, however, not the general experience. The disease may be mitigated and its course shortened by treatment. I am pleased to see Dr. Scott makes no distinctions in purulent conjunctivitis of infancy; these are almost invariably gonorrhoeal in origin and are to be treated upon the lines laid down for that disease. We can not do away with nitrate of silver, which used after suppuration has been well established is of marked benefit. This may only be applied by the physician or a trained nurse. I am particular about instructions to the attendant as regards thorough cleansing away of the pus. I consider that no hard instruments, such as droppers or brushes should be given into unskilled hands during the course of this disease, for the slightest abrasion of the cornea means infection of that structure and probably irreparable damage. Soft pads of absorbent cotton soaked in the solutions and the latter dropped into the eye for cleansing, and atropin when necessary in the form of an ointment are the least dangerous ways of applying the necessary medicaments. All manipulations by the attendant should be done with the utmost gentleness and thoroughness.

DR. A. BARKAN, San Francisco—I regret that Dr. Scott does not substantiate his statements with proper statistics. As he still continues the application of nitrate of silver many of us will go on and think that that remedy is the mainly curative one. We all know the excellent effects of nitrate of silver in blennorrhoea neonatorum. Why should not the same remedy act beneficially in purulent ophthalmia in the adult?

DR. STARKEY—I fear that I must come under the number spoken of by Dr. Scott, just at the close of his paper, who are skeptical as to the uniformly good results obtainable by any means, but shall gladly follow his injunction and try his method and hope to be convinced. My experience has been such in these cases, both in the new-born and in adults, that I can not take a very rosy view of the prospects of recovery in any case of purulent ophthalmia that comes under my care. It seems to me that, as was said in this Section last year, the only time in which purulent ophthalmia can be treated with universal success is before the disease occurs; when infection has actually occurred, it seems to me that a certain proportion of eyes will be lost by any treatment yet devised. Take a poorly nourished and perhaps premature infant with this disease—an infant that under any circumstances has all that he can possibly do to live, and the prognosis is exceedingly grave. We must all of us have seen such patients, with little discharge, easily controlled, also little swelling of the lids and little chemosis in which the

cornea seemed to melt away from lack of nutrition. No pressure, no maceration with pus and yet no nutrition. Now it seems to me that we should be very careful about asserting that all eyes with purulent ophthalmia can be preserved by this or that treatment. Such statements reach the public and may come up to confound us after we have had one of these unfortunate results.

DR. KASPAR FISCHL—May I call your attention to the publication of Prof. Burkhardt, of Berlin, who has a very extensive experience in purulent ophthalmia of young persons? He has discarded the application of ice and the use of strong solutions of nitrate of silver. He lays particular stress upon the removal of the gonococci from the conjunctival sac. For that purpose he instills into the inner corner of the eye, nitrate of silver 1 per cent. solution, and moves the lower lid rapidly up and down so that the fluid is thrown under the upper lid, and the cul-de-sac is thus thoroughly cleansed. This is repeated several times a day.

DR. J. D. ENNIS ARNOLD—The method of treating purulent ophthalmia, advanced by Dr. Scott, appears rather a step backward than a step in the advance; and yet I fancy we all feel inclined to make a trial of these medicaments, though the disease under consideration is one in which time lost in going after strange gods is likely to be fraught with dreadful consequence. The trend of modern treatment in all local disease is not the blind adoption of a fixed method with increasing faith in the power of a medicament to correct or cure the disease, but rather the rational adoption of procedures that have for their object the removal of material which we believe to be causative factors in producing the disease. In purulent ophthalmia we dare not destroy the living bacteria present, nor dare we even use substances able to prevent their multiplication, *in situ*.

By frequent cleansing all *materies morbi* must be removed from the conjunctival sac, and by punctilious vigilance we must stand always ready to prevent impairment of function by forestallment of tissue destruction. To-day there would be little excuse for him who would allow a corneal ulcer to penetrate spontaneously the anterior chamber, or for him who failed to relieve by section the pressure that threatened to produce tissue necrosis. The Credé method with the eyes of new-born children, is not a treatment of purulent ophthalmia, but an attempt, and nearly always a successful attempt, to prevent purulent ophthalmia.

DR. SCOTT, in closing—Gentlemen, I am not surprised at the remarks made about this treatment. It is simply because you have not had any experience with it. The books say it is generally four or five weeks in the most typical cases. I have not lost a single case with it, if I got the case sufficiently early. It is miraculous how quickly the discharge disappears. I do not get any of the indications of the ordinary treatment. The conjunctiva is comparatively smooth. If you will try it, every one of you, you will be just as much an advocate of it as I am. I have taken ordinary cases of pure ophthalmia in the new-born child, and in four days had them perfectly well. I do not believe the nitrate of silver has anything to do with it. I know this has been used in gonorrhoea where in three or four days it stopped entirely. There is not a particle of pain in its application. In my own individual case I have used it. I had a very severe attack in my head, an immense secretion of matter from the head and nose. I tried everything to control it until I used this solution and in two doses it disappeared. It seems to be antiseptic, to destroy the formation of pus, and to act beneficially upon the mucous membrane and secretion of pus. Try it thoroughly and you will be just as much an advocate of it as I am.

CONSERVATIVE TREATMENT OF WOUNDS OF THE EYE-BALL.

Read in the Section on Ophthalmology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY LEWIS H. TAYLOR, M.D.

WILKES-BARRE, PA.

I do not propose to weary the members of the Section by attempting to discuss the subject of wounds of the eye-ball in all of the phases which that subject might present, nor will I even enumerate

the varieties and grades of these injuries, but will confine my remarks briefly to a consideration of some of the more serious forms, such as penetrating and lacerated wounds involving the iris and lens.

Living as some of us do, either in mining or manufacturing districts, we are frequently confronted with eye injuries of all grades, from the small cinder lodged upon the cornea, which in its effects is oftentimes by no means small, to the severe laceration of cornea, lens, iris and sclera.

The important question that at once arises is, to what extent shall I interfere with this eye? and how far dare I trust to the recuperative powers of nature to bring about a good result? We are taught in some text-books that if the iris is prolapsed, at once excise it. If the wound is a penetrating one and into or near the ciliary body, enucleate the ball in order to save the other. I can not in all cases agree with these teachings. I have had a number of serious injuries to deal with, in which the iris was involved in the wound and let alone with as good results, or better, than in similar cases where an effort was made to remove the adherent portion. It is difficult to remove the portion of the iris entangled in a bruised or lacerated wound, by iridectomy, and unless seen very early after the accident our patients will probably fare as well if the iris be left alone and allowed to heal over, fastened in the wound, as if we attempt its removal. I say, unless seen very early after the accident; I might say, if seen very early, the removal is not usually necessary, for it may oftentimes be replaced and freed from its entanglement in the wound. One of my earliest cases of this sort illustrates the latter statement:

Case 1.—Mr. H. came to my office within a few hours after receiving a severe blow upon the eye from a chip of a steel hammer. This had penetrated the cornea, wounded the iris and apparently the lens, the iris being fastened in the wound and protruding from the eye. After cleansing the eye I used a small spatula and gently replaced the iris, the pupil contracted and under a light compress bandage the eye made a most excellent recovery with normal vision.

I spoke of the lens being apparently injured, and yet there was no resulting opacity. I have repeatedly seen the same in injuries in which the capsule was undoubtedly penetrated and yet the wound healed without leaving any lens opacity. This point was ably brought out in a paper read before this Section by Dr. Milliken at the Detroit meeting in 1892, on "Injury to the Lens."

Case 2.—Martin S., age 33, came May 24, 1892, directly from the mines where he had been injured an hour or two previously. Examination of the eye showed a wound in O. S. through the sclera near the sclero-corneal junction, the iris being fastened in the wound and pupil irregularly ovoid. V. reduced to merely counting fingers. I had him go into my lavatory and thoroughly wash face and head, then after using cocain, I replaced the iris with a small spatula but it would not fully return. I dropped in eserin freely, put on a compress bandage and gave bromid and morphia to be used if necessary. On the following day he returned with pupil contracted but irregular. Iris not fully replaced but as the wound had closed I made no attempt at further replacement but used atropia instead of eserin. On May 27 he was doing very well, pupil well dilated and iris drawn away from the wound so that the pupil was slightly dilated and was irregular. V. had now risen to 20-C. From this time on the eye rapidly healed and the patient recovered useful vision with a natural pupil.

This would have been an excellent case in which to follow the teachings of the books and excise the protruding iris, and yet if it had been done, nothing would have been gained and much lost. Indeed it is

a serious question whether we do not do more harm in such cases by an iridectomy than we do good. If the cause of the injury remains in the eye it must be removed, unless it has penetrated so far that its removal is impossible, in which case enucleation will sooner or later become necessary.

Dr. H. Knapp, of New York, at a meeting of the American Ophthalmological Society in 1893, in discussing his paper on "Traumatic Dislocation of the Iris," says: "Now something about prolapse of the iris in eyes that have been injured. This is an exceedingly important matter, and I have made it a rule not to touch a prolapsed iris unless I could get it entirely fresh. I have never seen sympathetic ophthalmia where there was prolapsed iris which had not been wounded by the injury or by the surgeon's knife. If cases come in the first four or five hours, where a clean iridectomy could be made and I am sure that the foreign body was not an infecting one, then I make an iridectomy. If they come some time afterward, I leave the prolapse alone for it is very difficult to get at the lateral portions which will be incarcerated in the corners of the wound, and if operated on they are more apt to be followed by sympathetic ophthalmia or purulent infiltration than if left alone."

Case 3.—This is an exceedingly interesting one, on account of the severity of the injury and the high grade of astigmatism developed by it. It will not be necessary to relate all the details of the case. James McC., age 31, was a blacksmith, and on May 18, 1893, went into the mines to shoe mules. He had finished his work, and was standing in the center of the hoisting carriage at the foot of the shaft ready to start up, when a piece of coal fell down the shaft from above, struck a slanting board, and glanced off and directly into his eyes causing the wound. He came to my office about three and a half hours after the injury with V. in right eye reduced to mere perception of light. The wound was a formidable one, being through the cornea about one-eighth of an inch from its outer border, extending entirely across this portion of the cornea and into the sclera above and below, also involving iris and lens. I used cocain thoroughly, cleansed the eye with Panas solution, replaced the iris with spatula, used eserin and bandage. On the following day, the iris was again found caught in the cut and pupil ovoid, and again replaced. Same on third day when I again replaced it and began using atropia. From this time on the healing though slow was steadily progressive and he made an excellent recovery but with a slightly ovoid pupil. On July 14 the right eye showed, with the ophthalmometer, 12 D. of astigmatism, ax. 120, and the left eye none. With a correcting glass -7 cy. ax. 30 \ominus +5 cy. ax. 135 (not right angles). Vision was nearly 20-40. The patient now considered himself well and I have not seen him since.

Case 4.—Nicholas K., age 20, came Aug. 27, 1890, stating that O. D. had been cut about quarter of an hour before, by a piece of steel which had been driven forcibly against it. V. in O. D. nil; in O. S. 20-70. Inspection at this time showed the right eye already congested and somewhat painful. A cut in the horizontal meridian of the eye, starting about one-eighth of an inch from the corneal margin extended backwards three-quarters of an inch and penetrated through all of the tunics of the eye into the vitreous which was exuding from the cut. There was some hemorrhage into the eye, and it was impossible to tell whether the foreign body which caused the mischief was still in the eye or not, but from the patient's description of the accident, I concluded that it had fallen out at the time. The eye was very carefully washed out with Panas solution, the protruding vitreous snipped off, atropia instilled and a compress bandage applied. Morphia was prescribed to be used if needed for pain, and a very guarded prognosis given. August 28 reports that he slept well without morphia and had but little pain. The pupil is about half dilated and chemosis is already considerable. On the third day he reported that he had slept well each night and had not found it necessary to use the anodyne at all. The chemosis is now considerably less and the eye is doing well. In addition to the atropia, which

was used every three hours, I cleansed the eye each day with Panas solution and he used cold applications at home.

September 2. Is improving nicely; swelling is nearly all gone and he begins to see dimly; counts fingers. September 9. The eye is doing very well; the cut through the sclera has closed entirely; the blood has largely absorbed, but nerve and vessels can not be distinctly seen with the ophthalmoscope. The anterior chamber has been clear all the time. The pupil is dilated and he counts fingers at one foot. Discontinue atropia and use Panas alone. I last saw the patient on September 27, at which time the eye was looking well but from the excessive wound the scar contracting seemed to lessen the size of the eye in comparison with its fellow. He could now count fingers readily, the eye looked well and he had returned to work. I presume vision still further improved. I recently heard through another patient whom Mr. K. had sent to me, that he was doing well and his eye was all right.

Case 5.—Wound through sclera into vitreous. This illustrates one of the most serious types of injury and the preservation of useful vision was very gratifying to both patient and physician. Harry E., age 20. I was called to see the patient in consultation at the request of his attending physician, Dr. G. W. Guthrie, Oct. 6, 1890, about 9 o'clock in the evening. The history obtained at that time was, that he had been unpacking a barrel of bottled ale in the grocery store where he worked. The barrel was turned over on its side and the patient was leaning over it; while in this position, one of the bottles rolled out and against another causing an explosion and a shattering of the bottle struck. A piece of glass flew up and struck him above the eye, but he could not tell whether it had fallen out or not. (The piece was subsequently found stained with blood.) Inspection showed a ragged wound in the right upper eyelid about three-quarters of an inch from its margin and in a line midway of the two canthi. This cut extended through the lid, through conjunctiva and sclera, into the vitreous. The wound in the globe was about one-quarter of an inch from the bulbar-tarsal fold and extended downward nearly one-half inch and to right and left the same distance, forming a rough jagged opening exposing the vitreous beneath. Not knowing whether the glass had fallen out, and not being able to decide as to its presence with the ophthalmoscope on account of hemorrhage, I gently explored the vitreous with a sterilized strabismus hook, but could detect nothing. It now seemed advisable to close the wound, and not having at hand any very fine catgut, we used silk. A suture through the sclera tore out immediately, so two sutures taking a sufficient amount of tissue were inserted into the conjunctiva, drawing it firmly together over the exposed vitreous. Vision in O. D. nil. O.S. not taken. The eye was thoroughly irrigated with Panas solution, the external wound in the lid closed with catgut, dressed antiseptically, and both eyes bandaged. A very guarded prognosis was given. The patient was left in charge of Dr. Guthrie, his family physician, who removed the bandages and carefully dressed the wound daily. October 9. I saw patient to-day in Dr. Guthrie's absence. Doing well, free from pain, very little swelling, but conjunctiva intensely red, evidently subconjunctival hemorrhage. October 11. One stitch removed from the conjunctiva, the other could not be found, having probably dropped out at one of the dressings. He can now count fingers dimly, eye is free from pain and is not so much injected. October 16. Ophthalmoscope shows large floating shreds; details of fundus can not be made out. Conjunctival wound has healed kindly and congestion is passing away. He has been remarkably free from pain throughout, considering the serious nature of the wound. Atropia has been instilled once daily; now discontinued. October 25. Now comes to my office; pupil is well dilated. The eye is looking very well. Nearly all of the redness is gone, some congestion remaining over the wound. He counts fingers dimly at one foot. Sees large objects dimly. Ophthalmoscope now shows the red reflex but no details of fundus. Still keeps it bandaged. V. in O. S. 20-xxx. November 17. Now goes without the bandage and is doing very well. Counts fingers directly in front of him. V. 2-C. Sclera wound entirely well. December 11. O. D. 20-C., O. S. 20-xxx. Selects O. D. + 1.75 cy, ax. 75. 20-40 and on December 18, with +.25 = + 2.25 cy. ax. 75; V. = 20-xxx; some in xx. O. S. Selected + 37 cy. ax. 90; V. = 20-xx. The eye was now thoroughly well and to all appearances the same as the left. He had excellent vision with the correcting glass, and an eye saved that according to many, ought to have been enucleated at the start.

This last case illustrates the wonderful recupera-

tive power of the eye if it can be kept clean. This eye at first sight seemed to be in a hopeless condition and yet ended with most excellent vision.

Case 6.—Emil B., came Nov. 20, 1891. O. S. was cut in the morning about 8:30, with a piece of steel from a wedge which he had struck with a sledge-hammer. The wound extended through the cornea, iris, and edge of the lens and the iris was fastened in the corneal wound. Under cocain with a spatula, I partly replaced the iris, but as the wound had commenced healing this was somewhat difficult. I instilled a few drops of a 2 grain solution of eserin and had the patient wait an hour, at which time the iris was partly drawn away from the wound. I then instilled more eserin and gave him atropia to use at home. On the following day the pupil was three-fourths dilated but not round, rather ovoid, and I feared traumatic cataract from the wound of the lens. Continued atropia and in six days the eye was entirely clear. Another illustration of the fact that lens wounds sometimes heal without forming cataract. I saw the patient three months later when he called with a foreign body in the other eye. The left eye was entirely well. V. 20-xxx and only a slight scar remaining to mark the original injury.

I have a number of other cases, Mr. Chairman, but it is useless to occupy the time of the Section in a rehearsal of them. I have selected a few illustrative ones. I have also many others in which the prolapsed iris has been cut away, and in some of them with excellent results but in some, I am sorry to say, with such results as to leave me in doubt as to whether I had done just the right thing in attempting to remove the prolapsed portion.

Dr. Noyes says: "The danger consequent upon prolapsus iridis increases with its extent and its nearness to the ciliary body. Traumatic prolapse is more dangerous than anterior synechiæ resulting from inflammation and perforation. A wound through the limbus and extending into the ciliary region demands abscission of all tissues which present." My own experience, however, inclines me to conservatism, and I strongly believe that a large number of these cases will do as well or better if the iris be replaced so far as it can be and let alone, as if we attempt to remove it.

DISCUSSION.

DR. BAKER—Mr. Chairman, I am firmly of the opinion that many of us have removed eyes that might have been preserved. While the dangers of losing both eyes from sympathetic inflammation are very serious, I do not think that we should upon first seeing an eye and recognizing that there is a very serious injury decide on enucleation. During the past two years I have had two cases which illustrated this matter very forcibly. First, a boy about 12 years of age who had gone to one of the rod mills in the city. The iron rods as thick as your finger come out of these mills and shoot very rapidly forty or fifty feet across the room. One of these rods struck this boy in the eye, making a large opening in the lower part of the cornea through the sclerotic, so large that your finger could be very easily passed through this opening. Almost one-half of the circumference of the blow seemed to be torn open; the vitreous was protruding. I immediately proposed enucleation of the eye. The parents refused. I then put in a few stitches and brought the wound back as well as possible. To my surprise it healed and there is not a particle of reaction from it. I used eserin instead of atropia. The case went on to uninterrupted recovery and though the field was contracted the vision was almost perfect, that is he could read something like twenty or thirty feet, but the field of vision was contracted. I have watched this case since and have seen no bad results following.

A few months since a patient came to me for enucleation of the eye; he was engaged in ship building. A bolt had been knocked off and struck the lower lid, puncturing it and

making a very large opening in the sclerotic, almost as large as in the boy's eye. It was one of those injuries in which it seemed as if the whole eye had escaped. The iris seemed almost collapsed. The patient was very anxious to save the eye, if possible, and following the experience I had with this boy, I adopted the same line of treatment and used the eserine. This case ran along to almost uninterrupted recovery. I am certain that two or three times in my life I have removed eyes with similar injuries while in these cases I have, so far, had no bad results. The same thing is true with regard to injuries of the cornea. If it does involve the ciliary regions to any great extent, we can often save the eye where we are confident there is no foreign body and with the means we now have. In most of these penetrating wounds, in these large manufacturing centers, the foreign body is a piece of steel or iron and by the use of the magnet we can often exclude the foreign body in the eye. I think we should make an effort to preserve some of these eyes that formerly we should have removed.

DR. BRIGGS—In my earlier experience I have neglected eyes that I at present would treat, conservatively however. In case of prolapse of the iris, if I saw it when the iris could be returned I would certainly return it. I believe the danger in those cases is from infection, and the danger of infection is greater if the iris remains prolapsed than if returned. If I could not return it without too much violence to the iris, if it were not prolapsed to a considerable extent, I should use the galvano-cautery. In that way, I believe the danger of infection is lessened. In regard to the treatment of penetrating wounds, I think we are all becoming more conservative. Often we can preserve eyes from which we can extract foreign bodies, especially a piece of steel, with perfect vision. I have several such cases with almost perfect vision from which I have extracted pieces of steel, and in some of those cases, I have either excised pieces of iris or returned the prolapsed iris.

DR. SCOTT—Mr. President, the trouble I have had with prolapsed eyes has not been so much sympathetic ophthalmia, as I have had four cases of severe ophthalmia. One a case which had prolapsed eyes. I desired to remove the collapsed piece and they would not consent to it. All these cases of injury about the ciliary regions have been a source of great anxiety to me, and especially when the wound has healed and there is a contraction of a scar. I have seen few of these cases that have not been followed sooner or later by sympathetic trouble, and ultimately require enucleation.

Lately I had a very interesting case of injury; a man found a railroad torpedo and burst it open. It exploded and a piece of it went into his eye. I removed the prolapsed iris, and the lens seemed to be transparent. There was considerable hemorrhage and I questioned whether the piece had gone into the eye. I kept him under observation two or three weeks, and finally the eye-ball commenced to shrink. I advised him to have enucleation, and removed his eye a few days before I came away, and found that a foreign body had passed completely through the eye and lodged opposite the optic nerve, passing through the posterior part of the eye in contact with the optic nerve, so that when I came to cut through the optic nerve I found there was a foreign body to cut through. This piece was twice as large as a grain of wheat. I do not understand how that could pass through the lens and the ciliary region and the lens remain perfectly transparent, three weeks after the accident.

My experience in all injuries with the eyes is that injuries in the ciliary regions are much more serious than in any other. Also, I believe it is better where we have prolapsed eyes, unless we can easily reduce it, to remove them.

DR. H. H. WEER—Mr. Chairman: I recently had a case of a man attempting to drive a nail. The nail flew up and

struck him across the ciliary region, curving through the corner downward and outward. The aqueous humor at once discharged. He had to take hold of the nail with his fingers and pull it out of his eye. He then hunted for the nail in the dark, found it, drove it into the board, went into the house and retired. He suffered no inconvenience. Next morning he went to the nearest physician, who put him in his carriage and brought him to me. I saw that there had been a complete opening into the anterior chamber. There was hemorrhage in the anterior chamber. Fortunately the wound closed and the aqueous humor reformed. Having been taught by Dr. Rosie, in injury across the ciliary region, denominated by him "the danger line," to call for immediate enucleation, I used 4 per cent. solution of atropia in order to save my iris. When I next saw the patient I noticed that there was discoloration of the lens. The lens was in the anterior chamber. I made preparation for enucleation, when they came again. I found that the crystalline lens had retired from the aqueous chamber and out of sight. I was also met with a flat refusal to enucleate the eye. The case in my estimation was one of ocular anesthesia. That man never had a particle of pain. There was a greenish tinge to the iris. I repeatedly asked him if he had pain, any neuralgia of the forehead, nasal, temporal or molar, and I failed to get any indication of pain. I had the patient still under observation and the question in my mind was, the crystalline lens having retired within the vitreous chamber, whether or not it would be safe for me to attempt to take out that crystalline lens, running the risk of losing the vitreous, or whether I had better enucleate or await developments. I am still awaiting some symptom of danger. I still have the chance to take the alarm at the earliest moment. If the alarming symptom comes I can then enucleate at once. I merely wish to put myself on record as being one in favor of conservative surgery in injuries to the eye-ball.

DR. L. R. RYAN—I can recall a case that occurred a few months ago. A man was chopping a piece of wood and a splinter produced an injury to the cornea that prolapsed the iris. The prolapse was returned and by the use of eserin for several weeks the wound healed kindly and there were no symptoms of inflammation. I had two or three other cases treated in the same way, and it seems to me that eserin has a more important place in the treatment of the eyes than we attribute to it. It prevents the tendency to glaucoma, which is apt to follow any inflammation of the iris where we use atropin alone. If we would confine ourselves to eserin in connection with atropin in iritis, or inflammation of the iris from disease, our results would be far better than they are at present. That has been my experience in the last two years.

DR. TAYLOR—Mr. Chairman, I read by paper most hurriedly from the fact that there are several papers to read yet. It will not take a long time to discuss it. I do not wish to make light of the danger which every injured eye has; the danger from sympathetic ophthalmia. That is the danger, and yet if we keep that eye under observation we are ready at any time it becomes necessary to treat it. Oftentimes, our patients leave us and we fail to see them in time and it becomes too late. I recall to my mind one case of injury to the cornea, not apparently a very serious injury. The patient was doing, as I thought, well. It was a case in which there was no pain, and so the patient who thought she was doing well enough staid away. She came back in two or three weeks, and I found sympathetic ophthalmia had developed in the other eye and advised enucleation. The patient said: "No, I would rather be blind than have my eye taken out." She would not have it taken out and she is totally blind to-day in both eyes. And yet, the case

was not one in the first place that any one would have thought of enucleating. It was a case of neglect, not neglect on the part of the doctor, because he had no chance to see the case, as the patient did not come back.

I merely wanted to call attention in the paper to the fact that' as it was said by our chairman, I believe many eyes are enucleated which might be saved, keeping in mind the serious dangers in cases like those Dr. Scott has mentioned. If a foreign body remains in the eye, the eye must come out sooner or later, but if we are sure the foreign body is out, then I believe we should wait a reasonable time unless the eye is injured to such an extent that it is hopeless. A paper by Dr. Geo. H. Powers, of San Francisco, entitled "Some Cases of Unusual Reflexes from Pathological Ocular Conditions," was then read by title and referred to the Publication Committee.

A paper by Dr. A. G. Hobbs, of Atlanta, Ga., entitled "The Use of Galvano-Cautery Knife in Pterygium Operations," was also read by title and referred to the Publication Committee.

THE TREATMENT OF PTERYGIA WITH THE GALVANO-CAUTERY.

Read in the Section on Ophthalmology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY ARTHUR G. HOBBS, M.D.

ATLANTA, GA.

I shall not presume that it is necessary in describing this method of operating on pterygia to even enumerate the many already in vogue. I should rather ask your forbearance for merely suggesting to you that yet another method is to be added to the list already, perhaps, too long; still it may be true that each of these operations has served its purpose in turn in the process of evolution. Since it is the cardinal point in making a pterygium operation to prevent two raw surfaces from remaining in apposition after the operation, which necessarily results in the relapses which we too frequently see, why not then convert each of the raw surfaces into an eschar at once to avoid such failures, provided we are able to demonstrate practically that this means will bring about that desired result?

For some years the galvano-cautery point has been resorted to in corneal ulcers, particularly in those indolent and intractable ulcers which have refused to yield to other methods of treatment. It was suggested to me a few years ago, after seeing some of the beautiful results of the cautery when applied to ulcers of the cornea that it could, at least, produce no bad results if properly applied to the neck of a pterygium for the purpose of cutting off the nutrition of its corneal apex. I hoped that it would prove a better means of severing the arterial supply to the apex as it crossed the sclero-corneal junction. This object is generally attained by the use of the knife and various methods have been resorted to, to accomplish the purpose. The failures in pterygium operations are usually due to the resulting reestablishment of the arterial circulation, and when this occurs the desired end of the operation fails in proportion to the number of the reestablished vessels. The great vascularity of a pterygium, with its vessels crossing over the sclero-corneal line to supply its apex on the cornea, renders it difficult to permanently sever all the arteries by a clean cut with the knife, hence perhaps a score of different methods of knife and scis-

sors operations have been resorted to by different operators to accomplish this end.

Each operator aims at one end primarily, and that is to completely cut off all the blood supply from the corneal apex. Secondarily, his desire is to destroy as little conjunctiva as possible. When the first end is attained, the corneal part of the pterygium has lost its direct nutrition and can then only share with the cornea proper for its sustenance which is indirect, or by imbibition. As this meager supply proves insufficient atrophy results and the partial, or almost complete, obliteration after a time will depend upon the activity of the absorbents. For this reason the best results are obtained in younger subjects in which as a rule, the lymphatics are more active, as is also the contractibility of the arterial coats.

In many cases when the knife is resorted to a secondary pterygium results in which sufficient nutrition is reestablished to the apex to perpetuate the corneal haziness even beyond its apparent margin to greatly interfere with vision. When the cautery section is well made I have not seen these secondary results that are often so difficult to prevent by a clean cut with the knife or scissors. In some cases, however, it may be best to combine the methods of operating as I have done in two cases not included in this report. These two pterygia were extremely vascular and muscular, hence I first used the knife in the usual way and then seared the divided edges with the cautery blade to prevent the secondary results.

The fine-pointed cautery blade, heated with a battery that can be perfectly gauged and always relied on, is applied horizontally to the narrowest portion of the growth which is near the sclero-corneal line; the touch is made at the moment white heat is reached and should be almost instantaneous and re-applied as quickly, if the tissues are not at first completely severed. If the growth is not adherent to the sclera and corneal margin it is best to grasp it with small forceps and slightly raise it from the sclera. When the forceps are used it is easier to be certain that the cautery has made a complete section of all the hypertrophied and over vascular conjunctival tissue.

When the corneal head is large and protruding it is advisable to make a cautery application in the same manner as in applying it to a corneal ulcer. In both cases the resulting cicatrix is less—it is more transparent. This is not altogether an unknown fact but one that has seemed never to have been brought out as prominently as its importance would suggest. For this reason one may be tempted often to resort to the cautery to reduce a large pterygium apex or a corneal ulcer, for the purpose alone of attaining this corneal transparency. The resulting eschar so completely severs the vascular connection, leaving no raw surfaces in apposition that a reestablished circulation is practically impossible; this can not be said when the knife or scissors have been used. In case the redundancy of tissue at the point of section should seem to require reduction, the scleral end of the section may be turned under and a transverse suture introduced.

I have made this operation fourteen times, and would have made it half as many more times during the last two years but for that decided objection to the cautery which we so often meet with and are bound to respect. This operation is more quickly

performed; it is followed by no bleeding; it leaves no ecchymosis; the wound heals more rapidly; there is less pain during and after its performance; it requires no bandages and the corneal haziness around the apex is less.

A weak solution of cocain, about a 2 per cent. is first dropped into the conjunctival sac, then after about five minutes a stronger solution, about 10 per cent. is applied at intervals, locally, by means of a small cotton probe for five minutes more; in the meantime the lids are held open. By this means the toxic effects are avoided except in those subjects that are unusually susceptible to cocain. In using cocain in this latter strength I try to avoid as much as possible, by the position of the patient, its contact with the cornea. It is now a well-known fact that when used in this strength, or even when much weaker, that this drug is disastrous to an abraded cornea if long continued.

The kind of galvano-cautery apparatus, the ease of its manipulation, the size of the blade, the confidence of the hand that presses the button, the requisite degree of heat which should be gauged by the turn of the screw are some of the necessary factors in this seemingly simple, yet delicate little operation, whether it be made to a corneal ulcer or to the neck of a pterygium. The only galvano-cautery apparatus in my knowledge that I would now be willing to trust for this purpose is a little transformer of an alternating current of fifty-two volts.

I am now using, in my consultation rooms the first two little instruments ever made for this purpose. I described the varied uses and advantages in a paper read before the Pan-American Congress last fall. So far as I know, the galvano-cautery has not hitherto, been used as a means of cutting off the nutrition of the corneal apex of a pterygium.

RELATIONSHIP OF OPTIC ATROPHY TO LOCOMOTOR ATAXY.

Read in the Section on Ophthalmology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY H. I. JONES, M.D., L.R.C.P.E.

MEMBER AMERICAN MEDICAL ASSOCIATION, CALIFORNIA STATE MEDICAL SOCIETY AND SAN FRANCISCO COUNTY MEDICAL SOCIETY.

I desire to point out the special features of the relationship of the optic atrophy to ataxy, and have a case to demonstrate my topic:

J. W. H., aged 37, native of the United States. Past history: He has suffered for the last five years from rheumatic pains in various parts of his body, and from nervous twitching, lightning pain in leg, trunk and arms. No history of syphilis. He has used tobacco and stimulants freely. About a year ago he was advised to go to Paso Robles Springs and use the mud baths for his rheumatic pains; no relief was obtained; a few weeks after his return he complained of defective vision, first of the left eye, then the right. Jan. 31, 1894, when he first came under my care, I found that he was totally blind and suffering from a rapid nystagmus, and lightning pain in both legs. Ophthalmic examination showed atrophy of both optic discs; owing to the rapid movement of the nystagmus it was very difficult to make a thorough examination of the fundus. Physically he is in perfect health. He has Westphal's symptom, absence of the knee reflex, but lacks the tabes gait; he tells me that his gait has always been normal. Many patients see no relation between their pains and their amaurosis or ataxy, especially if these pains come on, as in this case, years before. He has Argyle Robertsons symptoms. Under treatment he has made slight improvement. Nystagmus is less, he can see shadows in my office; for instance he pointed out a picture frame in my consulting room. To test him and to show that it was not visionary, I requested him to walk up to the picture and

place his hand on the left hand side of the picture, which he did. Treatment has been both local and constitutional. Locally, blisters to the cervico-dorsal region, leeches to the temple, cautery of the spine, galvanic and faradic currents. Internally, strychnia sulph. hypodermically, and by the stomach arsenite of strychnia, pilocarpin, iodid of potassium and proto-iodid of mercury.

There are few diseases which present such a multiplicity of symptoms as are found in locomotor ataxy. This patient was totally blind when he came to consult me, so I could not test his field of vision, which is a very significant symptom in cases of atrophy in tabes. There is an intimate correspondence between the development and functions of the brain and those of the optic nerve and retina; the connection is still increased by the communication which exists between the lymph spaces of the eye and those of the brain and spinal cord. These anatomic conditions not only account for the occurrence of neuro-retinitis and other ocular changes in disease and injury of the spinal cord, but a Polish physician has traced a connection between errors of refraction and curvature of the spine. The eye is not a separate autonomous organ, living as it were a life apart, nor is it a mere appendage or accessory, convenient and advantageous to the rest of the organism; on the contrary it is in closest relationship with the rest of the body, and participates in its moods. Erb tells us that a brisk cutaneous irritation causes the pupil to enlarge; pinching a comatose man will often enlarge the pupil, but the pupil in tabes is not affected by such procedure.

In all cases of atrophy of the optic nerve we should inquire for lightning pains, test the knee reflex, whether gait is normal or not. The pains are often the bridging symptoms betwixt so-called uncomplicated amaurosis and tabes. Charcot and others attribute the cause of optic atrophy to gray degeneration and to be parenchymatous. The eye-ball and its appendages draw their blood supply from two main sources, the internal and external carotid arteries. By means of the blood vessels and the fluid which circulates within them, foreign or other morbid material may be carried along the blood current into the eye.

The eye and its appendages receive the whole or part of six of the cranial nerves, as well as many fibers of the sympathetic nerves which influences the nutrition of the eye, controlling the size of the blood vessels, and regulating the size, equality and mobility of the pupil. That a certain portion of the spinal cord exercises a direct influence on the eyes has been incontestably established by experiments of modern physiologists. Brown-Séguard demonstrated that the filaments of the sympathetic that supply the eye take their origin from that part of the spinal cord which is contiguous to the origin of the first pair of dorsal nerves, and that portion of the spinal axis which extends from the fifth cervical to the tenth dorsal vertebra possesses a distinct influence on the organs of vision, and has been termed by physiologists, "cilio-spinal" and sometimes "oculo-spinal." The conclusion that must necessarily be deduced from these observations is that the portion of the spinal cord, "oculo-spinal axis," includes within itself both vasomotor and oculo papillary filaments; which are connected with the cervical portion of the sympathetic. It is not surprising, therefore, that the eye is very susceptible to all those influences, healthy and morbid, which affect the nervous system generally, or the special innervating apparatus of the eye,

either at the center, the periphery or in any part of its course. The special feature in this case is the absence of the gait.

DISCUSSION.

DR. YOUNG, Burlington, Iowa—Some years ago, we had an interesting paper on myopia. At that time I had an illustrative case, and can now recall five cases which might be considered under this head. I want to give the Section, briefly, some peculiarities observed in the five cases. Two were cases in which rapid optic nerve atropia came on, and they went blind in a very short time. In those cases there was absence of the reflex and some of the other symptoms of dorsalis, but we could never make out a plain case. A few other cases of unmistakable dorsalis have come under my care and observation. Typical cases have had no eye symptoms whatever. The fifth case had typical dorsalis as the result of an injury, and he had rapid, progressive optic atrophy and became entirely blind. The question arises, Should we not make a better classification of dorsalis in connection with eye symptoms than we have at present? Are we to expect in all cases our visionary image of cases? I think not. My observation would be like this: Where we get typical dorsalis as the result of direct injury, traumatism, I should look for it. In pure asthenopic dorsalis where the symptoms come on with staggering gait, pains, etc., I have come to the conclusion that we can correct it very often.

A NEW AND CONVENIENT ARRANGEMENT OF ROTARY PRISMS.

Read in the Section on Ophthalmology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY EDWARD J. BROWN, A.M., M.D.
MINNEAPOLIS, MINN.

After much suffering from heterophoria and more or less satisfactory effort to relieve such trouble in myself and others, I hailed the paper of Dr. Geo. M. Gould as a ray of genuine daylight, and at once put his theories to the test. The results in my own and a good number of other cases have been highly satisfactory.

As a means of carrying out the Gould exercises, I found the prismatic arrangements at my command very cumbersome and unsatisfactory. Dr. Gould's double battery of forty prisms seemed altogether too unwieldy for convenient use. It at once occurred to me that an arrangement of rotary prisms, like Stevens phorometer, except that they should revolve in opposite directions, would answer the indications perfectly. With the assistance of Mr. Carl Thayer, a local jeweler, I have constructed an instrument which I find very useful. It consists of two 30 degree prisms mounted on two clock wheels, geared together so as to rotate in opposite directions, on a brass plate. The prisms are rotated by a handle firmly attached to one wheel, and a pointer and scale indicate at a glance the power of abduction and adduction in a given case, with a range from 0 to 60 degrees.

By a simple arrangement one prism may be disconnected from the other, and revolved alone for the purpose of measuring the strength of, or exercising the vertical muscles. A clip might be easily added to hold a third prism base up or down, but I find it better in practice to use neither device, but to exercise the vertical muscles by slightly revolving the instrument in abduction or adduction in the hori-

zontal plane, by means of a narrow vertical cross-bar which serves as a means of suspension above and a firm handle below. The whole is suspended from a swinging arm, and by means of a simple automatic clamp easily placed at the height of the patient's eyes. It might equally well be swung from the ceiling with a weight and pulley. The instrument serves perfectly its purpose whether we choose Gould's system of over-weighting the muscles, or Savage's rhythmical exercise.

I find in practice the best plan to be a modification combining the advantages of each, *i.e.*, rotating the prisms slowly up to and beyond the patient's power to fuse, when he closes his eyes for a few seconds and the prisms are again placed at zero.

In some cases this over-weighting, even for once or twice will cause a severe headache, and there is consequently need of a wise discretion in its use. This is especially true of forced adduction, or sursumduction with the rotary prisms, since the unbroken and gradual increase of prismatic strength adds decidedly to the ability to overcome the prisms.

Gould advises the use of his method in accommodation. A decided advantage of the rotary prisms is that in most cases sufficient strain can be put upon the muscles at twenty feet. A further advantage is the low cost of the instrument, which ought not to exceed \$10.

As regards results I will only mention two out of many cases. In one, after several months ineffectual use of rhythmical exercise, adduction was brought by Gould's method and rotary prisms from 6 degrees to 80 degrees in four weeks; and in a second, adduction of 10 degrees was brought to 70 degrees in two weeks, the patient having no other than a few moments' exercise daily at my office.

DISCUSSION.

THE CHAIRMAN—There is a matter which I think the Executive Committee have to bring before the Association. The Secretary has just gone out to call them in to report.

DR. STARKEY—Mr. Chairman, while waiting, I would like to suggest that we should have a time set and an invitation extended to members who have any little device that they are using that others may not have, that they should bring it here and show it to the other members. I find as I go about that I frequently run across something that I wonder I had not thought of, which some one is using constantly and supposing every one else is using the same. I think we should assist each other in every way as much as possible.

A MEMBER—Was there any report from the committee on the subject of blindness? There was a committee appointed last year. Dr. Howe, of New York, was chairman.

THE CHAIRMAN—I might say that a great deal of work has been done by this committee; I was chairman of the committee that was appointed in Ohio to secure the passage of a law similar to that in New York City and we went to Columbus and secured such a law in Ohio. A similar law has been passed in four or five other States and an effort will be made to secure the passage of some such law in all the States.

A MEMBER from Iowa—Mr. Chairman, I went to Des Moines and labored very hard with our Legislature, and got the Committee of the Senate to decide favorably upon a law. That is all that ever came of it. We kept it grinding as long as we could, and finally the thing fell through, and I do not look upon it as very favorable toward getting any legislation in Iowa.

DR. SOUTHWARD, San Francisco—That matter was brought

up here. I had considerable correspondence with Dr. Howe, as did other members in California, and formulated a law based upon a law passed in Maine. Maine has the best law of all. The New York men voted for it and in New York within the last month or two there has been a conviction under that statute. Here in this State it was brought before the State Medical Society. I spoke upon it before the Society, and we hope it will receive a favorable hearing in our Legislature next session. I think that California will come into the line as a State that is willing to pass laws in the interests of humanity as soon as any other State in the Union. I assert that in this matter of legislation we are working for the cause of humanity, and that we can not do anything detrimental in asking the assistance of those who are willing to give their time and energies to obtaining laws that will be for the benefit of the rising generation. And I hope that this Section will indorse any movement or law compelling every child when it comes to school to bring a certificate stating that its eyes are in proper condition for carrying on its work. Whatever may be our theories in regard to statistics, we know what takes place among children on account of their bad eyes, and we know that the attempt to do this work can not be injurious, no matter what our personal ideas as to statistics are, wherein those errors exist and are detrimental. We know that many a bright child has been thrown out of school, and many a bright young man has had to leave his career, and as old Dr. McKenzie used to say: "All such are advised to go to Australia by the cheap route." I do not believe any one can object to voting for resolutions that will permit us to ask for such legislation. Some of us are anxious to see what we can do in California, and would like to go to our friends in the State and say that we have the indorsement of such a learned body as this. We expect to learn and have learned a great deal from the visiting members, and we want their assistance in doing these things for the best in the future. I would like to have the sense of meeting as to the indorsement of the course that we are trying to take.

A MEMBER, Southern California—Next month the Southern California Medical Society meets in my town. They have a larger membership than any society in California. We have a membership of nearly one-fourth of the regular physicians in our District, comprising seven counties of the southern portion of the State, and each one of those counties representing more territory than most of the Eastern States. We have an enthusiastic Society there and one which could be interested in this movement. I do not want to crowd anything on the Section without proper deliberation, but if this Section were willing to pass my resolution of indorsement, which we would prefer should come from some other State than California, I could take that resolution into the Southern California Society and get their coöperation in that work. It would be a long step in the direction of educating the people along an important line. Our Legislature in this State meets only once in two years. If nothing is done now, we can secure no action before two years this coming winter. If we can organize now, it is probable we can move upon a line that will commend itself to every member here, of securing something which will educate the people up to the wrong they are doing to all the children when they let them do work they are not able to do without severe suffering.

DR. STARKEY—Mr. Chairman, to bring that before the Section I move the following resolution:

Resolved, That it is the sense of the Section on Ophthalmology of the AMERICAN MEDICAL ASSOCIATION, that for the good of children, the eyes of all children should be examined before beginning their school life."

DR. ELLIS—Mr. Chairman, while I am heartily in sympathy

in this matter I do not think it would be policy for us to adopt such a resolution. While it undoubtedly would be for the good of the children, I think if such a thing were done it would have the appearance at least before the California Legislature, with whom I have had some experience, of simply drumming up business for the oculists. Now there would be just as much sense in the Section on Orthopedics or General Surgery to ask that a law be passed that the backs of all the children be examined to see that there is no spinal trouble, or that the hip joints be examined to see that there is no trouble there, and so on. While I do acknowledge that it would be to the advantage of the children, I do not think it would be to the advantage of the Section to take any action.

DR. SIMONTON—It seems to me that the gentleman who has had the floor has not got the gist of the motion; the motion is not that a law be passed. It is that it is the opinion of this Section that it would be well that the children be examined. As the motion now stands, I can heartily vote for it—that we think it would be well for the children. If there was a resolution urging the Legislature to make such a law, making it compulsory, then I should oppose it. I think whenever we undertake such things as that we get ourselves into deep water. The public objects even to vaccination. When we talk about compulsory vaccination that seems to be un-American to a great many people. They think their liberties are being abridged in some way or another. I vote for the motion that it is the sense of the Section that it would be well for the children if their eyes were examined before entering the schools, but not to suggest legislation on the subject.

THE CHAIRMAN—I think before this question is voted upon, we should have the report of the Executive Committee bearing upon this subject. It would be to our interest.

A MEMBER—Mr. Chairman, the report of your Committee appointed to select the subjects for consideration for next year is as follows:

Examination and Care of the Eyes During School Life.

Methods of Examination.

Instruction of Teachers and School Authorities and Local Provisions.

Suggestions as to the Members of the Committee—Dr. W. F. Southard, Dr. Young, Burlington, Iowa; Dr. A. R. Baker, of California; Dr. Geo. H. Price, Nashville, Tenn.

A MEMBER, Southern California—Mr. Chairman, I wish to take issuance with Dr. Ellis, of Los Angeles, with reference to the question, and urge the Section to adopt the resolution. I believe thoroughly as Dr. Simonton has said, that it commits the Section to no action and no indorsement of any action towards the securing of legislation. That falls to the share of the individual workers in the State. I believe a great deal can be done in the way of educating the people up to an understanding of the conditions by a fight, even if it is an unsuccessful fight before the Legislature. Attention will be called to the fact that legislation is believed to be necessary by a considerable body of the people, and more attention will be paid to the question. I have taken no part in the discussion of the paper delivered to-day. I have taken great interest in the work and have done work in my own country. I have been urged into it by regular practitioners, by superintendents of schools and county superintendents, and I have recognized the fact that the appearance was as if I was drumming up business, and yet I have scarcely met with any opposition on that ground, either among practitioners or educators, and have met so warm a feeling in favor of doing something, and so much interest among educators in the county that I am convinced much good can be accomplished, even by a losing fight.

DR. TAYLOR—Inasmuch as this Committee has suggested

this very topic for next year's discussion, and suggested a competent committee to prepare this subject, would this not come with greater force from this ASSOCIATION next year than at the present time, if it should come after a full preparation of the topic, and a full discussion in the report of this Committee? I suggest that it be deferred for the present, inasmuch as this is a special topic for next year.

DR. ELLIS—The Secretary might be instructed to refer it to that committee.

DR. SOUTHARD—You do not assert that it means that this body of men here is not competent to claim that they believe it is well to examine children's eyes? President Jordan said to me within a few weeks that he never realized in his life the importance of this until recently, and he was very earnest in the hope that something would be done, and that I would continue to work in this line until something was accomplished. I would like to be able to go to teachers and others and say that our Ophthalmology Section does agree with me and others in the fact that it is well to have children's eyes examined. I should think we might have indorsements in that way, to assist us to carry out what we have already started upon. I believe that now is the time for commencing the work. It is simply a little indorsement I want from you in my lectures throughout the State.

DR. COE, of Seattle—We have our teachers' associations throughout the State, and local meetings of teachers, and if this matter can be brought before the State Societies, we can get the general practitioners interested in that matter. As has been stated, Dr. Jordan even was ignorant of the dangers to be incurred through these troubles. So you find it everywhere. I have no hesitation in trying to educate the public to this view of the matter and I think if we can only adopt this resolution it will come with added force when we take it into our State Society.

The question was then put on the amendment to postpone until next year and the motion was lost.

DR. STARKEY—I have no desire to push this matter but I thought, simply as an educational measure, it might be well to have it for use during the year without postponing.

The question was then put on the original motion and carried.

The Secretary then read a letter from Dr. Savage of Nashville, suggesting that the Section extend an invitation to the International Congress of Ophthalmology to hold its next session in this country and requesting to be appointed a delegate.

DR. TAYLOR—I do not know whether this is a matter to come before the Society or not, but I suggested the reading of this letter so that it may be brought up. Probably Dr. Jackson can tell us something about this Society, so that we will know whether it would be proper for us to take action.

DR. JACKSON—I think this Congress met in New York in 1874. A Congress met there which was practically one of this series of international congresses. So far as I know, the place of meeting of the Congress has not been determined by any invitation of the Society, but by the invitation or upon the solicitation of members from a certain place, who were present at the meeting. The Congress is not a representative body at all. It does not invite delegates from other associations. It has a different basis of membership. There would be a good many members of the AMERICAN MEDICAL ASSOCIATION who intend to be present, many of the most prominent members of the ASSOCIATION, but they have none of them asked to be appointed delegates to this meeting. While Dr. Savage may be as good a man for a delegate as anybody else, I do not see that we can appoint him simply because he suggests it. To appoint delegates where dele-

gates are not invited, would be rather undignified on the part of the Section. The question of the invitation is a different question, I am sure, if it is the feeling of the Section that it would be well to have the Congress meet here the next time it meets. But I think we would not improve the chances of our getting the Congress by extending a formal invitation. If the members who attend will extend the invitation as members of the Congress, they will be more likely to get it than if a formal invitation were extended by this body.

THE CHAIRMAN—American delegates, as a rule, are received over there very coldly. It has been the custom for so many years for men of ordinary talents to secure appointment that they have grown to look upon them in rather an unfavorable light.

On motion duly seconded and carried, the following resolution was adopted and the Secretary was instructed to forward the same to Dr. Savage:

"Resolved, That inasmuch as this Section has no representative in the International Congress of Ophthalmology, it is not deemed advisable that we appoint a representative."

The Secretary then read the minutes of this and the previous meeting.

A vote of thanks to the retiring officers was then carried and the Section adjourned.

THE SWEAT-SHOPS AND SMALLPOX IN CHICAGO.

BY BAYARD HOLMES, M.D.

PROFESSOR OF SURGICAL PATHOLOGY AND BACTERIOLOGY IN THE COLLEGE OF PHYSICIANS AND SURGEONS OF CHICAGO.

There is before me a document very significant to medical men. It is the first special report of the Factory Inspector of Illinois. This fifty-seven page pamphlet is a fair exposition of the condition of our western metropolis during the smallpox epidemic of the past winter and spring.

All of our readers may not know that a law was passed by the last Illinois Legislature defining the sweat-shops and denying the manufacture of clothing except by the residents in any room used for domestic purposes. This law also provides that all workshops and factories shall be open to inspection, and when articles manufactured in them have been found infected with vermin or with infectious or contagious matter, they shall be reported to the local health officer to be destroyed by him. Now it appears from this report that there are about 950 licensed shops in Chicago and 25,000 other rooms in which garments are made. The principal Factory Inspector, Florence Kelley, and her ten assistants, have had enough to do to enforce the other provisions of the law, especially in preventing the employment of children under 14 years of age in the factories; nevertheless in the fall of 1893 a few cases of smallpox appeared in Chicago. A Sister visiting the smallpox hospital on Twenty-sixth Street and Sacramento Avenue, had smallpox in Rock Island after her return, and a number of cases appeared in various parts of the State, but through the efficient efforts of the State Board of Health none of them became epidemic.

In January there was a real epidemic in the region of the Chicago smallpox hospital, and the local health officers began to show some activity. The smallpox hospital, which only needs to be mentioned to be condemned, soon became full to overflowing, and the death rate was enormous. The people began to refuse to be removed from their homes and cases

were concealed from the authorities. At last the place became so overcrowded that no more cases could be taken at the hospital and yellow cards were tacked, usually on the back doors or hidden sides of houses, in which smallpox was found.

The duty of the Factory Inspector evidently called upon her to protect the consumers of ready-made and custom-made clothing from the danger of smallpox contagion carried by the clothing they purchased from sweat-shops in which contagion existed; therefore she informed the 176 wholesalers and merchant tailors who have their work done by sweaters, that smallpox was epidemic and that there was danger of infection, and called attention to the provision of the law for the destruction of infected goods. Only a few of the manufacturers paid any attention to the suggestions of the Inspector and various other means were taken to secure compliance with the spirit of the law.

The first goods were actually destroyed by Health Commissioner Reynolds at 699 Allport Street, on May 12. In the meantime sporadic cases of smallpox appeared almost everywhere in the Western United States. The activity of the State Boards of Health was aroused in adjoining States, and a conference was held in Chicago May 10. The result of this conference was a contribution by the manufacturers of clothing, who employed Chicago sweaters, of several thousand dollars to be expended in the inspection of sweat-shops and in the vaccination of their workers, all to be done under the direction of the Illinois State Board of Health. In other words, the State of Illinois undertook to guarantee the non-infectious condition of the clothing manufactured in the sweat shops of Chicago for a gross contribution of \$5,000. How unsuccessfully this was done, indeed, how absurd the proposition was, and how much the country has been exposed to smallpox thereby, is shown by this report as well as by the spread of smallpox over the territory in which Chicago clothing is sold. As concrete instances are much more suggestive than any abstract dissertations I could prepare, let me copy the following cases from the Inspector's report:

May 13, 1894. John Cerenak, 645 Throop Street, coat-maker for A. A. Devore & Sons, Michigan Avenue, corner Adams Street; Inspector Bisno.

The Inspector found in Cerenak's shop, which is one of his living rooms in this tenement house, a coat for the Devore firm in process of manufacture on Sunday, May 13. A boy lay dead of smallpox on the same premises after several days' illness. The man declined to name any other owner for the coat than himself, and was notified by the Inspector not to remove it until it had been fumigated.

May 14. The firm of A. A. Devore & Co., were notified from this office of the facts in Cerenak case and replied by letter that the coat belonged to them and that they would rather it should be destroyed than returned to them.

May 15. An order was served on Commissioner Arthur Reynolds, to condemn and destroy this coat in accordance with Section 2 of the Workshop law. Dr. Henry Reynolds accompanied Inspector Bisno to the premises and demanded the coat from Cerenak, showing him the letter from Cerenak's employers, A. A. Devore & Co., asking for its destruction. Cerenak refused to give up the coat unless paid \$16 for it and for making another one which had been returned to the firm previously. Dr. Henry Reynolds then went away, saying to Inspector Bisno that he would return for

the coat the next day, bringing police to take it if necessary. Some days later he informed Inspector Bisno that he did not go back for this coat and did not know what, if anything, had been done with it. It was then too late for inspectors from this office to trace the coat, which had disappeared.

This shows where one of the most aristocratic tailors of the city has his coats made and it also shows the inefficiency of the Department of Health.

May 22, 1894. Anton Randa, 1636 West Twenty-second Street, custom tailor, for Kelley Bros., merchant tailors, 268 South State Street; Inspector Bisno.

The Inspector found Randa's shop in his living rooms in a cottage basement. There were nine people in the family, five of whom, Randa's wife and four of his children, were sick with the smallpox. The four small rooms are used for eating, sleeping, living and manufacturing, and in the room used for a shop are two machines, three chairs, two tables and one bed. No goods were found in the shop, nor was Randa there, but as the Inspector was informed by Randa's child, he had gone after more work. The five smallpox patients were at this time in the house.

At 8 P.M. the Inspector returned to Randa's house, found him and learned that the patients had been removed to the pest house. Randa at first insisted that he had not had any work for six months, but finally admitted that he had worked for Kelley Bros., 268 South State Street; that he had delivered to them a coat very recently and that he had also taken from them one coat to make on this day, May 22. Where this coat was he absolutely refused to tell, nor could Inspector Bisno find it on the premises.

May 23. Inspector Stevens went to the store of Kelley Bros.; neither of the partners were there; this case was reported, as above, to their cutter, and an order on Randa for the coat in his possession was obtained. This cutter also told Inspector Stevens that the other coat had been returned by Randa on Thursday, May 17, and had been delivered to a customer. The Inspector asked for the name and address of this customer, which the cutter claimed not to know.

An order was issued for Commissioner Reynolds to destroy, in accordance with Section 2 of the Work-shop law, any goods in process of manufacture found in Anton Randa's possession. Inspector Bisno, accompanied by two agents of the Board of Health, returned to 1636 West Twenty-second Street and gave Randa the order from Kelley Bros. for the coat. Randa then took them to 1616 West Twenty-second Street, on which premises he had concealed the work, and produced it. They found a boy in the family where this coat was concealed who appeared to have smallpox, and the Inspector remained there until a district physician was obtained, who diagnosed the case as smallpox.

The infected coat was then taken to an adjacent vacant lot and burned by the agents of the Board of Health in the presence of Inspector Bisno.

The district physician having given his opinion that the coat returned by Randa to Kelley Bros. on Thursday, May 17, was undoubtedly in an infected condition, Inspectors Stevens and Bisno went to the store of Kelley Bros. to make another attempt to trace the coat. This time one of the partners was in the store; he was told of the destruction of the coat found hidden at 1616 West Twenty-second Street and of the circumstances under which the coat, returned to him on May 17, was made. Inspector Stevens then told Mr. Kelley that the district physician had decided that this coat was also infected and again asked for the name and address of the customer who had received it. Mr. Kelley replied that the coat was still in the store and that he was willing that it should be destroyed. When told that his cutter had that morning reported the coat was delivered to a customer, Mr. Kelley replied that this was not so; that the coat was still in the store.

May 24. An order was issued for Commissioner Reynolds to destroy this coat in accordance with Section 2 of the Workshop law. Inspector Bisno went with the two agents of the Board of Health to Kelley Bros.' store, where they were given a coat which the city agents burned in the presence of Inspector Bisno.

Can the dangers of tenement house manufacture be more drastically manifested? Randa concealed from the merchant tailors who gave him the coats, the fact that smallpox was in his family, although even while he returned work to them and received

more from them, five victims of the disease lay in the tenement rooms where the work was done. Again he concealed the work from the State Inspectors, and in so doing exposed it still further by hiding it in another house where also there was smallpox.

April 30, 1894. J. Kolka, 625 W. Twenty-first Street a coat-maker for Pfaelzer, Sutton & Co., Franklin and Van Buren Streets; Inspectors Stevens and Bisno.

This shop is in the rear of Kolka's living rooms on the first floor; the entrance is by a side door used also in going to the living rooms. The Inspectors found Kolka and his wife, with two men visitors in the shop, and sixteen coats for Pfaelzer, Sutton & Co., in process of manufacture. The living rooms of the Kolka family were closed and in process of fumigation. A 10 year old son of Kolka died of smallpox on Saturday, April 29. The fumigator from the Board of Health had left the premises before the State Inspectors reached it, but he had not fumigated the shop nor disinfected the coats, telling the Kolkas that it was not necessary, although the parents of the child had attended their patient and worked on the coats at the same time. The Inspectors asked Kolka when he returned the last work to the firm employing him. Kolka does not talk English easily and Mrs. Kolka, who attends to that part of the business, positively asserted that it was several weeks since they had any work except the sixteen coats then on the premises and that none had been returned since the boy was taken sick.

Inspector Stevens reported to Pfaelzer, Sutton & Co., the infectious condition of the sixteen coats on Kolka's premises, and received their promises not to accept the goods until said goods had been properly disinfected. The Inspector repeated to them Mrs. Kolka's assurance that no goods had been returned to them since April 13 and requested them to ascertain from their books if this was correct. The books showed that Mrs. Kolka had returned to them sixty-one coats on April 23, while smallpox was in the house. They were enabled to identify the coats by their ticket system, and as these coats were in a separate lot they requested that these also might be disinfected and agreed to keep them boxed away from other goods until this was done.

Inspector Stevens went from Pfaelzer, Sutton & Co.'s store to the Board of Health and finding Commissioner Reynolds absent, reported this case in detail to Secretary McCarthy of the Board, receiving his assurance that both lots of goods should be disinfected the next morning.

May 5, Mr. Meyer, from Pfaelzer, Sutton & Co., after waiting five days for the City Board, reported to this office that no one from the Board of Health had yet visited their place; that the sixty-one coats were not yet disinfected; that the sixteen coats had been returned from Kolka without the knowledge of the firm, and that they feared these also were not disinfected. At his request, Mr. Meyer accompanied Inspector Stevens to Commissioner Reynolds office to inquire why the disinfection had not been done as promised by Secretary McCarthy. Neither Commissioner Reynolds nor his Secretary had any excuse to offer. They did not know why no fumigator had been to the business place of Pfaelzer, Sutton & Co., and had no records to consult to show whether the shop and coats at 625 West Twenty-first Street had been fumigated. The Inspector finally succeeded in getting a reluctant promise from Secretary McCarthy that the two lots of coats at Pfaelzer, Sutton & Co.'s should be fumigated that (Saturday) afternoon or Monday morning. In the presence of the Inspector, Secretary McCarthy tried to dissuade Mr. Meyer from having this done, because of the trouble involved.

May 7. Inspector Stevens visited Pfaelzer, Sutton & Co. in the afternoon and found that the city fumigator had not yet been there; then visited Secretary McCarthy and gave him until 9 o'clock the next morning to fulfill his promise.

May 8. At 10 o'clock a message was received at this office from Pfaelzer, Sutton & Co. that the fumigator was there.

The utter inadequacy of the measures taken to prevent the spread of infection by these seventy-seven coats is apparent. The Kolka boy was sick a week before a doctor was called, when the child was dying. Before the report of the diagnosis reached the City Board of Health, or this office, the child was dead and buried. It was nine days after this before the City Board of Health fumigated the coats and fumigation, under these circumstances, can by no means

be considered a guarantee of disinfection. These goods should have been burned, but the Commissioner of Health refused to comply with the Section of the Work-shop act, which enjoins the Board of Health to condemn and destroy goods under such circumstances.

May 14, 1894. John Smethoma, 1189 Albany Avenue, contractor for A. L. Singer & Co., 168-170 Market Street; Inspector Kelley.

Dr. Brand telephoned that he had found bundles of goods for manufacture on the premises of John Smethoma which he believed to be infectious for the following reasons: An undertaker, now living at 1117 Albany Avenue, had occupied the premises at 1189 Albany Avenue. One of his children had the smallpox there and recovered without the fact becoming known to the Board of Health; then another son was taken ill and the family was removed to 1117 Albany Avenue, where the second child died of smallpox. After the undertaker moved out of 1189, John Smethoma moved in, occupying the same flat which had not been fumigated and using for a shop a room to which the undertaker's family had free access throughout their illness. Dr. Brand had notified Smethoma to hold the goods until further notice.

May 15. Inspectors Kelley and Bisno, went to 1189 Albany Avenue and found the shop empty and Smethoma sitting in the street in front; he denied that he had had any work within four months and said that before Christmas he worked for A. L. Singer & Co. At this office his name was found upon the list of Singer's employes. The firm was then notified as follows:

Messrs. A. L. Singer & Co., 168-170 Market Street, Chicago.

Gentlemen:—There is smallpox at 1189 Albany Avenue where one, Smethoma, is working for your house. There has been infection on these premises since April 1, at least; one death and a series of smallpox cases. Day before yesterday, goods in process of manufacture were found in the shop and the man was ordered not to remove them until they had been disinfected; this morning we find that the goods are gone; they must have been returned to you or left in some other place, perhaps secreted in another equally infected place. Kindly let us know by bearer if these goods have been returned to you and if you have any other goods made up by this man in your stock. To prevent the spread of infection the goods the man has disposed of, must be found and taken care of in the proper manner.

Yours very truly,

FLORENCE KELLEY.

The following reply to this letter was brought back by Inspector Hickey:

A. P. Stevens, Assistant Factory Inspector:—We have not received any work from Smethoma, 1189 Albany Avenue, since April 26. We will find out if expressman delivered any work this week.

Respectfully yours,

A. L. SINGER & Co.

Later the following was received from this firm on the same date, May 15:

A. P. Stevens, Assistant Factory Inspector:—Since your man called here this afternoon, we have found that the expressman delivered to Smethoma, 1189 Albany Avenue, twenty-three men's coats and twenty-seven children's coats on the 11th inst.

Respectfully yours,

A. L. SINGER & Co.

May 16. Mr. A. L. Singer brought Smethoma to this office to state where the Singer goods were secreted; at this time Smethoma's own child lay dead of smallpox at 1189 Albany Avenue the death occurring this morning. Inspector Hickey went with Smethoma to see where the goods were hidden and reported that they were in barrels packed in a loft of a barn or shed on premises at 1189 Albany Avenue, with empty barrels piled on top of those in which the goods were hidden. Inspector Hickey reported also that on the way to locate the goods the man Smethoma entered two drug stores looking for a doctor to make arrangements for the burial of his child although, as he informed Inspector Hickey, he had not had his clothes off nor had he washed for three days during which he had attended the child now dead.

At 3 o'clock on this day (May 16) the Singer goods in Smethoma's possession were burned by an Agent of the Board of Health, in Inspector Hickey's presence, and with a mob of Smethoma's neighbors surging about the place

On this day the records of the Board of Health show that there were three new cases of smallpox at 1189 Albany Avenue. To this date there had been at no time any effort to quarantine the place.

May 29. Smethoma came to this office to get permission to resume work and produced the following certificate:

May 28, 1894.

To whom it may concern:—This is to certify that the store 1189 Albany Avenue has been fumigated on May 17, and no more smallpox exists about the place. He can be allowed to resume business.

W. E. MILLER, M.D.,

Medical Inspector Health Department.

The Health Department records show three cases of smallpox at this number May 17, and one new case on May 22, again in the family of Smethoma the tailor. Including the two cases in the undertaker's family, which were not made a part of the Health Department's records, there were seven cases of smallpox, at least two fatal, on these premises in May, yet this shop certificate was issued by a city district physician, that work could be resumed there during that month. It can hardly be needful to state that this permission to resume work was not indorsed by this office.

The history of this shop is the history of the fatal concealments incident to tenement house manufacture. The undertaker concealed from the Board of Health the fact that smallpox was in his family. The incoming tenant, Smethoma, was therefore not warned that there had been smallpox there in the family of the out-going tenant, the undertaker. Smethoma in turn concealed from A. L. Singer & Co., for whom he worked, the fact that there was smallpox in his family on May 16, and concealed their work on his premises from the State Factory Inspectors.

When it is considered that there has been throughout the epidemic in the Bohemian sweat-shop district, concealed cases of smallpox, so many that the district physician in charge once stated to an inspector, his belief that there were at that moment not less than five hundred cases within a radius of six blocks, the painful conviction forces itself upon us that the Smethoma case is typical of many which, with all our efforts, we failed to reach.

The inspection of the sweat-shops has been entirely ineffectual so far as concerns securing safety to the consumers of Chicago made goods. The appearance of smallpox in the better part of the city has not, so far as the writer knows, been traced to coats or other clothes made to order, but it seems incredible that such a source could not have been traced from some of the very many, otherwise unaccountable, cases which occurred last winter in respectable families.

There are many reasons why the public was not informed on this subject at the time; the principal one lies in the utter servility of the press to trade. There was at all times, during the epidemic, the greatest difficulty in getting the columns of the daily papers open to smallpox news. The conspiracy of silence was almost impregnable. In this conspiracy it seems very strange that the Commissioners of Health should have been involved but Inspector Kelley says, Section 41:

After June 10, the Board of Health adopted an avowed policy of concealment. From this time the lists of new cases, which had before been imperfect from a lack of system and of responsible book-keeping, were rendered absolutely worthless by order of the Commissioner of Health. District physicians were notified to give out no more information and the city hall lists were reduced to two cases per day. One example of suppression of cases may serve to show how far this policy has been carried. Since it was inaugurated three children of the McLaughlin family, living in a tenement house at 82 Brown Street, were removed to the pest-house on three different days. None of the three cases appear on any list. One omission may be explained away as accidental, but not three in the same family, the same house, the same month.

Throughout the epidemic there has been no mortality record by days or weeks from which we might have formed at least an estimate of the varying degree of danger. Admissions and discharges at the pest-house are known only to the Sister in charge of them, and the daily number has at no time been obtainable from the Health Department.

The yellow card which would be of inestimable use to us if posted, and kept in place upon infectious premises, as prescribed by the city ordinance, has been tacked upon rear sheds and in hall-ways, upon inside doors, up three flights of stairs and in many cases has never been posted at all. Cards have been torn down in scores of cases but not one prosecution has been instituted by the Board of Health for this serious offence against the public safety. Trade has been carried on in groceries, milk depots, cigar shops and drug stores, while the warning card was either gone altogether or carefully concealed in an upper story or a rear yard and customers, ignorant of their danger, visited the infected premises as usual. From this connivance of the local officials at the infamy of landlords and shop-keepers, the State inspectors have suffered with the rest of the community, finding cases too late to take any effective measures for the enforcement of the law, and often failing altogether to learn of the presence of smallpox until weeks after the burial of the patient. And this in spite of faithful daily searching in the infectious district.

The guarding against recurrence of the disease on the same premises with garment making, has been further hindered by the removal of the yellow card immediately after fumigation. Where a patient was removed in the morning and the premises were fumigated and the card removed in the afternoon, an Inspector calling an hour later would find no hint of danger and a sweater might go on with his work the next day undisturbed!

Throughout this whole epidemic the value of trade and the worthlessness of human life and health, in the estimation of those in authority, has been abundantly manifested. The pest-house would disgrace Siberia by its management; it was over-crowded beyond a military prison in war time; it received no proper medical supervision and aroused no effort to improve its condition.

In the State of Illinois, one hundred of the wealthy manufacturers have clubbed together to fight the constitutionality of this factory law. The brief which their well paid attorneys prepared for the Superior Court is before me. In it, property right and personal right over property, is the principal theme.

This review is written to arouse in medical men an interest in the protection of the consumers of sweat-shop made goods of all kinds; to show the utter wickedness and folly of allowing such manufacture at all; to stimulate an interest in factory legislation and to draw attention to the need of actual coördination of the various functions of the State for the protection of our coming generation and our own peace of mind. Unless we, the most altruistic of all the educated classes, the most in touch with the people, the best prepared to judge, interest ourselves in these maladies of the State, how can we expect any attention to them from the courts, the legislature or the clergy?

CAUTERIZATION OF THE NARES, AND ACCIDENTS THAT MAY FOLLOW.

Read before the Annual Meeting of the Illinois State Medical Society, Decatur, May 15-17, 1894.

BY E. FLETCHER INGALS, A.M., M.D.

CHICAGO.

Although from time to time articles have been written to show that serious accidents, often follow cauterization of the nares, I think that, when properly done, this operation is quite as free from discomfort or danger as any other minor surgical procedure.

I have occasionally heard of serious results following these operations, but have never had one in my own practice, and I believe that as a rule they are due to carelessness or inexperience upon the

operator's part which induces him to make extensive wounds or to repeat the burnings too frequently. By this I do not mean that all accidents after cauterization have resulted from carelessness or inexperience, for I well know that bad results after any operation, from various causes, may possibly happen to any one, even though the utmost caution is observed.

Looking over the records of my private patients, I find that in hypertrophic rhinitis, intumescent rhinitis, and simple chronic rhinitis, cauterizations have been done about one and one-fifth times on the average in each patient. I find 1,450 patients with hypertrophic rhinitis who have been cauterized 1,950 times; 450 patients with rhinitis intumescens, cauterized 150 times; and 700 patients with simple chronic rhinitis, cauterized 150 times; making 2,600 patients cauterized 3,000 times. These figures are not strictly accurate, but are as near as can be computed without actually counting the cauterizations done in each and every case.

Excluding the cases of simple chronic rhinitis (which have not been frequently cauterized). I find 1,900 cases suffering from hypertrophic or intumescent rhinitis, that have been cauterized 2,850 times, making an average of about one and one-third for each patient. An examination of these records, which have been carefully kept, reveals no serious accident in any case. With comparative frequency, probably in about 20 per cent. of the cases, especially when the cauterization is done in cold weather, patients suffer considerable inconvenience for four or five days afterward from the reaction, and in a limited number of cases, perhaps 5 per cent. they feel for ten or twelve days afterward as though they had taken an intense cold in the head. In warm weather these very uncomfortable symptoms are not often experienced.

Frequently I have observed patients in whom a linear cauterization across the whole length of the inferior turbinated body would cause excessive swelling, obstruction of the naris, headache, and considerable fever which might last four or five days. In most, if not all of these cases, if cauterization of half this extent were made, the uncomfortable symptoms would not follow.

The inconvenience which patients suffer after cauterization, as a rule, depends largely upon the extent of the burn, the frequency of its repetition, and the care exercised to avoid taking cold.

I have frequently observed slight adhesions following cauterization, especially where it has been done opposite a large spur from the septum, and where the patient has not been able to call upon me within the next four or five days after operation. In none of these, however, has there been any difficulty in cutting the adhesion, or very great trouble in restoring the patulence of the naris.

In one case only do I find serious hemorrhage to have followed cauterization, and when the patient returned to my office this was checked without great difficulty. In a case of superficial cauterization for hyperesthetic rhinitis, not included in this series of cases, serious hemorrhage followed; but I did not see the patient for several weeks after the operation, and think it could have been easily checked if he had been under my care. In no other cases do I find that excessive bleeding occurred.

It is not improbable that in this number of cases

there are those who have had slight inflammation of the Eustachian tube extending toward the middle ear, but I am sure that in none of them has there occurred inflammation of any importance, and I am unable at present to find records even of slight inflammation of these parts after cauterization.

The cases of inflammation of the Eustachian tube or middle ear that have been reported as having followed cauterization of the nares, I believe have in most instances resulted either from carrying the electrode so far back that the Eustachian orifice has been burned, from making an extensive wound and thus causing undue inflammatory reaction, or from neglecting antiseptic precautions, though such a result might follow from exposure or from peculiar predisposition of the mucous membrane to take on inflammatory action.

Inflammation of the tonsils is said sometimes to follow within a few days after cauterization of the nares, possibly having some connection with the operation, but I have seen no cases of the kind in which any evidence of cause and effect could be obtained.

Erysipelatous inflammation has been the worst sequel of this treatment that I have ever observed among my own patients, but it has occurred in only four persons out of 2,600. In two of these it seemed to have been the direct result of the cauterization, and in both of them it followed cauterization in the naris whenever it was done. In the other two the dermatitis came on at irregular intervals after the cauterization, and seemed to have been the result either of cold, or excessive inflammation resulting from some peculiar idiosyncrasy of the patient, either to the burn or to the remedies which were used subsequently.

In two of the four erysipelatous cases that I have seen, inflammation did not come on until from eight to ten days after the operation, and in one of these it recurred about a month after the cauterization, apparently in consequence of an oily spray which had been used in the nares. This appeared to me to be a case in which there was an idiosyncrasy either against the oil (liquid albolene), or the thymol or oleum carophylli which it contained in solution. In the other of these two cases, two cauterizations were done, one of which was followed by erysipelatous inflammation in about ten days, which appeared to me to be the result of an oily spray, similar to that used in the previous case. In this patient, redness of the upper lip and cheek continued for a number of days, and was found to increase when the oily spray was used, and to diminish when the cleansing of the nares was accomplished by a spray of saturated solution of boric acid. I have seen several persons in whom the use of a spray containing only two or three grains of menthol to the ounce would cause inflammation of the nostril and upper lip within three or four days. Dr. A. H. Gilmore reports to me a case in which acute dermatitis always followed the use of a one-grain solution of menthol and carbolic acid, each in an ounce of liquid albolene, within twenty-four hours.

In the two remaining cases the trouble followed closely upon cauterization, the patient seeming to suffer from a peculiar idiosyncrasy in which inflammation of the skin covering the upper lip, the side of the nose, and the cheek would follow speedily after any cauterization within the nasal cavity. In one of these, a healthy young man, 31 years of age,

suffering from rhinitis intumescens, who was cauterized four times, the erysipelatous inflammation succeeded the cauterization promptly within from twelve to forty-eight hours in every instance, but it was not very severe and only lasted from three to six days.

In the other of these cases cauterization was performed three times, and each time was speedily succeeded by erysipelatous inflammation. Once this came on the same night, the other times within a few days. These attacks gave the patient considerable inconvenience, but caused no danger.

In two instances I succeeded in reducing the inflammation speedily by the local application to the skin of pure guaiacol, recently recommended by L. Bard (*Lyons Medical*, lxxiv., 1893,) in facial erysipelas.

I have heard of so many cases in which serious, or at least very disagreeable symptoms have followed cauterization of the nasal cavities, that I am led to believe that the comparative infrequency with which such accidents have happened in my practice is largely due to the care exercised at the time of cauterization, to the antiseptic precautions by which it is followed, and to the rule (from which I seldom vary) that a second cauterization should not be made within from ten to fourteen days after the first. This allows time for the healing process to become well advanced and for all inflammatory action to subside before a new inflammation is set up. In a few cases, where for special reasons I have allowed myself to be over-persuaded by the patient, and have made the succeeding operation in the opposite nostril within from five to eight days, I have nearly always found that the patient afterward suffered great inconvenience from the obstruction, headache and fever. In such cases both sides are likely to become occluded as in severe colds in the head.

My usual course in the treatment of hypertrophic and intumescent rhinitis is as follows:

Having determined that the patient is frequently annoyed, especially at night, by stopping up of one or both nasal cavities, which interferes with nasal respiration and causes a collection of more or less mucus in the naso-pharynx, I recommend cauterization upon one side. Whatever subsequent cauterizations are needed should be made at intervals of not less than two weeks if upon the opposite side, or at longer intervals if upon the same side. Immediately after cauterization, the nasal cavity is sprayed with a solution of 5 minims of the oil of cloves to the ounce of liquid albolene, and this is followed by the insufflation of 2 or 3 grains of iodol. The nostril is then packed lightly with cotton, which the patient is directed to wear whenever he is out of doors for the succeeding four or five days in winter, and for two or three days in summer, changing as he may desire. The patient in most cases is also given a powder, one or two grains of which he is directed to use in the naris three or four times in twenty-four hours, providing the passage closes up by swelling—or not at all if this does not occur. This powder contains bicarbonate and biborate of soda, each $1\frac{1}{2}$ per cent., light carbonate of magnesia 3 per cent., and cocain hydrochlorate 4 per cent., in sugar of milk sufficient to make 3i; this gives in all not more than from one-twentieth to one-twelfth of a grain of cocain daily.

This is applied by means of a glass tube about four

inches in length, with a caliber of about one-eighth of an inch, to which is attached a rubber tube, through which the patient blows the powder into his nose. The glass tube is disconnected from the rubber, its round end moved about in the powder until it is filled up about one-fourth of an inch; the same end is then re-introduced into the rubber tube, and the flattened end of the glass tube introduced into the nostril. The patient then places the other end of the rubber tube between his lips and gives a quick strong puff; which forces the powder into the naris, some of it usually going through to the naso-pharynx. The patient is also given a solution of one-third of a grain of thymol with three or four minims of the oil of cloves to the ounce of liquid albolene, which he is to use in the nose thoroughly as a spray three times daily.

In many cases the cauterization is followed by immediate relief of the obstructed feeling in the nose, but in the majority the cavity is nearly closed much of the time for three or four days subsequently. The patient is directed when practicable to return to me in four or five days, in order that I may be sure no adhesions are taking place. At this time the powder just mentioned is reduced by the addition of 25 per cent. of iodol, and the patient is directed to use it for the next ten days, once a day only, if the naris does not stop up, or twice if it does. The spray is continued. Patients are never allowed to use any powder containing cocain for more than three or four weeks continuously, and then only in small quantity, and they are not given prescriptions for it, which might be refilled and thus engender the cocain habit.

I believe that the best results are obtained by making a linear cauterization the whole length of the inferior turbinated body, usually at the juncture of its middle with its upper or lower third. Commonly two cauterizations, occasionally three, and rarely more, are needed upon each side. In persons in whom the inflammatory reaction is severe after cauterization, a linear cauterization of only half this length should be recommended. Those who can not tolerate the full cauterization constitute about 5 per cent. of all those needing the operation.

Before cauterizing, the parts are thoroughly anesthetized with a 4 per cent. solution of cocain, applied by means of a small pledget of cotton wrapped upon a flat applicator; this pledget is moistened in the solution and carried quickly to the back of the nasal cavity. In bringing it forward it is rubbed over all the surface to be anesthetized, the application requiring about thirty seconds. At intervals of about a minute these applications are repeated, and usually two or three are sufficient to produce complete anesthesia. A knife-like electrode, having at its end a No. 21 platinum-wire blade about three-fourths of an inch in length, is then introduced to the back part of the nasal cavity and turned against the tissue to be cauterized. The current is then turned on and the electrode is drawn slowly forward to the anterior end of the turbinated body, burning through the soft tissues so as to just graze the bone in two or three places. Sometimes when the tissues are thick, the electrode has to be moved slightly back and forth two or three times before the bone is felt. It is my desire in all these cases to touch the bone lightly in the posterior, middle and anterior parts, in order that the soft tissues may be firmly bound down when cicatrization

takes place. More extensive cauterization than this at one time is seldom justifiable, because it causes such intense inflammation. I am not at all in favor of the frequent cauterizations, daily or every three or four days, which some physicians practice in treating hypertrophic rhinitis; neither can I see any necessity for causing the patient to return to the office every day or two during the treatment. When patients come to see me from a distance of two to four hours' ride, I usually make one cauterization and then direct them to follow out the after treatment carefully at home, and return for cauterization upon the other side, any time that suits their convenience after three weeks; but I prefer, when it is practicable, to see the patient once at the end of four or five days after the cauterization, in order that I may be sure that all is going well. In a very few cases, either because of unusual pain or excessive inflammation and swelling, I find it desirable to see the patient within two or three days after the operation.

From a study of these private cases I conclude:

1. It is important that antiseptic applications be regularly employed after cauterization of the nasal mucous membrane; and that the nostril be closed by cotton for several days whenever the patient is out of doors, to prevent taking cold.

2. As a rule, at least two weeks should intervene between operations upon opposite sides, and three or four weeks between those on the same side.

3. No serious results are at all likely to follow cauterizations made in this way.

4. Practically all cases of hypertrophic or intumescent rhinitis may be cured by this treatment, though occasionally portions of the turbinated bones must be removed.

SHOULD ERGOT BE USED DURING PARTURITION AND THE SUBSEQUENT INVOLUTION PERIOD?

Read before the Twenty-fourth Annual Convention of the Colorado State Medical Society, Denver, June 19, 1894.

BY E. STUVER, M.Sc., M.D.

RAWLINS, WYOMING.

MEMBER COLORADO STATE MEDICAL SOCIETY; MEMBER AMERICAN MEDICAL ASSOCIATION AND MEMBER INTERNATIONAL MEDICAL CONGRESS, BERLIN.

Fifteen or twenty years ago, it would have been regarded as almost sacrilegious to doubt the propriety of using ergot during parturition.

So much had it come to be relied upon to stimulate deficient uterine action during labor, and to prevent post-partum hemorrhage, and so extensively was it used by the medical profession, that any one having the temerity to doubt its utility in such cases would have been summarily suppressed or accorded that pitying toleration that so often falls to the lot of the innovator. Such a state of mind as this could have but one result, viz., the blind, routine and indiscriminating use of the drug by many physicians.

This practice was followed by so many accidents and unheralded tragedies, however, that it finally began to dawn on the minds of at least a portion of the profession that everything was not just as it should be. This led to a more careful investigation of the action of the drug and the dangers attending its use and pointed out some of the restrictions which should be placed upon it.

This question is now being actively discussed and

great names with all their prestige and authority can be found arrayed on both sides. Time will not permit us, however, to go into details or to make extensive quotations on this occasion.

In arriving at a conclusion concerning such a question as this we should be guided by certain well defined principles. In the first place, instead of entering the investigation with a cherished theory to uphold or confirm and making the facts conform to this theory, we should earnestly strive to arrive at the truth, regardless of the effect it may have.

The advantages and disadvantages arising from the use of a particular medicine should be carefully weighed, and if it be found that the latter overbalance the former its use should be strictly limited and the practitioner should earnestly strive to find some other means to accomplish the desired results without the attendant dangers. Approaching the investigation of the utility of ergot during parturition in this spirit, let us first briefly note its physiologic action, then consider its dangers and lastly ask ourselves whether any other agent or agents can take its place. In considering its physiologic action we shall not refer to the acute poisoning caused by toxic doses, but merely indicate the effect of small and moderate or full doses. According to Wood and other standard authorities ergot acts as a stimulant to the peripheral cardiac nerves; the frequency of the pulse is diminished, the arterial tension raised and the caliber of the terminal arteries and capillaries greatly reduced. While this constricting effect upon the blood vessels has a far reaching influence, still the most decided and important effect of ergot is its action upon the muscular tissues of the uterus. All the phenomena of nature manifest themselves in rhythmic or undulatory movements.

Given in very small doses the natural rhythmic uterine contractions are merely intensified, but if the dose be large enough to have a decided effect the character of the pains is entirely changed; they become much more severe and prolonged than normal and the natural period of relaxation may be completely abolished. The uterus is held in the relentless grasp of a tetanic contraction and the intermittent expulsive efforts are changed into one continuous strain. Here, as everywhere else in nature, great power if not carefully directed and controlled is attended by great danger. Could we but lift the veil that conceals the many young graves, shattered invalid lives and the mistakes of judgment that so thickly strew the victorious pathway of this potent agent, we would hesitate before conjuring up a power we may not be able to control.

The dangers of ergot are of a two-fold nature; that is, they affect the safety of both the mother and the child. The long continued and uninterrupted tetanic contractions may produce rupture of the uterus and speedy death of the patient. This result while of comparatively infrequent occurrence is so calamitous to all parties concerned when it does occur that it ever hangs like the sword of Damocles over the head of the physician who uses ergot freely. The danger of laceration of the cervix, perineum and other portions of the parturient tract is greatly increased by the use of ergot. I am firmly convinced that to its free, I might say reckless use, are we indebted for much of that wealth of material that crowds the gynecologic clinics and private hospitals of our large cities and is such a veritable bonanza to

specialists in that particular line of work. Hour-glass contraction of the uterus may be produced by this agent. In the early years of my practice I saw three cases of this complication, and am firmly convinced that at least two of them were due to the use of ergot.

One of the chief arguments advanced in favor of ergot is its power to produce strong contractions and thereby prevent post-partum hemorrhage. No one will dispute the fact that ergot produces energetic contractions, but that it is the only or even the best means to employ for that purpose is a very different question. Administered per os it requires from fifteen to twenty minutes to secure the desired effect, hence to obtain results it must be given, as was taught fifteen years ago, just before the head is born. This method has the disadvantage of interfering with the proper management of the third stage and may cause hour-glass contraction. If the administration is delayed until after the delivery of the placenta, dangerous or fatal hemorrhage may supervene before the medicine has time to act, even when given hypodermatically. The *habit* of placing such great reliance on ergot has, I believe, been responsible for the loss of many lives, simply because it has so engrossed the attention of physicians that they have failed to give that time and thought to the investigation of other means of relief that the importance of the subject demands.

I believe that all will bear me out in the statement that there is no emergency in the whole range of medical practice which more imperatively demands clearly defined methods of treatment and prompt action on the part of the physician than post-partum hemorrhage. Also that such an organization of the knowledge pertaining to the subject as will enable him to apply it in the most effective manner can only be obtained by a thoughtful, painstaking investigation of all the available means by which the difficulty can be overcome. Right here is where ergot has done a great deal of harm to the physician. Educated to regard it as a sheet anchor, many neglect to prepare themselves for those emergencies in which it fails, and are compelled to stand helplessly by or rush aimlessly about while the life blood flows rapidly away before their eyes; to see the dark clouds of sorrow settle over a happy home and feel that intense humiliation that must attend such a failure. Nor is it clear to my mind that an agent capable of producing the peculiar effects that ergot does, can have a permanently beneficial effect in promoting uterine action. As you all very well know, action and reaction are equal but opposite in direction and this applies to physiologic as well as to physical activities. Following out this line of reasoning one would naturally expect the intense uterine muscular activity induced by the action of ergot to be followed by a corresponding period of fatigue and relaxation. There is one possible deleterious effect that I have thought might follow the use of ergot. I have never seen an allusion to it in any work or journal and present it for your consideration and criticism.

It is a clearly demonstrated fact that intense muscular activity or effort is followed by the formation of organic poisons, ptomaines or whatever they may be called. This poisoning is, other things being equal, proportional to the intensity of the effort and the amount of muscular tissue involved. In con-

firmation of this opinion I desire to call your attention to the following authorities: Fernand Lagrange, M.D., in his work, "Physiology of Bodily Exercise," page 348, says: "In the opinion of all physicians in these days the fevers of overwork which are observed alike in animals and in men are due to a kind of poisoning of the body by its own elements, to an auto-intoxication of the system by the products of dissimilation which have accumulated in too great abundance in consequence of excessive work."

Prof. I. N. Love, in a paper read before the St. Louis Medical Society, Jan. 20, 1894, quotes from an address of Michael Foster, the great physiologist, delivered before the University of Cambridge, in which he says: "When we have excessive muscular exertion, the weariness may take a form of distress, and if the effort be continued the distress may become so great as to occasion such complete exhaustion that even death may result." "In excessive work of whatever kind it may be, in order for the work to be accomplished there is a greater demand upon the blood for oxygen." "There are many things besides carbonic acid which are swept into the blood as the result of the activities of the body; in other words the product of work in the human body is a poison which must needs be eliminated through the medium of the lungs and the other excretory organs." "As physical and mental efforts are continued the eliminating capacity unless carefully guarded is marred, the resulting poisons are more and more heaped up in the system, poison the muscles, poison the brain, poison the heart, poison at last the blood itself, starting in the intricate machinery of the body new poisons in addition to themselves." "The hunted hare run to earth dies not because he is choked for want of breath, not because his heart stands still, its store of energy having given out, but because the poisoned blood poisons his brain, poisons his whole body."

These quotations very conclusively show that for its healthy activity the human organism must have an abundant supply of pure air to oxidize the products of retrograde metamorphosis; that the eliminative organs must be in an active state and the various functions of the body be performed in a normal manner. I can conceive of no condition more favorable for the rapid formation of retrograde products than that presented by the uterus at the end of parturition. Here we have an organ enormously enlarged, all the functions of which are in a state of great activity and which under proper conditions should reach its normal size in two or three months. This involution according to recent authority (see JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, April 14, 1894, page 552) is caused by the conversion of the albuminoid elements of the muscular tissue into soluble peptones which are eliminated through the kidneys and other excretory organs.

In order that this process of retrograde metamorphosis may be carried on most effectively it looks reasonable to my mind at least that the natural rhythmic uterine functions should be maintained as nearly in a normal condition as possible; that the circulation of the blood with an abundance of oxygen to reduce the waste materials be free and unimpeded and that the excretory channels be in the best possible condition to dispose of the waste products. Right here is, I believe, a serious objection to the use of ergot, as there is no doubt but that it contracts the arteries and interferes with the circulation, and

it would appear to follow as a corollary of this proposition that it locks up the accumulating waste materials in the uterus and when relaxation occurs, allows them to be carried into the system in large quantities. It also seems reasonable to infer that such an action as this is capable of producing a change in the character of the products of muscular decomposition and from lack of oxygen permitting the formation of more virulent materials (ptomaines or whatever they may be) and thus producing acute attacks of fever and systemic disturbances for which we have hitherto not been able to assign a cause. Every obstetrician has doubtless seen cases in which, after the most painstaking care and scrupulous cleanliness attacks of fever have developed for which no reason could be assigned.

Is it not possible that these are cases of true auto-infection produced by organic poisons formed in the rapidly involuting uterus? Is it not also probable that the so-called *milk fever* is largely due to a similar cause?

While the use of ergot has many dangers for the mothers it is doubly fatal to the child. As you all very well know, during a violent contraction the passage of the blood from the placenta to the child is interfered with, or in other words its respiration for the time being is stopped. If this state of affairs lasts for any length of time the child is profoundly asphyxiated and in many cases passes beyond the range of the most consummate skill, and we have another added to the long list of cases of misdirected force and an existence cut short.

But it may be asked, when if at all, should ergot be used or what agents can take its place? Before the birth of the child I do not believe it should be used at all. Uterine inertia should be overcome by quinin, viburnum prunifolium, small doses of hydrastis, gentle kneading and friction over the uterus, with the correction of faulty positions, and the support of lax abdominal walls by means of a tight binder over the uterus and finally resort to the forceps when other means have failed. If the third stage of labor be properly managed, the physician giving careful personal attention to the mother from the time the child is born until the complete expulsion of the placenta which should be removed by the Credé or some modification of the Credé method, I have reason to believe that very few cases of so-called retained placenta, or post-partum will be encountered. Active hemorrhage during the third stage demands prompt action and immediate removal of the placenta, and to attain this end ergot can render no assistance and may greatly delay and impede its removal.

After the delivery of the placenta I believe some agent or agents that secure and maintain a mild, tonic contraction of the uterus are serviceable and for the last six or eight years have been in the habit of administering the following combination, viz:

R. F. E. Ergotæ Grams.
 F. E. Hydrastis canadensis ãã 15.00
 F. E. Hamamelis virginicae qs. ad 60.00
 M. Sig: Teaspoonful three times a day.

But it may be asked why retain the ergot? I am free to confess that this is more of a sop to Cerberus, a deference to long established practice coupled with the instinct of self preservation, than to a well grounded belief in its necessity. The hydrastis stimulates normal uterine action but does not produce continuous contractions like ergot and I have been

much pleased with its action; the hamamelis acts as a synergist and moreover has marked tonic effect on the muscular tissue of the veins. I have thought that the latter remedy given both before and after labor would have a beneficial effect in maintaining the tone of the venous system, preventing engorgement of the veins and thereby guarding against the various phlegmasiæ and last, but not least, help to prevent the formation of hemorrhoids.

For post-partum hemorrhage, I regard prevention of far greater importance than any remedy. Treat every case as though you expected it to terminate in serious hemorrhage and you will very rarely be called upon to face this terrible emergency. In those cases where no precaution can prevent the accident what shall we do? The first and to my mind most important requisite is, *keep cool*, do not get excited but have your thoughts collected and all your resources fully under command. Grasp the uterus externally firmly in one hand and introduce the other previously rendered aseptic into its cavity; turn out the clots and make pressure with the closed fist on the internal walls. The injection of hot water, from 115 degrees F. to 120 degrees F., vinegar, or packing the uterine cavity with iodoform gauze are frequently employed and highly lauded expedients.

There is one other agent, however, which I think should receive more attention than has been accorded to it in the past. I refer to the interrupted electrical current. Here we have an agent that can be applied more promptly than almost anything else, that is absolutely under control, that induces prompt and effective contractions and can be instantly discontinued when the desired effect has been obtained.

THE RELATION OF CHRONIC NASAL AND LARYNGEAL DISEASES TO PULMONARY TUBERCULOSIS.

Read before the Colorado State Medical Society, Denver, June, 1894.

BY S. E. SOLLY, M.D.

COLORADO SPRINGS, COLO.

For the purpose of inquiry into the relation of chronic nasal affections to those of the throat and chest occurring in connection with pulmonary tuberculosis, I have analyzed my last 219 reports of chest examinations. Taking up each report in its exact order, 19 of these, while pulmonary, were apparently non-tuberculous and therefore omitted, leaving 200 to be analyzed. The inquiry was stopped at this number because it seemed sufficient to draw conclusions from and show the tendency of the relationship, and on account of more extended observations requiring more time and labor than could be then spent upon the subject.

There were, therefore, 200 cases of pulmonary tuberculosis to be investigated which were not in any way selected, but taken in the order in which they presented themselves to me for their first examination, running back from a recent date. Of these 200 chest cases, 33 had also nasal disease, 38 also laryngeal, and 23 had both in addition to their lung affection, making 56 with nasal and 61 with laryngeal complications. Only clearly marked cases being noted.

The nasal cases were divided: 1, into those in which the disease was most evident or was known to have commenced, or existed solely or mostly on one

side more than the other, and these again into right or left; and 2, into those in whom the amount of disease or obstruction appeared about equal, and in whom there was no clear evidence of its having begun on one side more than the other, these being grouped for convenience under the head of median.

To enlarge a little on this classification, septal deformities either divergencies or exostoses in the form of shelves or spurs or compensatory buttresses or sigmoid curves, were evidently the most common causes of the stenosis and consequent rhinitis, and therefore the side upon which the stenosis existed, or was most complete, was taken as the one under which the case should be classified even though, as is often the case, the disease of the membrane or turbinated bones was more marked on the other side. Good reasons for this condition are given by Bosworth in his recent and most valuable work upon the nose, in the chapter upon hypertrophic rhinitis, which is well worth reading in connection with this general subject, but which can not be quoted from satisfactorily except at too great a length for the limits of this paper.

The classification was made from the side upon which the chief cause of the disease appeared to be, rather than where its worst symptoms might happen to be exhibited later in its course.

The septal abnormalities referred to were found to be the most frequent initial cause, although there were some cases in which the primary cause appeared to be hypertrophy of the turbinated bodies, or adenoid, or polypoid growths, or an ulceration simple or tuberculous.

Under the head of median there are undoubtedly some in whom the disease had had a starting point on one side but in which the advance of the disease had masked the origin, so that some of these if they could have been traced up should have been classified as right or left.

For the purpose of the inquiry as to the relation of the nasal disease to the pulmonary, the cases were again classified under right, left, and median, with regard to their pulmonary disease. The side of the chest in which the symptoms first appeared, or in which it was most manifest deciding the heading, while those in which the disease was about equal on both sides, or the side of origin was unknown, or had apparently begun on both sides at once, are classified under the head of median.

Defined in this way, it was found that of the nasal cases, in twenty-four the disease appeared to have originated upon the right side and fourteen upon the left. Of the twenty-four cases of right nasal disease the right lung was primarily or chiefly affected in seventeen; the left in one; both equally in 6. Of the fourteen cases of left nasal disease, eight were primarily affected in the left lung, four in the right and two equally in both. So that in the thirty-eight nasal cases where the disease could be classified right or left, 65.8 per cent. had their lung disease primarily or chiefly upon the same side as the nasal disease. It is interesting to note that the case of right nasal disease in which the lung disease was on the opposite side, was one where stenosis of the right nostril had been caused by a fracture of the septum, and of the four cases of left nasal disease where the pulmonary disease was on the right side one also was known to have been a traumatic stenosis.

The causes of this curious symmetry between the

nasal and thoracic affection, are matters of interesting speculation. Interference with nasal respiration undoubtedly influences thoracic disease as will be later discussed, yet it is impossible to believe that the obstruction to the passage of air through one nostril could directly affect the air current entering the lungs through one bronchus more than the other, nor could possible extension of disease along the continuous membrane account for it. Bosworth states his belief that chronic inflammations of mucous membranes are usually local and not general. "Diseases of the Nose," p. 123, W. Wood & Co., N.Y.

With respect to what has been pointed out as the chief cause of nasal obstruction and so of nasal disease, viz: Septal divergencies or hypertrophies, it is assumed by most rhinologists that their chief cause is injury, many of the injuries arising before birth or in childhood and passed over unnoticed. Bosworth ably upholds this view and cites the examinations of Duret, who found the septal growths were composed essentially of plastic infiltration, thus showing their inflammatory origin (p. 290).

While we all know how very much exposed to injury the nose is, we also know how surprisingly it recovers apparently unharmed from many a blow. In the island from whence I came, the successful causing of a bloody nose to one or more of one's fellow students was a necessary portion of the curriculum to be gone through by all who sought distinction in an English school, and many a deed of prowess has been wrought upon my own proboscis and yet I have escaped a diverted or hypertrophied septum. In youth at which time most nasal injuries are received, the elastic resiliency of the parts doubtless prevents permanent deformity, though when the blow is not too violent or one sided and yet there is permanent injury resulting, it may be that the naturally weaker side yields and puts forth callus to afterwards cause an obstruction. In this connection it is interesting to note that the two cases of injury referred to where the obstruction was asymmetrical, were doubtless so because the injury resulted in a fracture by a blow from the same side as the afterwards affected lung. These two cases in not following the apparent rule may be held to give additional evidence of its existence.

The facts would appear to suggest an underlying cause in a common deficiency of resistance to disease or injury on the same side of the body, which was probably caused by a pre-natal or post-natal imperfection of development or growth, either congenital or acquired by circumstance or habit; this developmental deficiency being one of nutrition or innervation, or both.

That there is generally a difference if not an inequality in the portions at least of the two sides of the body is a matter of common observation, as when the beauty at the photographer's has a best side to present to the camera. The difference in the length of the limbs, the irregularities of sight and hearing, and of cerebral action, if such theories as Oliver Holmes, of the squinting brain be correct, are instances of this, while the records of the autopsy table confirming them, make defective development the most plausible explanation of this symmetrical exhibition of disease.

To pass to a consideration of the laryngeal cases and their significance, we find of the 200 cases of pulmonary tuberculosis 30 per cent. had throat disease,

which percentage was made up to 20.5 per cent., tubercular, 9 per cent. simple chronic laryngitis and two cases of syphilitic ulceration.

We do not find in the laryngeal disease any pronounced evidence of one side being attacked earlier or more violently than the other, both being generally or so nearly equally involved as to make any distinction, as in the nasal disease, impossible. This is confirmed by clinical experience, which teaches that the first signs of laryngeal tuberculosis are most commonly found in the commissure and when the arytenoids are involved they are usually simultaneously swollen.

Only six cases in all are noted in which the disease was markedly more severe, or began on one side in preference to the other. Of these, one had the left side of the throat, nose and lung most affected, and one the right side. One the left side of the throat and the right side of the nose and chest. Two the right side of the throat and chest, the nose clear and one the left side of the throat and the right chest. These were all cases of tubercular laryngitis. In the two syphilitic cases, as in the chronic laryngitis cases, the disease was equally distributed on both sides.

The fact that the same side of the throat as that of the nose or chest is not especially involved, would tend to show that the idea of the disease spreading directly from one nostril to the lung of the same side can not be maintained, or that the symmetrical distribution of the nasal and pulmonary disease can be explained by any deflection or obstruction of air currents through one nostril. Thus the theory of developmental deficiency receives additional support by exclusion of these possible explanations.

So far then the facts indicated by this analysis of 200 cases of pulmonary tuberculosis are that 28 per cent. had nasal disease, 30 per cent. laryngeal and 11.5 per cent. both; 20.5 per cent. had tubercular laryngitis, while of the nasal cases it is hard to determine how many were tuberculous; only a very few were noted as positively tuberculous and probably not many more were so, confirming the opinion of most rhinologists that nasal tuberculosis is comparatively rare.

The practical relation of nasal to both laryngeal and pulmonary disease is doubtless chiefly in causing mouth breathing and so catching cold, in diminishing pulmonary expansion and complete aeration; in reflex irritations, and in direct annoyance and consequent mental worry and depression in extreme cases. The moral is to relieve the stenosis by operation when needed, and the rhinitis by cleansing, stimulation or astringency, as radically as the patient's health permits, and the case requires also to examine the nasal and naso-pharyngeal passages, especially whenever the voice is affected or the throat complained of, as the cause of laryngeal symptoms often lies in the nose or naso-pharynx. At the same time it must not be forgotten that rhinitis is frequently kept up, or when there is also a permanent stenosis, aggravated by the patient's general condition, especially with respect to digestive disorders, gout, rheumatism and syphilis.

The practical lesson of the connection between chronic laryngitis and pulmonary tuberculosis is to cure the former as soon as possible, especially in order to ward off danger of secondary tuberculosis by the sputum infecting the diseased mucous membrane as it passes over or lodges on it. The tone and

strength of the voice should always be observed, and it is doubtless best that in all cases irrespective of these warnings a laryngoscopic examination be made, as experience tells one that many cases are overlooked in an early stage when treatment would be most valuable.

In considering the pathologic connection between laryngeal and pulmonary tuberculosis, the explanation is still in doubt among most laryngologists. Many excellent authorities believe that laryngeal tuberculosis is rarely if ever primary, and I myself have never seen a case without accompanying pulmonary signs, though I quite believe in its possibility while some deny it. Further, Heryng and others believe that the laryngeal affection always or commonly results from infection by the bacillary sputum from the diseased lung, through the surface of the laryngeal membrane, while others think, and with them I agree, that while this may occasionally occur it is rare, and that the bacilli attack the membrane from beneath being conveyed often perhaps through the course of the bronchial glands. My reasons for believing this are first, that in Colorado we see very few cases of tubercular laryngitis arising after arrival, yet as the last stage of consumption is especially prolonged in this climate, during which time there is usually a copious and constant stream of bacilli laden sputum being passed through the larynx for a much longer period than usually occurs at sea level, we should naturally expect many cases. Further the ulceration usually follows upon the raising up of the membrane by a tuberculous mass from beneath which is extruded through the ulcer, and then if the patient is fortunate and well treated it will heal. The ulcers rarely presenting the appearance of spreading on the surface like lupus but rather appearing like the necrosed tissue over a boil, through which the contents of the boil afterwards escape.

While recognizing the added danger and so increased mortality from the combination of laryngeal with pulmonary tuberculosis, I am glad to have added my clinical experience¹ to the evidence which shows that laryngeal tuberculosis while always grave is not necessarily fatal, but that it demands and well repays by mitigation always, and occasionally by cure, thorough competent local treatment. My statistics further proving that high climates, when equally good local care is used, are especially suited for the treatment of laryngeal tuberculosis, instead of being contra-indicated as was formerly believed, which is shown by the frequent healing of the throat lesions, even when death ensues from the pulmonary or other tuberculosis.

EMASCULATION AND OVARIOTOMY AS A PENALTY FOR CRIME AND THE REFORMATION OF CRIMINALS.

Read before the Illinois State Medical Society, May 15, 1894.

BY ROBERT BOAL, M.D.

LACON, ILL.

Political and social economists and humanitarians within the past third of a century have spent much time, thought and effort upon the best and most effective means of punishing crime and reforming the vicious and criminal classes of society. The

¹ Therapeutic Gazette, Nov. 15, 1893.

tendency of the present age is to abandon in a great measure the cruel, retaliatory and vindictive punishments for criminal offenses. As we have advanced in morals and a higher civilization the disposition to punish criminals by demanding a penalty in kind, an eye for an eye and a tooth for a tooth, has undergone a marked change, not that crime is more tolerated, or criminals more readily forgiven, but because we have more enlightened and intelligent views of the causes of crime and the antecedents, surroundings and conditions which affect the lives and form the characters of the guilty. We have now a clearer perception of the responsibility of the criminal, vicious and defective classes in their relations to society and in consequence have abandoned our old ideas of retaliatory and compensatory penalties for crime. In thinking upon this subject and upon the efforts that have been made and are now making to solve the great social problem of adequately and effectively punishing crime, of reforming criminals, of bettering the condition and lessening the number of these classes and consequently lessening the burdens they impose upon society, I entertain some opinions which I will present to the Society as briefly and clearly as I can. As a penalty for crime and the reformation of certain classes of criminals, I believe unsexing them to be the most effectual in accomplishing these ends. In my opinion all criminals who indicate constitutional depravity transmissible by heredity should be subjected to surgical unsexing enforced by law. I believe it would cause a diminution of crime and lead to the reformation of criminals. But this penalty should not be inflicted solely upon the male, but should also be extended to the female criminals—for the one emasculation, for the other ovariectomy. The object of all punishment is threefold: 1, to satisfy the demands of justice; 2, to deter and intimidate the criminally disposed; and 3, to effect the reformation of the offenders against the law. Now the punishment for offenses and crimes should be of such a kind and degree as will best subserve these purposes and most effectually protect society from injury and apprehension, diminish crime, and reform the criminal. This is the question over which sociologists and humanitarians have pondered long and earnestly and have not as yet arrived at a satisfactory solution. Prison reformers have accomplished much in improving the sanitary condition of our jails, reformatories and penitentiaries and in causing the adoption of a more humane and considerate treatment of criminals, but have fallen far short of their reformation. In this latter respect their efforts have been crowned with such slight success that it amounts to almost an entire failure. Unless you can change the constitutional depravities transmitted by heredity for perhaps two or three generations, little can be done to reform criminals, diminish their number or protect society from injury. It is my deliberate opinion that if a law was enacted and placed upon our statutes, inflicting this penalty not only upon those convicted of sexual crimes, but extending it to other criminal classes, the paranoiac, burglars, incendiaries, and to other crimes against persons and property, it would answer all the demands of justice and civilized society and vindicate the wisdom of its adoption. In support of these views I beg leave to offer the following considerations:

1. We are taught by both physiology and psychol-

ogy that all human beings are controlled in their conduct, and their actions and appetencies are expressed through their organic structures, or as they are often called, organic instincts. Of these two are of paramount importance and exert an influence over every human being. They are the love of life and sexual love. The first is from birth to death always in active operation in preserving the individual from the various accidents and diseases which tend to deprive him of it. It is the strongest and outlasts all other organic instincts. While it is developed later and does not last so long, next to the love of life, is this love of sex. It dominates human conduct and desires. It has been bestowed upon us for a wise and beneficent purpose, but when uncontrolled it is potent for evil.

2. The greater portion of the crimes characteristic of the criminal and vicious classes of society, may be traced directly and indirectly to the influence of this uncontrolled and dominating sexual love. The rapes, homicides, suicides, defalcations and embezzlements may be ascribed either directly to sexual love or to the influence associated with it. So well is this understood that when we hear of the cashier of a bank absconding with its funds, or a trusted clerk robbing his employer and betraying his confidence, almost the first comment heard is, "Oh, there is a woman in the case." With scarce an exception there are few vices in the calendar of crime—licentiousness, prostitution, intemperance, gambling, and others that are nameless, that are not instigated, associated with and maintained by sexual love.

3. The physical or structural characteristics of the criminal and defective classes of society are produced, reproduced and multiplied and perpetuated by intermarriage or sexual commerce of persons of like defects, and we have accordingly the result of the activities of living matter, or what we term heredity.

4. By the imposition of this penalty, we destroy the capabilities of these defective criminal classes to inflict injury upon society, thus depriving them of the power of reproduction. This, in my judgment, is one of the strongest considerations in favor of the proposed penalty. It has not only an immediate, but a far-reaching effect.

5. For the purpose of intimidating others from the commission of crime, while neither cruel nor vindictive, it is more terrifying and repulsive, next to death, than any or all other modes of punishment. The loss of sexual capability as a mark of manhood is so utterly abhorrent to all men, that it would be avoided if possible by all individuals not hopelessly insane.

6. In unsexing all constitutionally depraved convicts, the most important of all results (which has incidentally been alluded to) is reached, to-wit: To limit the productive capabilities of these classes, thus aiding "natural selection" and insuring if extensively applied the "survival of the fittest." Instead of confining them in reformatories and penitentiaries and trying to reform them by "moral instruction," impose this penalty and they would cease to multiply and accumulate by unrestricted production. In improving the breed of the lower animals, the gentlest, the strongest and best developed and symmetrical are selected for the purpose of reproduction, instead of the deformed, ill-proportioned and vicious. It is "passing strange" that more time and money is ex-

pended in producing and rearing a prize bull, a fast trotter or a race horse, than in applying the same law to man, "the paragon of animals." Many of you have doubtless read the account published a few years ago, of a family of criminals, whose history had been traced through three or four generations—with scarce an exception all were criminals. Of the males, some mounted the scaffold, others were inmates of prisons or penitentiaries a good portion of their lives, some were murderers, some burglars, all of them thieves. Of the women, all were prostitutes as well as thieves and active and efficient coadjutors of the men in every species of crime against society. Starting from the original stock in every succeeding generation there was an increased development and exaggeration of vice and crime. This history of one family is the history of all in like circumstances, conditions and surroundings. Had the reproductive capabilities of this family been destroyed in the first generation, society would have been protected from danger, and the cost of the conviction and maintenance of several generations of criminals saved.

A reporter for one of the Chicago dailies (the *Tribune*) recently visited the prison for youthful offenders at Pontiac, and he gives the number in the prison at the time of his visit as 636, of which 60 per cent. are thieves—some burglars. Seventy are from 10 to 13 years of age; six or seven are over 21 having sworn falsely to their ages. The major portion of these youthful criminals will probably develop into confirmed thieves and burglars and what the law of this State terms "habitual criminals." Investigation would doubtless show that the greater portion of them are constitutionally depraved; in other words there is a hereditary tendency to crime. I do not underrate environment as one of the causes of crime. Vicious surroundings doubtless have their influence, but when you add to that a hereditary taint for two or three generations, you find a criminal utterly oblivious to every moral influence exerted for his reformation. For such, deprivation of their sexual capabilities offers an adequate and effective punishment and so changes their nature, that reformation while not always assured, in my opinion is in most cases practicable.

7. This deprivation of productive capabilities effects well marked modifications in the purposes, actions and characteristics of individuals. They become more gentle; their heretofore ungovernable passions are in a great degree subdued—they are less wayward and obstinate and more effeminate. In short, they are changed and altered beings in more senses than one. This is a matter of every-day observation in animals who have been emasculated or whose ovaries have been removed. In Turkey and other Mohammedan countries, the eunuchs who guard the harems of the rich are said to be inoffensive, gentle and timorous showing conclusively that the altered being has changed in his purposes, actions, capabilities and necessities.

8. If these statements are true, could any other method than the one proposed be more effectual for the suppression of crime and the reformation of the criminal and various classes of society? It may be asked why not inflict the death penalty upon all convicts whose crimes indicate constitutional depravity, and put them out of the way? This would be a more rapid and certain way of disposing of them, but would not the penalty be more severe and unneces-

sary than would be required? Would it not be disproportioned to the crime? When you hang a man you destroy him, while emasculation only changes his purpose and desires and leaves his life intact. Again, I do not believe the death penalty would have such deterring and terrifying power as asexualization, for owing to the technicalities of the law and its delays and the uncertain verdicts of juries, the criminal hopes to escape its extreme penalty. In addition to this, there is a great diversity of opinion in the community upon the propriety of inflicting capital punishment. One portion of it believes it should not be inflicted under any circumstances, while another is in favor of imposing it, only for great and unusually atrocious crimes. It is only when crimes of such magnitude as the murder of Dr. Cronin or the assassination of Mayor Harrison, or of a President of the United States, are committed, that the community is aroused and a demand is made for the execution of the criminals. These are extreme cases, but even in them public sentiment is divided as to the necessity of killing the criminal—so great is this aversion to capital punishment that in some of the States it is abolished and in others greatly restricted. If after conviction, each man or woman, after being deprived of their reproductive organs and subjected to a longer or shorter term of imprisonment was returned to society, it is my belief they would become comparatively harmless. Confinement at hard labor in prisons and reformatories, in nine cases out of ten, fails to reform the criminal. Moral instruction is thrown away upon him—he graduates in crime, and he leaves their walls more depraved, and with a stronger determination to war upon society than when he entered them.

9. This proposed penalty for crime might be made applicable to a large class of offenders; instead of limiting it to such as violate the laws governing the intercourse of the sexes, certain crimes against persons and property might be more effectually punished in this than in any other way. There is a class of offenders against the law, and it seems to be rapidly increasing, called by the people "cranks," by the medical profession monomaniacs or paranoiacs, who escape the penalties of the law upon the plea of insanity and consequent irresponsibility for their acts. It would be cruel and inhuman to hang them, but a deprivation of their reproductive organs might have the two-fold effect of answering the demands of justice, and so changing these desires and purposes as to render them harmless in the future.

In Chicago at the present time an investigation is ordered for the purpose of determining the sanity of the assassin of Mayor Harrison, upon the allegation that his insanity occurred after his conviction and sentence. No one can tell what the verdict of the jury will be upon the question. Suppose they find him sane and he is again sentenced for execution, what is to hinder him before the scaffold is again erected to make another application to a complaisant judge for another trial and stay of execution, on the ground that he has developed insanity since the second sentence was pronounced, and thus indefinitely prolong his life, and in the end escape punishment for his crime. Now, if in this case and that of Guiteau, the assassin of President Garfield, the penalty of emasculation had been imposed, and they had been placed under such legal restraint for a longer or shorter time as might have been necessary to secure

its efficiency, it is my belief that in these instances justice would have been satisfied, society protected from further assaults and the criminals partially, if not wholly, reformed.

In the instances just cited and in all others of like character, experts differ and public opinion is divided as to the responsibility for the criminal acts, and it appears to me that neither justice nor the protection of society requires the infliction of the death penalty.

This subject which I have endeavored to present for your consideration has not to my knowledge been much discussed in medical journals or medical societies, certainly not to the extent its importance demands. Considered in its relation to the well-being of society, the literature upon this subject is meager. With the exception of a paper read by Dr. Orpheus Everts before the Cincinnati Academy of Medicine in 1888, I have been unable to find any mention of it anywhere. Dr. Everts is the accomplished superintendent of the Cincinnati Sanitarium at College Hill, who has given this question a good deal of attention, especially in relation to one of the defective classes of society, the insane. I am indebted to his paper for many of the statements and suggestions I present to you to-day. The late Dr. Agnew of Philadelphia, is credited with the proposal to punish all criminals, who were convicted of rape, by emasculation. He limited this penalty to one crime and to the male. Dr. Everts takes broader ground and would apply it to all sexual and some other classes of crime and to both sexes. In this I fully concur, for I believe the unsexing of both males and females convicted of crime is necessary for their punishment, and reformation by the limitation of their reproductive capabilities. The question may be asked, Why bring this topic before a medical society, and what relation has it to the profession of medicine? I answer that it is the branch of State medicine which deals with crime in its relation to, and its effects upon, the health and well-being of society. The medical profession is in a certain sense regarded as the guardians of the public health. It is their duty to recommend the adoption of proper sanitary measures, to prevent or ward off epidemics if practicable, or if not, to restrict their spread and lessen their violence, and to circumscribe by isolation the area of infectious and contagious diseases. If so, are they not equally bound to ward off and confine within its narrowest limits the infection and contagion of crime, for it is both infectious and contagious and the diseases which it engenders are among the most loathsome and intractable of all which we are called upon to treat. As members of a profession which is one of the highest and noblest of human pursuits we are interested in all that contributes to the welfare of the community. This measure should be investigated and discussed with a view to influencing the public mind in favor of its adoption. When that is accomplished proper legislation will follow. Our criminal jurisprudence needs reform. "There is an increasing want of confidence in the efficiency of the laws and the courts which administer them. Every lynching, every riot, every mob is a protest against the delays and uncertainties in the administration of the laws, and if there is not some reform, there is danger that in the unrest of the public mind human society may be overwhelmed by social and political revolutions brought about by the many ex-

isting abuses." Is not the medical profession interested in this reform, and will they not aid in accomplishing it?

In conclusion, let me summarize the points I have endeavored to make:

1. That the surgical unsexing of all criminals convicted of offenses that indicate constitutional depravities that are transmissible by heredity is both expedient and practicable.

2. This penalty should be applicable to both sexes.

3. That most of the offenses against society by vicious and defective classes originate in sexual disturbance whether in deprivation or excess.

4. It limits the reproduction and transmission by heredity of the defective and criminal classes of society.

5. It inflicts a penalty that is terrifying and abhorrent without destroying life.

6. It is applicable to other offenses against person or property, originating from other than sexual causes.

7. While effective, the punishment is neither cruel nor vindictive.

8. It is more effectual in changing and improving the nature of the criminal than moral instruction, confinement in prison, or houses of correction.

As to when or how the penalty recommended will be carried out must be left to the future law makers. If adopted I doubt not all the details will be arranged and perfected so as to accomplish the desired end. The present century will soon close upon us, and if the same rate of progress is kept up (as I believe it will be) during the coming one, I hope a change will be made in our criminal code in line with these suggestions. The public mind is not yet prepared to accept the change recommended and it would not now be sustained, but if the question is discussed and agitated by sociologists and the medical profession, I believe that at no distant day that change will surely come.

NOTE:—Since this paper was read, the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION of May 19, 1894, published an abstract of a paper read by Dr. S. F. Sim, of Memphis, before the Tennessee State Medical Society upon this subject, in which he substantially agrees with the opinions expressed by the writer. Aside from the coincidence that two papers upon the same subject were read before two State medical societies at different and distant points, it shows that this question is beginning to receive from the medical profession the attention which its importance demands.

War on the Nostrum Venders.—Dr. J. W. Scott, Secretary of the State Board of Health of Illinois, has begun a vigorous warfare on the itinerant nostrum venders who annually fleece the people of this State out of a sum estimated at over \$300,000, by means of brass bands, concert troupes, alleged Indians and other mountebank attractions. Prosecutions have already been begun by several of the State's Attorneys, to whom the Board remits all fines collected as an inducement to vigilance. The law provides that every itinerant vender of medicines shall pay into the treasury of the State Board of Health a license fee of \$100 a month. The penalty for a violation of this act is a fine of from \$100 to \$200, and as the Board refuses to issue such license every itinerant vender is a violator of the law. The Board also has a regulation providing for the submission for chemic analysis of samples of all medicines sold by itinerant venders. This, too, will be rigidly enforced.

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SATURDAY, SEPTEMBER 15, 1894.

THE AMERICAN MEDICAL ASSOCIATION.

Some enterprising persons are unduly exciting themselves about the membership of the ASSOCIATION. Why, asks a certain irregular, should this be called an "American" ASSOCIATION? Solely, our erring brother, because this ASSOCIATION is based upon a representation from the State Societies and the three Public Medical Services. Every regular State Society, except those of New York¹ and Massachusetts, send delegates to the annual meetings; these delegates shape the policy of the ASSOCIATION, and it therefore follows that the total membership of the constituent bodies of the ASSOCIATION, is the actual strength of the ASSOCIATION—with the addition of such local societies as send delegates. On this basis, the adherents of the American Medical are not far from forty thousand.

That they are not all members by the fact of their belonging to the State constituent body is solely due to the failure of one of the proposed amendments. That will come in time as surely as the sun rises in the east. The regular medical profession will not hesitate very much longer, about throwing the weight of their influence in favor of closer union and greater strength. The interests of the profession are too vast and too important to be wasted in divisions and factional differences.

The immense advantages to medical science to be gained by solid adhesion to the representative ASSOCIATION, are too great to justify any other course. While the policy of the ASSOCIATION is thus shaped by delegates duly instructed by their respective State bodies, and by the Medical Department of the Army, the Navy and the Marine-Hospital Service, the scientific features of the meeting are participated in by all members alike, whether serving as delegates or

not. These members control the Sections and the Section work, and there is now no limit.

The technical membership was until the last few years confined to delegates, but now is open to all individual members of any medical society entitled to send delegates.

Every sentiment of professional pride, and as well every sound business precept, should urge every member of the regular profession of the United States to add his name and his active personal support to the great AMERICAN MEDICAL ASSOCIATION, under the auspices of which American medicine has so greatly prospered. Let dissension perish and union prevail.

DEFORESTATION AND AUTUMN FIRES.

Paradoxical as it may sound, there is some ground for the belief that deforestation by the axe is largely responsible for the annually recurring deforestation by fire.

The yearly precipitation of the lake region, including the great timber areas of Michigan, Wisconsin and Minnesota, has diminished since 1886 to a marked degree. For the Chicago region the yearly mean precipitation since 1871 has been 35.6 inches; but for the past eight years the mean is only 29.32 inches, as against a mean of 37.8 inches for the preceding fifteen years.

An examination of the records of the United States Signal Service for the last twenty-three years discloses a grouping of about seven-year periods of plus and minus precipitation. Thus, during the years 1871-1877, the yearly mean was 35.04 inches—a slight deficiency as compared with the yearly mean of the entire period; in 1878-1884 the mean was 39.43 inches—a marked excess; in 1885-1891 the mean was 32.18 inches—a marked deficiency. From this alternation it has been argued that the precipitation is governed by some law not yet recognized and an increased precipitation was predicted for the period beginning with 1891; but thus far this has not been realized and the increasing denudation of the timber lands is again being considered as a possible cause of the deficient precipitation and the prolonged droughts.

Of the regulative effects of forests on temperature and rainfall there can be no question; and, aside from these disastrous forest fires and their destruction of life and property, the conservancy of our timber lands in the interests of public health is yearly becoming more important. The results of MR. GEORGE VANDERBILT'S undertaking at Asheville, N. C.,—which has been characterized by MR. FRED LAW OLMSTED as "the most extensive and important experiment in forest culture ever attempted on the globe"—will be watched with interest by sanitarians and climatologists everywhere.

Meanwhile, the necessity for more thorough gov-

¹ The New York State Medical Association sends delegates to the American Medical Association, so that State is nevertheless fairly represented.

ernmental control of our remaining timber lands has become imperative—a necessity which is atrociously emphasized by the colorable suggestion that the recent fires, with their appalling destruction of life, were the work of “timber pirates” to conceal their depredations.

HERMAN VON HELMHOLTZ.

A dispatch dated September 8, has just announced to the world that one of its illustrious men of science, HERMAN VON HELMHOLTZ, has passed away. He succumbed to a paralytic stroke from which he had suffered for the past six weeks. Advanced as he was in years his unabated mental vigor had still held out the hope that his might yet be years of activity. The shock to the entire scientific world by reason of his death will be all the more keenly felt by his numerous admirers in this country who during his visit one year ago learned personally how little age had dimmed his intellect or marred his genial manner.

Of all men who have left their imprint on the progress of science during this century, the influence of none has extended into as many different lines of knowledge as that of HERMAN HELMHOLTZ. In medicine, particularly, we owe him not merely the numerous additions to our knowledge in physiology and physiologic psychology, but the world is indebted to his genius for that now indispensable instrument—the ophthalmoscope, an invention that will keep his memory alive more permanently than monuments and epitaphs.

His first publication, a thesis on the structure of the nervous system in evertbrates in 1842, gave proof of his ability as an observer. It was the first demonstration of the continuity of nerve fibers with nerve cells. Subsequent to this work he investigated the phenomena of putrefaction and fermentation, but could at that time not decide definitely whether these changes were only of a chemical nature or depended on living microbes. Of greater importance were his studies in animal warmth, in which the application of his thorough knowledge of physics gave to this part of physiology a more precise basis than it had previously possessed. During this time of his life he was army surgeon in the Prussian army, but found or rather made opportunity to have his name spread far beyond the domain of medicine by his essay in 1846 on the conservation of energy. While not the only investigator in this line of thought, for, in fact, he was preceded by several years by ROBERT MAYER, with whose work, however, he was not familiar, HELMHOLTZ was the first to prove irrefutable by mathematical reasoning the correlation and indestructibility of energy in all its different modes of manifestation. To him hence belongs the credit of helping to lay the corner stone upon which the structure of modern theoretical physics rests.

In 1849 HELMHOLTZ was called to the chair of physiology in Koenigsberg, which he exchanged for the same position in Bonn in 1855, leaving that university for Heidelberg in 1858, where he stayed until 1871. The year 1871 ended his career as a teacher of physiology, as he was asked to take the chair of physics in Berlin. He resigned this chair in 1888 and was then appointed Director of the Imperial Physical-Technical Institute at Berlin. His university career was inaugurated by his researches on the velocity of nerve conduction. Accustomed as we are now-a-days to physical methods in physiologic work, we can hardly realize what a revelation HELMHOLTZ's results were to physiologists of those days. One is indeed at a loss which to admire most in those two papers of 1850 and 1852; the surprising revelations concerning the mechanism of nerve-conduction, or the elegance of the methods used in that research.

In 1851 his researches on the path of rays of light in the eye led him to the discovery of the ophthalmoscope. The short precise statement of his work outlined clearly what could be expected of this instrument for clinical purposes, and yet with the full appreciation of what he had accomplished, his essay can forever serve as a model of the modesty of true genius. Continuing his optical researches, HELMHOLTZ next constructed his ophthalmometer, the teachings of which enabled him to compute the course of rays of light in the eye, and led to his discovery of the mechanism of accommodation (simultaneous with but independent of KRAMER). His different optical researches, on the mixture of color sensations, the movements of the eyes and kindred subjects were finally collected in his “Handbook of Physiological Optics,” published between 1855 and 1866, of which a second revised edition is now being re-issued, but is not yet completed. This magnificent treatise in which every fact stated has been verified by the author, unrivalled in philosophic conception and a model in the painstaking accuracy of its historical bibliography is the physiologic foundation of modern ophthalmology.

Comparable to his work on physiologic optics are his contributions to the mechanism of hearing, collected in his “Sensations of Tone,” published in 1862 and in two later editions. It would be difficult to name any other work betraying such versatility in original investigations as HELMHOLTZ showed in his *Lehre von den Tonempfindungen*. The anatomic study of the ossicles and their joints, the physical and mathematical analysis of the timbre of sounds, the inquiries into the psychology of musical perception, broadly philosophical without being speculative, and the literary researches into the theory and practice of music of foreign races stamp the book as the work of an unique genius.

His physiologic researches, however, sufficient as

they were to keep his memory alive in the annals of medicine, were but a part of HELMHOLTZ's work. The prominence which his first masterly essay on the conservation of energy gave him in the ranks of physicists was maintained throughout his lifetime by numerous other contributions all equally characterized by unusual penetrating power guided by mathematical reasoning. Perhaps his best work was in the domain of theoretical electricity. His researches on the time relations of induction currents, and on the oscillations in electric discharges have been the starting point of many of the wonderful extensions of electric knowledge of the last few years.

But he did not confine his physical work to electricity, and indeed with many chapters in the theory of light, sound and hydrodynamics his name will always be associated. Within a few years of his death he began a mathematical inquiry into the movements of the atmosphere, which meteorologists consider as a great advance.

His rare mathematical ability did not prevent HELMHOLTZ from allowing his imagination to soar toward the solution of some general problems not confined to any one narrow line of investigation. His essays on the conservation of energy, the cosmic theory, the relation of electricity to the atomic theory (the Faraday lecture before the London Royal Society for which the COPLEY medal was given him) are all marvels of a versatility, which yet was always controlled by mathematical reasoning. Nor was his safe though far-reaching reasoning any less apparent in his excursions through the treacherous expanse of psychology. Among the great philosophic achievements of the century rank highly his dissertation on the origin of geometrical axioms as well as his discussions on the mechanism of auditory and visual perceptions and their relations to reasoning and the arts.

Not least among HELMHOLTZ's merits are his popular lectures. It is but seldom, that so much genuine knowledge on abstruse subjects has been given to the general public in such palatable shape. For in all his writings characterized by accuracy, preciseness and terseness, HELMHOLTZ was not indifferent to literary beauty. If most of his physical articles tax the attention of the reader to the utmost, they do so only for the reason that he could so easily present his thoughts in strict mathematical garb, and not from want of clearness in the style. In fact, HELMHOLTZ was endowed with rare artistic taste, shown not only by his leaning in psychology towards problems relating to art, but also by the artistic finish of his writings.

His life was an uneventful one, except in scientific triumphs. His seventieth birthday, three years ago, was the occasion of ovations from the entire scien-

tific world, which showed not only the admiration he commanded, but also the personal affection felt by all his pupils towards him. On that occasion the German Emperor recognized officially his merits, by granting him the rank of nobility. But grief did not spare him in his old age by the loss of his son, ROBERT HELMHOLTZ, a promising young physicist.

In the annals of science and progress the name of HERMAN HELMHOLTZ will rank forever foremost as an illustrious example of what man can do for mankind by the conscientious application of intellectual power.

FACIAL CHANGES MEDICO-LEGALLY CONSIDERED.

Is it possible that the face can become so changed as to be unrecognized in a brief time? was the question addressed to a leading physician in a recent trial. His answer was, yes. In an explanation he described the case of a physician who received a dispatch announcing the death of his wife. In half an hour his expression had changed so markedly that he was not recognized on the street, except by those who were most intimate with him. This suggests a field of inquiry that is at least startling. The changes of countenance from disease and injury are familiar to all physicians, but the possibility of similar changes from shock, profound mental emotion or physical disturbances that have no apparent causes are new to the student.

In a recent paper read before the Medical Legal Society of New York, by DR. OSBORNE, "On People Who Drop out of Sight," three cases are given which bring out this fact. Two of the cases were men of some prominence who walked away from their homes in broad daylight entirely unrecognized. They must have been seen by many persons acquainted with them, all of whom did not remember any familiar expression. The most careful exhaustive inquiries failed to trace their movements, and after a long interval both of these cases recovered consciousness of their surroundings and returned, but with no recollection of how and for what reasons they left and what they had done in the interval. In the third case, a man was injured in an accident from a runaway horse; then disappeared in an equally mysterious way, in a place where he was known and apparently under the full observation of many persons. Three days later he appeared at his home in a dazed condition, and very greatly changed in countenance. In these cases the blanks of memory and periods of unconsciousness, or trance conditions, in which another personality existed, was evidently preceded by some profound change in the facial expression.

This, the author asserts, is the key to the cases which so suddenly and mysteriously drop out of sight in broad daylight, and in surroundings where it

would seem impossible. This trance phenomena and double personality is far more difficult to understand than rapid facial changes that would give the appearance of a different person even to those familiar. Practical physicians become experts in reading the changes of facial expression, and rely to a large extent on their knowledge of diseases from this source. Surgeons see signs in the face of early death or recovery without being able to describe or make it clear to others. Many diseases and emotional disturbances are registered in the most profound changes of the countenance; hence it is not improbable that similar changes may come from central brain states at present unknown.

Any one who is familiar with hypnotic phenomena will be startled at the changes apparent in the person who is hypnotized. In one case the sad, melancholy facial shadows, the bowed head, bent shoulders, wearied walk and listless air; in another the buoyant look, flashing eye, erect head, brisk, nervous movements, may be so different from the accustomed appearance of the man as to give the casual observer the impression of a different person. In CHARCOT'S clinic these startling changes of personality and appearance were very clearly illustrated. Many of these so-called hypnotic states are said to be more or less common to persons who are regarded as normal and well. However this may be, it is clear that many and most complex psychical changes of the brain may be registered on the face with such rapidity as to baffle our sense of time. It would be by no means strange that some psychic force should in a brief time transform the face and general appearance so that the person could not be easily recognized, thus making it possible to disappear.

DR. LUKE describes a case of this sudden profound transformation of face and appearance of one who was seized with a suicidal impulse. He was locked up and in a brief time this passed away. Practically this subject suggests the necessity for more accurate observation and study in medico-legal questions involving the possibilities of personal and facial changes. Also that the physiology and psychology of the face, seen at different times and conditions is a practical field of study that will reveal many facts at present unknown. In the very prominent LORN will case, the question was: "Could the testator have left his home at midday, walked down a long street, rode six miles on a horse car and not be recognized by some one, especially where he was so well known?" It was proven that he did this, but that he wore a better hat and suit of clothes than usual; also that he was under great emotional strain of indignation and excitement. On this occasion he must have been seen by at least a hundred persons who were acquainted with him, no one of whom

recognized him. He probably had a totally different expression, due to his mental condition, that with his changed suit of clothes was a complete disguise. In a murder trial at Boston the same question was raised: "Why the murderer was not seen and identified at once, in a town where he was known?" It appeared that he had changed his hat and walked the street and went about for a week or more, then gave himself up. Subsequently it was proven that the act was committed under circumstances of profound grief, and in a state of bewilderment, which finally wore away when he gave himself up. Probably the same alteration of countenance prevented his recognition at the time.

A grouping of similar cases would be of great interest, and throw some new light on many of the perplexing problems of brain disorders.

SEWER AIR AND SEWER VENTILATION.

During the past thirty years a great change has taken place in medical opinion concerning the causation of acute infectious diseases, and particularly of typhoid fever; and it is gratifying to know that every step of this change has been productive of material sanitary improvements. MURCHISON'S pathogenic doctrine became a potent factor in removing filth and giving us the relative cleanliness of the present time, while DR. WILLIAM BUDD'S theory of specifically infected dejecta, with the sewers as a continuation of the diseased intestine, led to the construction of improved sewerage systems. Faulty sewers came to be regarded as hot-beds of typhoid infection and sewer air as the medium by which it was propagated. The efforts made to exclude the latter from our houses educated the plumber, elaborated plumbing regulations and preserved us from many foul emanations. The discovery of the bacillus of typhoid and the infection of water by its presence, led directly to a higher appreciation of the importance of pure water, and in many instances to corresponding efforts to procure it. With the progress of the doctrine of a water propagation of the fever, ordinarily from contamination with specifically infected excreta, sewer air, once considered so deadly, is gradually losing its importance as a pathogenic factor. Some papers illustrative of this were read at the last meeting of the Congress of American Physicians and Surgeons. Chemists have known for years that sewer air differs from atmospheric air only in containing more carbon dioxide and less oxygen, with a little more ammonia and compound ammonias, if the sewage is in a condition of fermentation, which ought not to be the case. To none of these, however, was the deadly character of the sewer air attributed, but to the bacteria raised by evaporation from the foul moist sides of the sewers and the surface of the flowing liquid. But now come the

bacteriologists with the information that pathogenic bacteria and indeed bacteria of any kind are often less common in the air of sewers than in the air of the overlying streets, so that SIR CHARLES CAMERON in his address as Chairman of the Section of Public Medicine, British Medical Association, is fully warranted in his statement that: "The results of recent investigations in reference to the composition of sewer air seem to show that it is superior, bacteriologically at least, to ordinary air. Some of the accounts of its purity are so roseate that one might naturally conclude that a sewer outfall would be an excellent health resort. DR. JOHN BILLINGS, Deputy Surgeon-General, United States Army, goes so far as to doubt that there is conclusive evidence to prove that sewer gases have ever produced disease. PROFESSOR KOCH found only three or four microorganisms in 100 liters of the air of a Berlin sewer, while the atmosphere above the sewer teemed with them. HALDANE detected only 20 microbes per 100 liters of air in a Bristol unventilated sewer."

These and other similar results are accepted by SIR CHARLES CAMERON as obtained from the air of well constructed and well flushed sewers. In discussing the ventilation of sewers he reaches the conclusion that from a health point of view a perfectly open sewer is less objectionable than one ventilated in the ordinary way. This is an open question, but we believe that an *unventilated* sewer is preferable to either of the others. Experiments performed several years ago in the laboratory of the National Board of Health showed that the volume of air contaminated by foul organic matters is the volume of air brought in contact with them. If repeated volumes of 100 liters be drawn over putrescent matter the last volume will be as much contaminated as the first. If no air can be brought in contact with it no air will be defiled. Health officers recognize this and insist upon closed cesspools and garbage cans. In objecting to open sewers, city authorities have acted as if with a due appreciation of the principle, but in fact the action was dictated by the results of observation and experience. The closure of open sewers improved the sanitary condition of the atmosphere by preventing its wholesale pollution by contact with the exposed surfaces. But in constructing sewers of large size, and tapping them at frequent intervals for ventilation, the principle of occlusion seems to have been forgotten or sacrificed to a false idea. Air which has afterwards to be breathed by the thousands of a crowded city is brought by free sewer ventilation into a putrefactive condition. It may not be specifically dangerous, for the bacteriologic tests rarely show pathogenic bacilli, but it is not the invigorating air which should be breathed, and continued exposure to its influence appears to bring about a condition of system favorable to pathogenic developments. Open-

ings are needful to relieve interior pressure, but all communication with the atmosphere other than for this purpose is unnecessary and generally harmful. More particularly should all ventilating grids that exhale foul odors be closed up that the purity of the street atmosphere may be preserved. A lack of sewer ventilation is not a dangerous unsanitary condition. SIR CHARLES CAMERON cites the city of Bristol as having no ventilation for its sewers; but, "if Bristol has made a mistake in not ventilating its sewers it has not paid apparently any penalty, for in the period 1881-90 only one of the large towns had a lower zymotic death rate."

END OF THE PLAGUE.

A cable dispatch announces that the port of Hong Kong has been officially declared free from the plague.

And thus is scored another triumph for preventive medicine in suppressing, within a period of less than four months, an outbreak of a pestilence which, at the beginning of the Christian era and for centuries thereafter, was wont to spread to the ends of the habitable world, causing the most frightful desolation, depopulating cities and towns, turning countries into deserts and making the habitations of men to become the haunts of wild beasts; a pestilence, one epidemic of which, starting, as did this recent one, in the mysterious country of Cathay, spread to Europe and in less than five years swept away 25,000,000 victims, or one-fourth of the total population of the Continent—an epidemic which, to still further adapt the language of HIRSCH, arrested the attention of chroniclers, poets and physicians by its enormous diffusion over the whole of the then known world, by its victims reckoned in millions, and by the shock to the framework of society which it brought with it and left behind it.

The extinction of pestilence in Europe, its cessation in Egypt, Syria and Asia Minor and its infrequent appearance in India and the Far East, have all been attributed to the improvement in hygienic conditions—the greater this improvement the greater the degree of repression of the pestilence, even to the point of extinction. But the unimagined epidemiologist already cited, writing in 1881, was not content to accept this as the sole cause. "There is certainly much that is true," he wrote, "but there is not the whole truth, in the words which AUBERT-ROCHE has chosen as a motto for his work on the plague: '*La civilization seule a détraît la peste en Europe, seule elle l'anéantira en Orient.*' Besides the system of quarantine rules, whose efficacy I can not rate too highly for reasons that I have several times explained, there is no doubt that the improvement in hygienic conditions which has been going on for cen-

turies in the civilized states of Europe, has contributed very greatly to the gradual decrease and final extinction of the plague. But whether that is the whole solution of the problem is very doubtful. Still less can one admit this factor to be the sole explanation of the cessation of the pestilence in the East, although there also, and particularly in Egypt, the good effect of sanitary rules on the remission of the pestilence can not be altogether ignored. These, and many similar questions in the history of national sickness, have no answer to get from science as far as we have gone; and it is well that we should recognize these limitations in our knowledge of the laws that regulate the appearance, the prevalence, the remission and the extinction of pestilences."

We have gone further in science since this doubt was expressed, and PROFESSOR KITASATO'S discovery of the specific cause of the bubonic plague confirms the wisdom of HIRSCH'S judgment. Where the developments of sanitary civilization have advanced sufficiently to destroy the conditions necessary for the existence and growth of the plague bacillus there the plague has been annihilated; where these necessary conditions may occur, or still exist in the unspeakable filth of the lower classes of Oriental habitations, it needs but the introduction of the specific germ to cause a reappearance of the pestilence.

And yet the discovery of the missing factor of HIRSCH'S problem only emphasizes the importance of improved hygienic conditions. Given a good sanitary environment and the bacillus of the Black Death is harmless—even as are the bacilli of other filth diseases. In the paraphrase of SIR BENJAMIN WARD RICHARDSON: *Sanitas sanitatis, omnia sanitas.*

CORRESPONDENCE.

Commissioner Reynolds' Defense.

CHICAGO, Sept. 11, 1894.

To the Editor:—I beg to thank you for your courtesy in sending the proofs of Dr. Bayard Holmes' paper on "The Sweat-Shops and Smallpox in Chicago," together with your suggestion (both received to-day) that, "as he has quoted an official report," you think "it requires a notice at (my) hands."

Permit me to say that I do not see that the quotation of a report requires notice rather than the report itself.

I have not noticed the official report. The State Factory Inspector is avowedly engaged in an attempt to abolish the "sweat-shop" system. I shall do nothing to interfere with the success of that attempt; still less shall I allow myself to be drawn into any controversy over the methods employed in the attempt, since this would involve a traversal of many statements, a denial of imputed motives and a general defense of the Chicago Health Department—neither of which seems to me necessary.

For similar reasons I must decline to notice Dr. Holmes' paper other than to say that, while withholding criticism of his methods, I think I am capable of appreciating his motives and of admiring the zeal he displays in his attacks on social wrongs and abuses, real or fancied.

The lot of the reformer is not a happy lot, and something must be allowed for Dr. Holmes' fervid imagination, impulsive nature and righteous indignation against evils which resist instant correction. These qualities, laudable and even noble as they are, have heretofore in their unrestrained exercise, brought other equally meritorious essays of Dr. Holmes to naught.

I fully believe that if the Doctor had opportunity for further revision of his paper he would strike out much more than he has already done of unfounded and misleading statement and uncharitable expression of opinion. These matters, however, may be safely left with those who know the facts—who know that, "incredible" as it may seem to Dr. Holmes, not a single case of smallpox could be "traced to coats or other clothes made to order," or to any "sweat-shop" made garment; who know that the smallpox mortality in a hospital that "would disgrace Siberia by its management," has been, up to date, a fraction less than 33 per cent. of cases, while the hospital mortality in our last epidemic was 41.3 per cent. of cases; and who know that the city of Chicago, through its Department of Public Health, fought this outbreak by the most effective and economical method known to modern sanitary science, to-wit: wholesale systematic vaccination and re-vaccination—a proposition which Dr. Holmes himself would be one of the first to approve.

There is nothing of profit to the community to be gained, Mr. Editor, by further "notice" of this paper; even what is here said may be construed by some as a violation of the "altruistic" spirit of our profession of which I would not willingly be guilty. Very respectfully,

ARTHUR R. REYNOLDS, M.D.,
Commissioner of Health.

Hydrophobia—Statistics Desired.

To the Editor:—Will you permit me, through your columns, to ask that my professional brethren will communicate to me the occurrence of cases of so-called hydrophobia in their practice for the year 1894, from January 1, and so on until the end of this year?

I would like in all cases to learn: 1, the sex and age of patient; 2a, the kind of animal that is credited with the inoculation; 2b, its state of health; 2c, the provocation to bite (if any existed); 2d, the reasons why the animal was (if it was) deemed rabid; 3, the seat of the bite (or other mode of inoculation); 4, the fact and method of cauterization (if any); 5, the time between the inoculation and the outbreak; the symptoms of the outbreak—the occurrence of mania or imitation of dog actions; 7, the remedies used and doses, with their seeming effect; 8, the issue of the case and when death occurred; 9, the investigations made to exclude the presence of disease other than so-called hydrophobia; 10, the findings on autopsy—if one was held.

I shall acknowledge in future publications aid received in continuing my studies in regard to this subject.

Yours respectfully, CHARLES W. DULLES, M.D.
4101 Walnut Street, Philadelphia.

SELECTIONS.

The Ohio Law—Is It Constitutional?

The following will appear in the *Columbus Medical Journal* September 18:

The recent arrest at Mansfield, of Mr. Ottman, the notorious traveling quack who has his headquarters at Columbus, has precipitated a suit for the purpose of contesting the constitutionality of an ordinance passed by the council of Mansfield, Ohio, during the winter of 1892.

Over a year previous to the passage of this ordinance a petition was signed by nearly every physician, dentist and druggist in the city, and presented to the Health Officer, requesting the passage of a law that would protect the citizens of Mansfield from the designing schemes of traveling charlatans.

In accordance with this petition the writer who was then Health Officer, drew up the following ordinance which was submitted to a committee of attorneys and afterwards unanimously passed by the council on Nov. 29, 1892, and which reads as follows:

REGULATING THE REGISTERING OF PHYSICIANS, MIDWIVES,
PHARMACISTS AND DENTISTS.

SEC. 6.—It shall be the duty of every physician, midwife, pharmacist and dentist practicing in the city of Mansfield, Ohio, to register in a suitable book prepared therefor by the Health Officer, which register shall contain the name, the street address, the college at which said physician, midwife, pharmacist or dentist graduated, and the date of said graduation, and, further, that on and after the adoption of this ordinance no person shall be permitted to practice the art of medicine, surgery, midwifery, pharmacy or dentistry, or sell medicine or drugs from house to house or on the streets, without registering with the Health Officer and furnishing him, when so required, a sample bottle of the medicine to be sold, for analysis, and displaying to him their certificate from the State Board of Pharmacy, in the case of druggists, or their diploma of graduation from a recognized, chartered medical school, in the case of a physician, surgeon, midwife or dentist, and that such persons shall not be eligible to receive a license from any city officer until they have displayed the above mentioned documents or drugs, as the case may be, to the Health Officer and received a certificate from him to the proper city officer, who then shall have the privilege of issuing the said person the necessary license, which shall not be less than ten dollars or more than fifty dollars a day; and further that any person violating this ordinance shall be subject to a fine of not less than fifty dollars nor more than one hundred dollars for each offense. In the selling of drugs this ordinance is not intended to apply to regularly recognized traveling salesmen, who deal directly with the physicians or druggists of the city.

Immediately after the passage of this ordinance it was put into effect and strenuously adhered to by the Health Department which required every physician, druggist, dentist and midwife practicing their profession in Mansfield to properly register with the Health Officer and receive from him a legal certificate to practice within the corporation limits of that city.

By this ordinance, those who were not legally qualified to practice medicine, dentistry or pharmacy were at once shut out and refused a certificate. Those who were legally qualified were granted a certificate by the Health Officer, to the Mayor, who issued them a license for each day they practiced their profession in the city, which license cost them from \$10 to \$50 a day. It will be readily seen that this law practically annihilated the quack business in Mansfield; they gave it a wide berth. Later on other towns followed the initiatory steps taken by Mansfield, until Mr. Ottman found his heretofore lucrative business very greatly infringed upon and finally decided to contest the constitutionality of the law by attempting to practice medicine in the city of Mansfield without a license, whereupon he was promptly arrested by the sanitary officer, brought before the mayor, pleaded not guilty, and placed under a bond of \$100 for his appearance on September 29.

Mr. Ottman has retained the Hon. Thomas E. Powell, of Columbus, and Hon. C. E. McBride, of Mansfield, for his counsel and the case will be hotly contested from start to finish, as the authorities of Mansfield are determined to carry it to the Supreme Court, if necessary, to get a final decision.

This case not only involves many interesting points of law, but is of decided interest to every honorable practitioner in the State of Ohio. If the ordinance is sustained it sets a precedent whereby each city can enact its own laws

for the protection of its own citizens against the nefarious practice of traveling charlatans and quacks. If, on the other hand, an adverse decision is obtained it throws the doors wide open, and invite quacks of all kinds and characters to walk in and help themselves without money and without price. A similar case was tried a few years ago in Kentucky and carried to the Supreme Court which confirmed the authority of a council to pass an ordinance of this character and thus protect its citizens from quackery. It is to be hoped that Ohio will be the next State in the Union to obtain a similar decision.

A Literary Friend of the Doctors.—The versatile Eugene Field writes the following in the "Sharps and Flats" column of the *Chicago Record*:

Just at this time we are interested by the acrimony exhibited by certain medical journals over the crusade which is being prosecuted by a New York publication against the practice of vivisection. We take it for granted that *Life*, the publication referred to, is sincere in the so-called crusade which it has undertaken, and we are free to confess that we have an instinctive horror of the practices of vivisection. The folly into which *Life* has fallen is a wholesale abuse of the medical profession at large; there is equal un wisdom exhibited by the medical journalists in bristling up and scurrying to the defense of a profession that really requires no defense.

Saying sharp things is easy enough when one is indifferent to consequences; this is particularly true when the target for sarcasms is an illustrious one. For centuries the doctor has been riddled with pleasantries and sarcasms; if he had not been good and great he would not have been made a mark for brilliant savageries; if he had not been good and great he would have been swept away long ago by the flood of sharp but not always sincere criticism. Priests and physicians have from time immemorial come in for a large share of what we might call sportive hostility; the world has laughed over these jocularities, yet at the first appearance of spiritual or physical disquietude, the world has sent post haste for the priest or the doctor. This curious perversity is thoroughly understood by the doctores divinitatis and the doctores medicinæ themselves, and it was none other than Dr. Francis Rabelais who embalmed and illustrated it in the immortal couplet:

"The devil was sick, the devil a monk would be;
The devil got well—the devil a monk was he."

We have always thought that in this couplet were most cleverly illustrated the three essentials to the perfect epigram as prescribed by Martial:

"Three things must epigrams, like bees, have all;
A sting, some honey, and a body small."

It is related that Montaigne used to require of his friends that if ever he fell sick they should not send for the doctor until he got better. It was probably about the time of Molière that the story about throwing-away-the-medicine-and-getting-well originated, for when the Grand Louis asked Molière what he did for his doctor, the dramatist answered: "Sire, when I am ill I send for him. He comes; we have a chat and enjoy ourselves. He prescribes; I don't take it, and I am cured." It was probably not until after the evolution of the country editor that the world was apprised, in the very best of faith, that occasionally some people "died without medical assistance." And doubtless there are few of us who have not heard of the man who, having obtained a prescription for insomnia, administered it to his teething baby and enjoyed an unbroken night's rest. These and similar sarcasms upon the medical profession we enjoy, not because of their truth, for we know well enough that they have very little truth in them, but because perhaps, there is a teasing quality in them, and, as Victor Hugo has said, teasing is the malice of good men.

It has been our fortune—our good fortune—to have an acquaintance with many doctors, and we agree with the opinion expressed by the leviathan of English letters when he declared: "I believe every man has found in physicians great liberality and dignity of sentiment, very prompt effusion of beneficence and willingness to exert a lucrative art where there is no hope of lucre." What we particularly admire the doctor for is what he often achieves outside of his profession; the avocations of the physician are notably productive of noble results. Many of the most successful journalists in this country have been doctors; and so have been, or are, many of our most charming writers upon gen-

eral and special subjects. In this city at the present time there is a practicing physician who has made pottery a study and a practice, and he has done more, probably, than any other man toward perfecting the glaze of native pottery. Dr. Oliver Wendell Holmes has done more than simply to adorn and dignify his profession; he has adorned and dignified American literature. The first martyr to the cause of our national liberty was a doctor; the fall of Warren fanned to a blaze the fire of American patriotism. A Dr. Osborn of Massachusetts wrote years ago a whaling song that bids fair to outlive the giant mammal and its adventuresome pursuit which that song celebrated. How largely is not science indebted to Morton, DeKay and Barton, and who that has read his poems and his tales has not acknowledged the literary genius of Weir Mitchell? Akenside was a doctor; so was Cowley, so was Goldsmith; before the days when these literary physicians flourished Sir Walter Raleigh was proud of his fame as the compounder of a cordial and Sir Kenelm Digby was known afar for his recipe for a sympathetic powder which wrought wonders. We remember to have read somewhere that Marat was a doctor, but we have never been able to confirm this story of his earlier life. Arbuthnot was certainly one of the greatest in his profession and his literary abilities and his wit were exceptionally charming. Alexander Pope acknowledged the debt he owed to this physician in ministering to his physical sufferings:

"Friend of my life, which did you not prolong,
The world had wanted many an idle song."

Again, the literary claims of the profession are to be recognized in the poems of James Rodman Drake and in the ever-popular novels of Charles Lever. It was a doctor, Les-tocq, who aided Catherine materially in her struggle for the throne; another doctor, Hamond, was master to the great Racine; Peter the Great cultivated an intimacy with Boerhaave; Hans Sloane provided the nucleus of the British museum; Madden's "Infirmities of Genius" and MacNish's "Philosophy of Drunkenness" are two books that should be in every library. Two other famous books are Dr. Middleton's "Life of Cicero" and Dr. Sir Thomas Browne's "Religio Medici." Rousseau was an invalid all his life. Says he of the physician: "Par tous les pays ce sont les hommes les plus véritablement utiles et savants." The essayist Tuckerman instances the Médecin de Campagne" of Balzac and the "Dr. Antonio" of Ruffini as elaborate and charming illustrations of the testimony given by Rousseau.

Quoth the learned Park: "I hold physicians to be the most enlightened professional persons in the whole circle of human arts and sciences."

But there! we did not intend to say so much upon this subject. The doctor requires no defense, and if he did he could defend himself. We have been led into this idle, desultory chat about him by our sincere affection for him, for we certainly share with all other good folk their admiration and love for this bright, generous, patient, self-sacrificing friend of humanity.

BOOK NOTICES.

Hare's Text-Book of Practical Therapeutics.—A Text-Book of Practical Therapeutics; With Especial Reference to the Application of Remedial Measures to Disease and Their Employment upon a Rational Basis. By HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With special chapters by Drs. G. E. DE SCHWEINITZ, EDWARD MARTIN and BARTON C. HIRST. New (4th) edition, thoroughly revised and much enlarged. In one octavo volume of 740 pages. Cloth, \$3.75; leather, \$4.75. Philadelphia: Lea Brothers & Co. 1894.

When a book has passed to its fourth edition it has passed the point when the written word of the reviewer can help or materially harm. This edition has been largely rewritten, and accounts of several new remedies added.

"Articles on Methylene Blue, Chloralose, Pyrogallol, Condrango, Convallaria, Duboisine and other remedies have been added to the part of the work dealing with drugs. In the part dealing with remedial measures other than drugs, articles have been written on Hypodermoclysis and Enteroclysis, Lavage, and upon Mineral Springs and Climatic Treatment."

In order to conform to the new Pharmacopœia the doses

of drugs are given in the metric system, and for those unfamiliar with that system the old dosage has been also retained. A posologic table has been added in both the old English system and the metric.

We are pleased to note that Dr. Hare has, in this edition, given especial prominence to American climatic health resorts, and although very brief it is a good beginning.

Chemistry: General, Medical and Pharmaceutical, including the Chemistry of the U. S. Pharmacopœia. A Manual on the General Principles of the Science and their Applications in Medicine and Pharmacy. By JOHN ATTFIELD, F. R. S., etc. Cl., pp. 794. Fourteenth edition. Philadelphia: Lea Brothers & Co. 1894.

Attfield's Chemistry in its latest dress, is again upon our table, and it is like looking on the familiar face of an old friend. The changes that have been made in this edition are such as are necessary for the demonstration of the latest developments of chemical principles, the latest applications of chemistry to pharmacy, and to make it conform to the last revision of the U. S. Pharmacopœia. The book has always been a favorite text-book with students in medicine and pharmacy, and if the publishers keep it up to the date of each successive revision as well in the future as they have in the past, it will continue to be the favorite for very many years to come.

NECROLOGY.

RAMON TAQUIMETTO, M.D., of Brooklyn, N. Y., died August 26, at Bensonhurst-by-the-Sea, in the forty-second year of his age. He was a native of Havana, Cuba, of Spanish parentage. He had been sick for several months, having become the subject of both renal and cardiac disorders. He was a man of high intelligence and much culture.—Henry Worthington Webster, M.D., at Baltimore, Md., August 29.—J. W. Campbell, M.D., at Ottumwa, Iowa, August 26.—W. D. Chase, M.D., at Peterboro, N. H., September 2, aged 57. He represented Peterboro in the New Hampshire Legislature in 1889.—Hilborn T. Cresson, M.D., of Philadelphia, at New York City, September 6.—Henry James Brown, M.D., at Detroit, Mich., September 6, aged 81.—A dispatch from Tiffin, Ohio, September 8, says: The body of Dr. William B. Seymour, the Tiffin physician who left here last Christmas and whose disappearance from New Market, Va., was noted last June, has been found in the mountains four miles from New Market with both arms broken. The indications are that the old man, who was in his 85th year, had fallen over a ledge and afterward starved to death. Dr. Seymour had no relatives here, and was supposed to have been quite wealthy.—C. E. Wasson, M.D., at Spruce Creek, Pa., September 7.—S. B. Merrill, M.D., at Chicago, September 11.

ASSOCIATION NOTES.

The Journal and Abbreviations.—Abbreviations are things we do not like, as previously announced in these columns. But our exchanges do not all agree with us, and a few still insist in crediting extracts to the "*Jour. Am. Med. Ass.*" As the *Journal* has but one resemblance to the long-eared animal, in that its voice is heard for a very long distance, we can see neither propriety or sense in continuing such reference. As there is but one *Medical Record*, and as there is but one *Medical News*, so there is but one *Journal*. It is *The Journal* of the great medical profession of this country. We do not speak of the *Medical Record* as the *Medical Record* published by Wm. Wood & Co., and edited by Dr. Geo. F. Shrady. We simply say the *Medical Record*, and that is all. Therefore, let us speak of *The Journal*, and drop all superfluities.—*National Medical Review*.

SOCIETY NEWS.

Seventeenth Annual Re-union of Pennsylvania and Maryland Physicians.—The physicians of the Counties of York, Lancaster, Cumberland, Dauphin, Lebanon and Berks, Pennsylvania, and Cecil and Harford Counties, Maryland, held their seventeenth annual re-union at Chickies Park near Columbia, Pa., on Thursday. About one hundred and fifty physicians with their families and friends were in attendance and spent a most delightful day. The heavy smoke filling the atmosphere prevented a full enjoyment of the magnificent scenery from the celebrated Chickies Rock, but otherwise the day was greatly enjoyed.

At 12:30 o'clock the party was brought to Columbia on special electric cars and taken to St. Paul's Protestant Episcopal Church. They then adjourned to the parish building in the rear, where they partook of a dinner, which was served them by the ladies of the church.

After dinner the members with their families and friends boarded the special and returned to Chickies Park, where the business meeting and election of officers of the Society was held, presided over by President Frey, of York.

Following are the present officers of the Association:

President—Dr. Levi Frey, York.

First Vice-President—Dr. George R. Welchans, Lancaster.

Second Vice-President—Dr. J. W. Trabert, Annville.

Secretary—Dr. Roland Jessop, York.

Treasurer—Dr. George M. Stump, Perryville.

Executive Committee—Dr. Alex. Craig, Columbia, Chairman; Dr. George W. Gillespie, Oxford; Dr. A. C. Wentz, Hanover; Dr. R. A. Bromwell, Port Deposit; Dr. T. R. Bucher, Lebanon; Dr. W. Murray Weidman, Reading; Dr. H. A. Hare, Philadelphia.

Following is a list of physicians in attendance, each one being accompanied by one or more persons:

Drs. Bacon, York; Mowery, Letort; Morris, Baltimore; Wentz, New Providence; Foster, Pittsburg; Gillespie, Oxford; Ritchie, Harrisburg; Welchans, Lancaster; Musser, Lampeter; Gable, York; Berntheizel, Columbia; Trabert, Annville; Bromwell, Port Deposit; Small, York; Daxe, Rising Sun; Potteiger, Harrisburg; Shellenberger, Philadelphia; Gillespie, Pleasant Grove; Ulrich, Chester; Alexander, Marietta; Livingston, Columbia; Deisinger, Hellam; Middleton, Steelton; Weidman, Reading; Miller, Bird-in-Hand; Seitz, Harrisburg; Quickel, Manchester; Spangler, York; Rohrer, Lancaster; Lehman, Mountville; Frey, York; Wentz, Hanover; Black, Strasburg; Cleaver, Reading; Leaman, Leaman Place; Mowery, Marietta; Netcher, Lancaster; Carfield, Baltimore; Stover, Chester; Bucher, Lebanon; Marshall, Shippensburg; Morton, Philadelphia; Landis, Reading; Jamar, Elkton; Reynolds, Baltimore; Yost, Bethesda; Guilford, Lebanon; Harter, Maytown; Zeigler, Mt. Joy; Warrell, Elkton; Davis, Lancaster; Simmons, Baltimore; Kirk, Oxford; Craig, Markel, Backius and Lineaweaver, of Columbia.

PUBLIC HEALTH.

Typhus Fever in Paris.—From January 1 to July 4 of this year, forty-seven cases of typhus fever were recorded in Paris, with twenty-two deaths. In June there were twenty cases and nine deaths and in the first four days of July, six cases and four deaths. This increase led the Advisory Committee on Public Hygiene of France, to issue a circular requesting the authorities of Paris to take steps toward disinfecting in the most thorough manner those "shelters for the night" established by private munificence.

Disinfection by Ammonia Vapors.—Dr. von Rigler, of the Hygienic Institute of Buda-Pesth, proposes (*Concours Médical*) a new method of disinfection. He suspended threads impregnated with microbial cultures in a room 100 cubic meters in size, 1000 grams of ammonia being placed in numerous flat dishes on the floor. At the end of one hour 100 grams of the ammonia had evaporated; in two hours, 250 grams; in four hours, 350; at the end of eight hours 450. The bacilli of cholera and of typhoid fever were killed after two hours; of anthrax, with or without spores, after three hours; the Löffler bacillus only after eight hours. This

method is cheap and has the added advantage of not being injurious to furniture, drapery, hangings, etc. It is to be hoped that the results of these experiments may be corroborated; effective disinfection by ammonia vapors would remove many existing difficulties in the way of quarantine practice.

Ammunition of the Anti-Vaccinist.—In a circular recently issued by the London (Eng.) Society for the Abolition of Compulsory Vaccination, it is asserted that the death rates in the smallpox outbreak in Leicester in 1892-93 were as follows: "Death rate from smallpox of the re-vaccinated, 270 per million living; of the vaccinated, 159; of the non-vaccinated, 109 only." These figures are made the basis for the usual argument against vaccination and it may be expected that they will shortly be reproduced by the anti-vaccinist on this side of the Atlantic. That they are absolutely false will not prevent their citation by the propagandist of free smallpox nor their unhesitating acceptance by his dupes. Nevertheless it may be worth while to say that there was no death of a re-vaccinated smallpox patient in Leicester and that the actual death rate of the three classes of the population of that city, during the outbreak of 1892-93, were as follows:

| | |
|--------------------------|------------------|
| Re-vaccinated | 0.0 per million. |
| Vaccinated | 5.4 " " |
| Non-vaccinated | 102.7 " " |

The circular and its unblushing mis-statements are fair specimens of the ammunition furnished to the "anti's" for their warfare upon vaccination.

Typhoid in Buffalo.—The recrudescence of typhoid fever in Buffalo is attributed by Health Commissioner Wende to the use of water from the 400 old wells remaining in the city, many of which are found on examination to contain the typhoid bacillus. The people persist in the use of these wells because they say: "The water was good enough for our fathers and our grandfathers, and it's good enough for us." Dr. Wende anticipates trouble in securing the abandonment of these polluted wells and fears a renewal this fall of the epidemic of last spring.

Sanatorium for Tuberculosis.—The Municipal Council of Paris has decided to establish a sanatorium for consumptives in one of the suburbs, a few miles from the city. The report of M. Paul Strauss, (*Gaz. Méd. de Paris*) which led to this action, gives the following reasons for its establishment: The first advantage which will be gained is the cleaning out of the general hospitals, which are too often occupied by the chronic consumptives at the expense of the acute; this alone would not justify special hospitals, but, unhappily, the great number of consumptives do not gain access to hospitals—they are habitually refused, and if they are received in the wards they do not receive the particular care they need, and there is risk of transmitting the germs of their disease to the other occupants of the wards. General hospitals are not adapted to the treatment of this class of cases, which are of long duration; they are not built or situated for that purpose; the unfortunate patients have not the privilege of wintering in a suitable climate; distress weakens their chances of survival and the disease has, so to speak, a clean field. Such noted authorities as Bouchard, Cornil, Brown-Séquard, Grancher, Jaccoud, Peter and others have proven beyond a doubt the curability of tuberculosis and the efficacy of its hygienic treatment. The experience of the sanatoria of Falkenstein, Gorbisdop and Hohenhonnef shows the value of the results obtained by permanent aeration, forced alimentation and hydrotherapy. In ten years the sanatorium at Falkenstein has a record of 24.2 cures per 100, and Dr. Neisser at Hohenhonnef shows 27 per cent. of cures.

Epidemic Diseases.—Asiatic cholera continues to spread in Europe, especially in Russia and in the provinces of East and West Prussia. During the week ended September 11 there were reported 6,376 new cases and 4,192 deaths in all Russia; the disease is most virulent in Radom where there were 1,238 new cases and 617 deaths; in Kielce there were 1,138 new cases and 565 deaths, and in Warsaw 1,100 new cases and 532 deaths. The disease has also appeared at Riga, a fact which derives importance from the extensive communication of the port both by water and rail. For this season, however, the disease is fast losing interest so far as this country is concerned. The suspicious death of a Bavarian immigrant at Cumberland, Md., on the 5th inst., hardly caused a ripple of excitement; a bacteriologic examination by Passed Assistant Surgeon Geddings, M. H. S., showed that death was due to ptomaine poison from improperly cooked food. Suspicious sickness on the *Werra*, from Genoa at New York, September 10, also proved to be non-contagious.—Some alarm was occasioned at Baltimore on the arrival of a British steamer from Havana on the 8th inst., with alleged cases of yellow fever on board, supplemented by the arrival on the following day of an American bark, infected with the disease, at the Cape Charles (Va.) quarantine station. The season is too far advanced to make any extension of the disease probable.—The prolonged drought has caused an increase of typhoid fever in many localities, owing to the increased density of pollution of water courses and the resort to old disused wells as a source of supply. The Passaic River at Jersey City is so low that the pollution from the cities of Newark, Paterson, Passaic, the Oranges and other towns, and from the many factories, dye houses, gas works, slaughter houses, sewers, etc., that drain into it, has made it wholly unfit for drinking purposes. The nuisance has become so intolerable and the menace to public health so great that it will probably compel the city government to provide a new and more wholesome water supply.—Smallpox threatens more seriously than any other of the epidemic contagious diseases. Correspondence of health authorities with the *JOURNAL* indicates considerable apprehension for the coming winter on this account. During August there were 117 cases of the disease in Chicago; the situation in Milwaukee can hardly be said to have improved recently; an increase is reported in New York; Indianapolis is threatened with a general outbreak through a mistaken diagnosis, and at Walkerton, Ind., several well-developed cases have appeared as the result of the deaths of the wife and mother of a local physician from a disease, which is now pronounced to have been smallpox. Health officers in other localities are also in a state of mind over the situation, similar to that of "Hosea Biglow's" during the war—

"all one teeter, hopin', dreadin'."

Extension of Glanders due to Public Water. The Brooklyn Board of Health issues a Circular of Information.—Not only in Brooklyn, but in several of our Eastern cities, there has been a recrudescence of glanders and farcy. The sanitary authorities of the former city seek to bring about a diminution of the disease by enforcing a full reporting of cases by veterinarians and others, and also by causing the non-use of public watering troughs that are possibly infective. The following are selections from an article that has recently appeared in a Brooklyn daily journal:

"The Department of Health is measurably responsible in the matter of checking the progress of contagious disease among animals. For this reason it is one of the requirements of the city ordinances that the Department shall be notified of all cases of glanders or farcy. Section 31 of the Sanitary Code, is as follows:

SECTION 31.—That no cattle shall be killed for human food while in an overheated, feverish or diseased condition; and all such diseased cattle in the city of Brooklyn and the place where found, and their disease shall at once be reported to the Department of Health by the owner or custodian thereof, and it shall be the duty of every veterinary surgeon, owner or person having the charge, care or custody of any horse, ass, mule, colt, ox, milch cow, calf, sheep, or

goat, or any other animal affected with glanders or farcy, pleuro-pneumonia, tuberculosis or other disease infectious, contagious or pestilential, among such animals, to report the same to the Department of Health within twenty-four hours of their knowledge of such disease, stating where located.

"The early coöperation of all veterinarians will have the effect of restricting the progress of the disease.

"Furthermore, doubtful or suspicious cases may be reported and the assistance of the Department in this way be obtained as to diagnosis and sanitary precautions; and 'mallein,' a new substance prepared at the Bureau of Animal Industry, Washington, D. C., is at command of the Inspector of the Department for the settlement of suspicious cases at an earlier stage of the disease than can be otherwise reached.

"This is the circular of information to the owners of horses:

"Notice is hereby given that glanders is a disease among horses manifesting considerable prevalence at the present time, and that no little loss has lately been experienced by those so unfortunate as to have animals affected by this disease. It is the belief of the veterinary inspectors of this and other Departments of Health that the disease is spread among horses by means of the public watering troughs situated on many of the public thoroughfares. It is expedient therefore, that all persons owning horses and all drivers of teams should be cautioned against this danger from watering their horses at these public troughs. All drivers who are compelled to remain away from their private sources of water supply for any considerable period of time are advised that a safe course for them to pursue will be to provide a pail which can be carried in the truck or vehicle, or hooked under the wagon body. Into such a pail running water can be given, freshly drawn and clean, whenever the animals are in need of water.

"All veterinarians and horse-owners are required by Section 31 of the Sanitary Code to report to this Department all cases of glanders. Any person having a horse or other animal suspected of being affected by an infectious disease may, on application at this Department, have the services of our Veterinary Inspector for the purpose of promptly determining the diagnosis."

MISCELLANY.

Physicians' Protective Association.—The first annual meeting of the Physicians' Protective Association of Detroit, was held September 4. Reports of officers showed a prosperous year, \$9,916 in outstanding accounts having been collected. Officers for the ensuing year were elected as follows: President, L. J. Lennox; Vice-President, Dr. R. H. Stevens; Secretary, Dr. P. M. Hickey; Treasurer, Dr. S. H. Knight.

International Congress of Gynecology and Obstetrics.—At the second session of this Congress, to be held at Geneva this month, the following topics will be discussed: The treatment of eclampsia; the surgical treatment of retro-deviations; the relative frequency of the various pelvic contractions in different races; the best method of suturing the abdominal wall to prevent ventral hernia; treatment of pelvic suppurations.

Mysterious Disappearance.—Cassopolis, Mich., has had a sensation similar to that caused in Chicago a few years ago by the murder of Dr. Cronin, in the disappearance of Dr. A. B. Conklin. He was to have been a witness in an insurance case trial at Traverse City, Mich. He is believed to have been abducted and perhaps murdered. The abduction occurred September 4. A reward of \$2,000 has been offered for his body.

Quills from the Fretful Porcupine.—Dr. Gagen, of Heppner, while out gunning last Sunday, shot and fatally wounded what he supposed to be a badger. Fearing that the animal would get away from him, he ran and seized it with both hands,

but immediately let go again. It proved to be a porcupine instead of a badger. It took him about two hours to pick the quills out of his hands and arms.—*Ellensburgh* (Wash.) *Localizer*, September 1.

Medical College Opening.—The College of Physicians and Surgeons of Chicago held its opening exercises September 5. There were 200 matriculates in attendance. The introductory was given by Dr. W. S. Christopher.

Doctors' and Lawyers' Fees Again.—In Brussels, during 1893, twenty-one medical men received 8,745 francs for services rendered to the *personnel* of the railway, postoffice, telegraph and telephone departments of the government. For services rendered to the railways alone, *three* lawyers received 18,000 francs.

Medical Journalism in Russia.—There are, according to the *Journal de Médecine de Paris*, thirty-eight medical journals in Russia at the present time. Of these twenty are published in St. Petersburg, five in Moscow, four in Warsaw, two in Odessa, two in Charkov, and one each in Kasan, Kieff, Saratov, Varsovege and Poltova. The oldest journals are the *Medizinskoie Obozrenie* (Review of Medicine), twenty-first year; the *Rousskaia Medizina* (Russian Medicine), nineteenth year; and *Wratch* (The Doctor), fifteenth year.

An Electric Ambulance.—An ambulance, moved by electricity on the street-car lines of St. Louis, made its first trip in that city recently. The experiment was so successful that it is proposed to place these ambulances on every car line in the city to make trips at stated intervals. It is anticipated that when the plan is perfected, patients can be removed to the City Hospital from any part of the city in less than an hour, and that the service will save thousands of dollars annually as compared with the present ambulance service.

Distribution of the Sexes.—In the population of the whole earth the number of females is very nearly equal to that of the males; but, according to the *Journal de Médecine de Paris*, there are marked variations in different countries. Of all the countries on the globe, France is the one where the sexes are most nearly equal, there being 1,007 females to 1,000 males. For the same number of defenders of their country we find 1,064 females in Sweden and only 933 in Greece. In the French island of Réunion 547 Creoles or brown mulatresses can choose between 1,000 Frenchmen—including those with black skins. In Hong Kong for every 1,000 males there are but 366 females.

Oldest Physician in the Country.—Since the recent death of Dr. James Kitchen, of Philadelphia, Dr. Hiram Corson, of Montgomery County, Pennsylvania, is declared by Philadelphia papers to be the oldest physician in the United States who has been in continuous practice. He will be 90 years old next October, and has been in active practice since 1827. He is still in excellent health, with astonishing preservation of his physical and mental powers. Dr. Corson is now writing his personal recollections of the anti-slavery movement, in which he took an active part, having assisted many a fugitive slave to escape by the "underground railroad." He has frequently contributed to the *JOURNAL* and we hope soon to have an article from him.

Fighting the Diploma Trade.—Dr. C. T. Metcalf, Secretary of the Indiana State Board of Health, has instructed the county boards of health to notify clerks of court to refuse licenses on the diplomas of the "Marion Physico-Medical School of Indiana and Marion." This institution does not appear in the list of existing medical schools in the Illinois Report on Medical Education—either among the "reputable" or "fraudulent" institutions—and it is alleged that it grants degrees after three weeks' study and issues diplomas for the sum of

\$25 each. Application has been made in the Delaware County (Ind.) Circuit Court by the holder of one of these diplomas for a mandamus to compel the clerk to issue a license thereon. The Indiana State Board will resist the application on behalf of the clerk.

Illness of Prominent Persons.—Professor Aoyama, who, with Professor Kitasato, was dispatched by the Imperial Japanese Government to Hong Kong to study the plague, has had a serious attack of the malady, from which, although reported on the 1st inst. to be convalescent, he is suffering pyemic complications. Dr. Aoyama was making a special study of the pathological and clinical features of the disease while Kitasato is investigating its bacteriologic character.—Robert Koch is suffering from the effects of overwork and has had to resort to the famous water cure at Woerishofen of Father Kneipp, the Bavarian priest and preacher of hydrotherapathy. On a recent visit to Rome, it is said, that this advocate of the "wet pack" and the douche was consulted by Leo XIII. for the relief of certain ailments, due to advanced age, from which his Holiness is suffering. The Pope was advised to apply cold compresses to his knees and to the back of his neck, and did so with rather disastrous results. He caught quite a severe cold, and both knees became so swollen that he was forced to call upon his own physician to combat the consequences of the experiment.—It is recalled that the diagnosis of the case of the Comte de Paris, who died last week of cancer of the stomach, was made by the electric illumination of that organ, by means of which, we are told by a European correspondent, the operator was "able to detect through the skin an incipient cancer or ulcer on the left wall of the organ. The doctors then discussed the desperate expedient of the excision of the entire stomach and the substitution of the same organ from a lamb, an operation which has been successful in one case in French surgery. The risk was deemed too great, and the patient was not informed of the real nature of the disease until recently." The Marquise de Fontenoy says (*Chicago Record*): "It is curious how prevalent this particular affliction has been among the members of those houses that have reigned over France," and cites the late Comte de Chambord, the first Emperor Napoleon, his nephew "Plon-Plon," the late Prince Jerome, as well as his brother, King Louis of Holland, as victims of the malady. King Louis XVIII. was carried off by the same insidious disease, while his successor, King Charles X., although he fell a prey to cholera, was found after death in exile at Coeritz to be similarly afflicted. Louis XII., Louis XIII. and Louis XIV., as well as Francis I., also succumbed to abdominal troubles of a cancerous sort.—A Berlin dispatch of the 1st inst. says that it is reported there that the Czar Alexander, was recently examined by Professor Sacharin, the specialist, who discovered a renal calculus as the cause of the sufferings which have previously been attributed to the sequelæ of influenza.—Queen Victoria suffers so much from rheumatism, confined almost exclusively to the knees, that she has abandoned her proposed trip to Italy, and will go instead to Aix les Bains or Wiesbaden for a course of the waters and to undergo massage. The Princess of Wales is a victim of the same painful malady. The Crown Princess Victoria is dying from consumption.—The *Medical Record* of September 8, mentions that the Shah of Persia is troubled with his eyes and is in poor general health; that Signor Crispi, the Prime Minister of Italy, is slowly recovering from injuries received in a fall; that the Queen of Italy is suffering from nervous shock occasioned by the sudden death of one of her attendants in her presence; that the wife of Prince Bismarck is ill, and it is feared that should she not recover the Prince himself will break down entirely; that Mr. Gladstone was recently operated on for cataract; that the young King of Spain is very delicate, though no definite disease has yet declared itself; and that President Cleveland is reported to be suffering from malaria and the effects of overwork.—Finally, to round out the week's budget of this sort of news, the *Pall Mall Gazette* publishes a long letter from Bangkok, in which are explained the recent rumors that the King of Siam was dead. It appears that he is a victim of the chloral habit, and his illness, from which there is little prospect of recovery, is the result of the use of the drug for many years.

Washington Notes.

PUMP INSPECTION.—Four pumps have been condemned during the past week and ordered closed.

RULES FOR DISINTERING BODIES.—Regulations have been prescribed by the Commissioners, governing the disinterment and transfer of bodies from Graceland Cemetery, as provided by an act passed at the last session of Congress. Written application must be made to the Health Officer, bearing the signature of the secretary of the cemetery association, giving name, age, date, and cause of death. No disinterment will be permitted during the months of June, July, August and September, and no body of a person under 12 years of age may be disinterred within a year from date of burial.

Upon disinterment, all articles of any description found in the grave, together with the remains of the coffin or casket, must be inclosed in an air-tight box and transferred at once to the place of re-interment, and re-interment must take place within twenty-four hours from the time the remains were exhumed. Bodies of persons who die of diphtheria must be saturated with a solution of chlorid of lime before removal, and the grave must remain open for a period of twenty-four hours.

HEALTH OF THE DISTRICT.—The report of the Health Officer for the week ending September 1, shows: Number of deaths, 86; white, 55; colored, 31. Death rate per 1,000 per annum: white, 14.66; colored, 17.9. Total population, 15,69. Thirty-two were under 5 years of age, 17 were under 1 year old and 15 over 60 years. Eighteen of the deaths occurred in hospitals and public institutions. The deaths by classes were as follows: Zymotic, 25; constitutional, 11; local, 41; developmental, 6, violence, 3. The principal causes of death were: Croup, 1; diphtheria, 1; consumption, 5; diarrheal, 9; erysipelas, 1; typhoid fever, 7; malarial, 1; scarlet fever, 1; pneumonia, 2; congestion of the lungs, 1; whooping cough, 2; kidney disease, 9; cancer, 1. Births reported: 25 white males, 24 white females, 19 colored males, 20 colored females. Marriages reported: 4 white, 5 colored.

As favorable as was the last health report there was a still further improvement in the mortality of the city during the past week. There was but one death from scarlet fever and one from diphtheria reported. While the total mortality during the last week was 86, there were 116 deaths in the corresponding period of last year and 110 in the year preceding that.

Hospital Notes.

THE CORNER STONE of the Julia F. Burnham Hospital at Champaign, Ill., was laid with appropriate ceremonies August 23.—Dr. Gillies, of Winnipeg, has been appointed Medical Health Officer of the Brandon Insane Asylum, to take effect Jan. 1, 1895.—The New Emergency Hospital at Milwaukee has just been completed at a cost to the city of \$60,000. Drs. Frank, French, Farnham, Brown, Wahl, O'Brien, McDill, and Wingate constituted the original Board of Trustees.—The Sioux Falls, (S. D.) Hospital will be opened soon. Drs. H. Hoide and Arne Zetlitz are the chief promoters of the enterprise.—St. Mary's Church at Omro, Wis., is to build a cottage hospital to cost \$15,000.—The will of J. V. de Lavaga, of San Francisco, provides for the erection of a hospital for the deaf, dumb and blind to be located at Santa Cruz, Cal., and to cost almost \$1,000,000.—The Jefferson College Hospital of Philadelphia, has undergone extensive alterations and repairs, under the personal superintendency of Dr. E. E. Montgomery.—The Cincinnati City Hospital is to have improvements in lighting and ventilation at a cost of \$8,427.—A hospital for epileptics is to be built at Rochester, Pa., after the Bielenfeld plan, as a memorial to the late Dr. W. A. Passavant.—The physicians of Oshkosh, Wis., held a meeting August 28, and adopted the following: We the undersigned, at a meeting held at the Athearn Hotel Aug. 28, 1894, to consider the matter of establishing a hospital in the city of Oshkosh for the general good of the city, do hereby agree to do all in our power, financially and by personal efforts, to aid in the establishment and maintenance of such enterprise. (Signed) T. P. Russell, B. C. Gudden, G. M. Steele, W. A. Gordon, J. C. Noyes, L. P. Allen, Fred W. A. Brown, S. Buck Ackley, Burton Clark, W. Treptow, H. B. Dale, Willard H. Titus, A. Roos, Harvey Dale, D. W. Harrington, S. T. Lewis, E. M. Wilson.

MANAGING A FLOATING HOSPITAL.—The *Springfield Republican* (Mass.), says: "The floating hospital which has made five trips down Boston harbor this season, carrying 1,100 children, is a charitable enterprise paying quick and large returns to those who have made its ministrations possible. When the passengers arrive, gathered from the north, south and west ends of the city, they are met at the gang plank by two doctors, two assistant superintendents and a policeman. The physicians inspect the children to see that none with contagious diseases are taken on, and they also examine the packages carried by the mothers to confiscate green fruit, sausages, bananas, cold potatoes, salt pork, beer, brandy and whisky, all of which are found and thrown overboard. Then something better is provided for the babies. As soon as the boat starts the upper and lower decks are divided into wards, with a doctor and a nurse for each. The patients are then examined, and the most serious cases sent below for special treatment. The diet and medicines necessary for each child are prescribed, no charge being made if the home diet is correct, and each mother is given a ticket which is punched when she receives the first meal for the baby, and taken up at the second feeding, at 3 o'clock. The doctor and nurse are responsible for the ward under their direction.

In the meantime, preparations are made for lunch, and when the boat anchors off Hull, at noon, the food placed in neat boxes, is carried to the decks in baskets and served to the mothers, with tea, coffee or milk, tickets for these having been distributed just before the lunch time. In this way the rush is avoided, and all attention is given to the mothers. At intervals throughout the day pitchers of milk are distributed to the larger children and the mothers who wish it. The milk is sterilized in the bottles, thirty-five being prepared at once and then a spoonful of lime-water is added to each bottle before the milk is given to the little ones. On the five trips made 650 mothers were carried with the 1,100 children."

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Sept. 1, 1894, to Sept. 7, 1894.

Major W. H. GARDNER, Surgeon, relieved from duty at St. Paul, Minn., and ordered to Ft. Custer, Montana, for duty.

Major HENRY McELDERBY, Surgeon, relieved from duty at Omaha, Neb., and ordered to Ft. Robinson, Neb., for duty.

Major GEORGE W. ADAIR, Surgeon, relieved from duty at Ft. Robinson, Neb., and ordered to Washington Bks., D. C., for duty.

Major JOSEPH H. CORSON, Surgeon, relieved from duty at Washington Bks., D. C., and ordered to Ft. D. A. Russell, Wyo., for duty.

Major JOSEPH K. CORSON, Surgeon, is granted leave of absence for one month, to take effect when relieved from duty at Washington Barracks, D. C., with permission to apply for an extension of fifteen days.

Major WASHINGTON MATTHEWS, Surgeon, is granted leave of absence for four months on surgeon's certificate of disability.

Capt. CHARLES B. EWING, Asst. Surgeon, is granted leave of absence for one month and fifteen days, to take effect on or about Sept. 10, 1894.

First Lieut. JAMES M. KENNEDY, Asst. Surgeon, will be relieved from duty at Ft. Custer, Montana, and will report in person for duty at Camp Merritt, Montana.

Capt. JEFFERSON R. KEAN, Asst. Surgeon, is granted leave of absence for twenty days, to take effect Oct. 10, 1894.

LETTERS RECEIVED

(A) Andrews, Edmund, Chicago, Ill.; Atkinson, W. B., Philadelphia, Pa.; Ayer, N. W. & Co., Philadelphia, Pa.; Anderson, James, Andover, Ill.

(B) Briggs, W. E., Sacramento, Cal.; Brown, Phillip, Toronto, Canada; Bernd, Henry & Co., St. Louis, Mo.; Bettman, Boerne, Chicago, Ill.

(C) Cunningham, W. M., Asheville, N. C.; Cochran, Jerome, Montgomery, Ala.; Cone, Andrew, New York, N. Y.; Cook, C. E., Mendota, Ill.; Cantwell, A. W., Davenport, Iowa.

(D) Delevan, D. B., New York, N. Y.; Dulles, Chas. W., Philadelphia, Pa.

(E) Fehr, Julius, Hoboken, N. J.; Fullerton, E. E., Columbus, Ohio.

(G) Griffith, J. D., Kansas City, Mo.; Graham, D. W., Chicago, Ill.

(H) Hobbs, A. G., Atlanta, Ga.; Hummel, A. L., (3) Philadelphia, Pa.; Hall, J. N., Denver, Col.; Hopkins, J. G., Thomasville, Ga.

(I) Ingala, E. Fletcher, Chicago, Ill.

(J) Jones, H. Isaac, San Francisco, Cal.; Johnson, H. L. E., Washington, D. C.

(K) Kellogg, E. W., Milwaukee, Wis.; Keyser, P. D., Philadelphia, Pa.; Keener, W. T. Co., (2) Chicago, Ill.

(M) Montgomery, E. E., Philadelphia, Pa.; McFarland, D. W., Waterbury, Conn.; Marks, A. A., New York, N. Y.; Maclean, Donald, Detroit, Mich.

(O) Oxford Publishing Co., Chicago, Ill.

(P) Percy, J. F., Galesburg, Ill.; Parmele, Chas. Room Co., New York, N. Y.; Parish, J. C., Vandalia, Mo.; Parkhill, Clayton, Denver, Col.; Priestly, J. T., Des Moines, Iowa.

(R) Ricketts, B. M., Cincinnati, Ohio; Rochelle, W. T., Jackson, Tenn.; Roberts, John B., Philadelphia, Pa.

(S) Sayre, R. H., New York, N. Y.; Sonthard, W. F., San Francisco, Cal.; Schadle, J. E., St. Paul, Minn.; Scott, X. C., Cleveland, Ohio; Sims, S. N., St. Joseph, Ill.; Slifer, H. F., North Wales, Pa.; Small, A. R., Chicago, Ill.

(T) Taylor, W. S., San Francisco, Cal.; The Kenyon News & Subscription Co., Chicago, Ill.; Tappay, E. T., Detroit, Mich.

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ADDRESS.

ADDRESS OF THE CHAIRMAN.

Read in the Section on Laryngology and Otology at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY E. FLETCHER INGALS, M.D.
CHICAGO.

I congratulate you upon gathering together on this occasion under such favorable auspices. Notwithstanding the deplorable circumstances which separate us from a large part of our *confrères*, your officers have secured a large number of papers for this occasion, which will be found of great interest, and which I hope will receive the thorough discussion they merit. Knowing that the meeting of the American Congress of Physicians and Surgeons in Washington would keep from us some who would like to attend, and that many of the best laryngologists and otologists in the country are, out of self-respect, absolutely precluded from membership in this ASSOCIATION by the antiquated and narrow policy which unfortunately still prevails, your officers have urged their friends to contribute to the success of this meeting by sending papers, even if they could not attend in person. We have, however, required that all such articles should be accompanied by abstracts that may be read, provided there is not sufficient time for the whole paper. When a few years ago some of us attempted to organize this Section, it was opposed strenuously by some of the members of the ASSOCIATION on the ground that there was too great a tendency to specialists in medicine, and also that the various Sections would tend to detract from the interest in the general meeting. These objections seemed well founded, but the progress of events enabled us after two or three years to overcome the opposition and the Section was organized with Dr. Wm. H. Daly, of Pittsburg, as Chairman and myself as Secretary. The following year we had about forty papers in this Section. This again brought down upon us the criticisms of some of our friends in the ASSOCIATION, but it did not dampen the ardor of those engaged in our specialty, and during the succeeding years this remained one of the strongest Sections in the ASSOCIATION, both in character of the work performed and in the number of men interested.

We must, however, regret that many of those who could furnish us results of most valuable scientific work are kept aloof by the traditional policy, which, although the best which could be devised in the bitter hostility which existed fifty years ago, has been the very means of perpetuating an absurd pathy which would have long since fallen into the shadows of oblivion, if the regular profession had not afforded its misguided adherents the constant opportunity to pose as martyrs.

This ASSOCIATION has done much for the cause of medical science in this country, but it has failed to engage the active coöperation of a large majority of the medical profession, and it has thus fallen short of accomplishing the magnificent possibilities which seem open before it.

A wide breach has occurred between this ASSOCIATION and some of our best friends in the regular profession; and this has been thoughtlessly laid largely to the men who are devoting their whole energies to some of the special departments of our art and science. This, I am entirely satisfied, is a mistaken idea. Indeed, I fully believe that the great relative falling off in the ranks of the pathists within the past few years which amounts to about 30 per cent. of the number of students graduated from the homeopathic schools, has been due to the greater wisdom coming largely from those same men, that has caused the profession to recognize honest work wherever found, and to ignore absurdities without raising them into prominence by discussion.

While fully realizing all that has been done, we can not help asking ourselves whether we are doing all that can be done to promote harmony and good will in our own ranks. The answer must be in the negative. Under the present policy of our ASSOCIATION it has been impossible to greatly increase our membership, and as a result we have to-day only about one-fourth of those who should belong to the ASSOCIATION and who, by a wise policy, might be induced to stand with us for all that the profession needs. I hope the members of this Section will by their acts refute the charge that specialists are trying to disrupt the profession, and that they will aid in every honorable way to secure the new order of things which some of us believe will make our calling more useful, which will bring our friends together with us, and which, I fully believe, would, within a quarter of a century, practically wipe out the pathies that now fret the earth.

ORIGINAL ARTICLES

ON TUBAGE AS ACCESSORY TREATMENT IN CERTAIN CASES OF SEPTAL DEFORMITY.

Read in the Section on Laryngology and Otology at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY PRICE BROWN, M.D.
TORONTO, CAN.

Deviations of the nasal septum are of such frequent occurrence among all civilized races that we need not wonder at the number and variety of methods practiced for their removal. Each method of operation is often eulogized by its advocates as superior to all others, and histories of cases are cited

as direct evidence of the truth of the statement. Still, while granting all that can be said in favor of the many ways of treatment, every operator will admit, I think, that cases sometimes occur in which mere operative measures are insufficient, unless supported by accessory treatment of a more than ordinary character. Judging from personal experience, I think this is particularly true of that class of cases, characterized by extensive adhesions between the septum and middle and inferior turbinated bones.

I do not refer to cases where synechiæ or cicatricial bands, due to inflammatory action, are stretched across the central nasal cavity binding the two sides together; but to those cases usually traumatic in their origin, in which the anterior end of the vomer, the lower part of the perpendicular plate of the ethmoid, and the triangular cartilage, unitedly forming the central portion of the septum are crowded over, and pressing directly against the turbinated have produced osseous and cartilaginous union. These are cases in which the patency of the entire nasal cavity, subsequent to operation and during the process of healing, becomes a subject of the greatest importance.

In another class of traumatic cases the injury is confined chiefly to the nasal cartilages. The vomer and the ethmoid may be unaffected; but the crushing of the external nose may be so severe that during the process of internal repair the mucous membrane is extensively destroyed—the resulting cicatrization producing almost complete stenosis.

In both classes of cases we have in tubage a most valuable aid in the way of accessory treatment; and with the hope that other rhinologists will give it a more extensive and thorough trial I append the histories of several cases, which have during the last two years fallen into my hands for treatment. I am satisfied that in these cases, had I resorted after operation simply to sprays, the use of the cotton tampon, the ordinary rubber plug, brushing and similar procedure, the results either to patients or operator would not by any means have been of so satisfactory a nature.

Case 1.—November, 1892, Miss F. McD., aged 17 years. Her father and sisters had large Roman noses, and during childhood her own is said to have been of a similar type. At the age of 10 years, she had a severe fall, lighting on the bridge of her nose and effectually depressing it. This was followed by an abscess, which discharged a great deal of pus and eventually healed. Five years later she was taken to a surgeon in Vermont to have the nose elevated. He made an incision from the left inner canthus, down the angle of the nose adjoining the cheek and across the left ala. Then dissecting the soft tissues back, he transixed the nasal bones with needles, and attempted to raise them to the normal position. The nose was returned and sutured, and the transverse needles left *in situ* for a time. Probably owing to the length of time which had elapsed between the periods of injury and surgical treatment, the result was not very satisfactory. The cicatrix had almost disappeared, but the bridge was only slightly raised.

When she came to me two years later it was largely on account of nasal stenosis. On examination I found the cartilaginous septum crushed down and completely distorted. Its position instead of being vertical had become irregularly diagonal. On the right side there was still sufficient mucous membrane to make a fairly free passage after sawing off the projecting cartilage. But on the left, which contained the bulk of the septum, there was almost complete stenosis. The cicatrization had destroyed the mucous membrane to such a degree, that a cocaineized cotton probe could only be passed through the center of the choana, and that with difficulty. Posterior to the stricture, the lumen did not seem to be defective.

Retaining that portion of the septum which still acted as support to the depressed bridge, and preserving what little mucous membrane remained, I cut out the balance of the cartilage with saw and bistoury; as it was the cause of part of the obstruction, and was too unshapely to be utilized. On its removal, however, the soft alar tissue collapsed, closing in some measure the space produced by the operation. This difficulty was met for a time by the use of a hard rub-



Fig. 1. Not quite full size.



b.



Fig. 2 a.



Fig. 3.



d.



Fig. 4 c.

RHINAL TUBES.—Anterior ends of tubes to right; posterior to left B is vertex of a, d is vertex of c.

ber plug; but whenever it was removed the choana would at once collapse. Dr. Grant's vulcanite tubes would probably have suited this case. Unfortunately I did not possess them; and so as a last resort, had a silver one made of a shape to suit the nares. It was narrower in the center than at either end, to secure it in position after insertion. During the time that the young lady remained in the city for treatment, I had the tube modified in form so as more

accurately to fit the passage; and for cleaning purposes instructed her how to remove and return the tube at regular intervals.

In March last after an interval of more than a year, the patient's father called upon me to report progress. He said that for several months his daughter continuously wore the tube I provided. But as it became loose, she took it to a jeweler and had another made after the same pattern. This she was now wearing. The choana was becoming more open, but she still required assistance in nasal respiration; and before having any further alterations made in the tube he would bring her in for examination. This, however, up to the present he has not found necessary.

Case 2.—February, 1893. Mr. N. McM., machinist, age 38. Mr. McM. has had chronic nasal and throat catarrh for years. He dates his trouble to a blow, breaking and deflecting the nose to one side, which he received in boyhood. The right nasal cavity was unusually wide, the septal cartilage presenting a deep concavity. The left naris was tolerably clear in upper portion, but not enough so to allow of respiration, except when the walls were held ajar; while the lower half of the front portion of the nasal cavity was obliterated by cicatrization. It was evident that it would be impossible to afford relief to respiration, without removing a portion at least of the dense cicatrix; the cicatrix removed, would be followed by another, unless a suitable instrument could be adjusted to the part and worn continuously for a long time. My first operation in this case was the reverse of successful. I excised sufficient of the dense fibrous tissue to make a free nasal opening, and adjusted an improvised silver tube. For a time it worked well, and the patient attended to it regularly and efficiently. By-and-bye he disappeared and I saw nothing more of him for a number of months. When he came back in December he said he had spent the summer and fall in Winnipeg. The tube after a time had been troublesome to insert, and for two months he had not tried to put it in. On examination I found that the whole wound had filled up again with cicatricial tissue. On consideration, I concluded to operate again the second time in a somewhat different manner. Instead of excising down to the floor of the inferior meatus, and making a wound so extensive as to prohibit the possibility of extension of mucous membrane over its surface, I excised only the upper part of the cicatrix, with the hope that the healthy mucous membrane of the superior meatus would have sufficient vital power to gradually cover the raw surface of the middle region.

After the operation, I inserted a part of a gum elastic catheter until I could get a suitable tube made. I had this variously modified until it assumed the shape of the accompanying Fig. 2, a and b. Through it the patient breathes more freely than he has done for years. He takes it out, regularly cleans it, and returns it. The concave side is the lower one. The bulge on the tube was placed to insure retention and at the same time to give width to the passage; while it presses towards the concavity mentioned as existing on the right side of the septal cartilage. The hope is that by wearing this or a similar tube for a year or two, the passage will become so open and the parts so endowed with new mucous membrane, that the patient will be able to breathe normally without any artificial assistance whatever. His throat catarrh has already disappeared.

Case 3.—August, 1893. Mr. T., medical student, age 21 years. Had originally a Roman nose. Ten years ago it was broken and depressed by a blow from a cricket bat; now it is straight with thickened bridge. Nasal breathing difficult, chiefly on left side; nasal tone of voice; catarrhal throat attended by constant hoarseness. Upper septum on left side, except at the summit, has united with external wall of the nasal cavity and is solidified. Lower portion has been broken and protrudes as a sharp upright spur—the two filling up the lumen and almost occluding it. Under cocaine, I sawed out the spur, and removed a segment of the septum, cutting both sides of it, up to the free mucous membrane of the superior meatus. The parts were kept open by use of albolene tampons replaced daily. During this period several projecting nodules were touched by galvano-cautery or removed by chisel. After the first few days I substituted silver tubes in place of the tampons. They served a good purpose, but when in Washington in September, I succeeded in securing one at the surgical instrument exhibit of the Pan-American Medical Congress, which was much better suited to the case. I regret that I could not obtain the name of the originator. The photograph, Fig. 3, exact sign is here given. It was worn daily by the gentleman for several weeks. Then for a few hours only at regular intervals. Subsequently the intervals became

longer, and when I last saw him, he had finally laid it aside—considering its further use unnecessary. His respiration was unobstructed while the throat catarrh, hoarseness, and nasal intonation had all been relieved.

Case 4.—February, 1894, Mr. P. B., age 18 years, was brought to me by his father, a leading physician of London, Ontario. He had a large prominent nose—the whole organ being turned somewhat toward the left side. The left nostril was freely open and the transverse diameter, opposite the central portions of the middle and inferior turbinateds, exceedingly wide. The right side of the columnar and triangular cartilages filled up the anterior naris, and pressed against the right ala. On separating the sides of the choana a probe could be passed easily along the floor of the inferior meatus; and also, when curved, from the front to the back of the superior meatus. The whole central part of the passage was, however, completely solidified by cartilaginous and bony union between the septum and the middle and inferior turbinated bones, for a horizontal length of about an inch, and height of half an inch. The naso-pharynx was covered by thick, tenacious, ropy mucus, which was very difficult to remove. The youth was pallid in color, and had been troubled with a harassing bronchial cough all winter. The only possible cause that could be assigned for the deformity was a severe blow from some hard substance, which he remembered to have received on the left side of his nose, a number of years earlier.

Dr. B., the patient's father, was under the impression that the best relief that could be obtained was by septal perforation. It is needless to say, however, that with such extensive adhesions, such an operation, to say the least, would be impracticable. After thorough examination it seemed to be a case in which, owing to the youth of the patient, advantage might be taken of the comparatively soft condition of the vomer and plate of the ethmoid; and hence, admirably suited for treatment by tubage after operation.

Under 15 per cent. solution of cocaine, I sawed out as wide a section of the triangular cartilage as I could without producing perforation. Then with a thick saw cut through the bony adhesions between the septum and turbinateds, completely severing them. After hemorrhage had abated, I applied cocaine again, and forced into the chink a flattened, thin, but somewhat wide silver tube. For the first twenty-four hours there was a good deal of maxillary neuralgia, but the tube retained its position. The second day it commenced to loosen and slip forward. Another tube was made somewhat larger, with a bulge on its outer surface, near the posterior end, to help to retain it in place. Before its insertion, a portion of the lower part of the middle turbinated had to be removed by galvano-cautery, as it threatened to fill up the passage. The lumen of the tube was narrow, not sufficient for full respiratory purposes. Still albolene could easily be forced through it by atomizer, and also along its superior and inferior sides. After remaining under treatment for several days, the patient went home with instructions to remove the tube for cleansing purposes, as often as required.

Three weeks later he came back for further treatment. For the last few days he had been unable to get the tube fully back into position. On examination I found some parts of the cut surfaces healing satisfactorily, and being gradually covered with mucous membrane. Some granulation tissue in the center required removal, but the general lumen was all that could be desired, and breathing through the nostril when the tube was out was easy. I had the same tube lengthened somewhat, its lumen slightly increased and the bulge for retention made a little larger. After removing the granulations it was again placed in position. It is represented in Fig. 4, c and d. When Mr. B. returned home I expected that in a few weeks he would be able to dispense with its use, and breathe almost if not entirely as well through the restored nostril as through the other.

April 27. I have again had a visit from Mr. B. There has been continuous improvement, free respiration, and cessation from suffering; but as healing is not yet perfect he will continue to use the tube at stated intervals for some weeks to come.

Besides these, there are a number of other cases, in which during the early periods of treatment I have used silver tubes to advantage; but as they

¹ I do not think the perforations are of any advantage, and they might possibly produce sepsis.

² Subsequent note: August, Mr. B. has not required to use the tube for the last two months. Healing and respiration are now normal, and the throat catarrh has ceased.

bore no distinctive marks they are only worthy of a passing notice.

On looking over my case-book of private practice, for the year and a half covered by the history of the cases mentioned, I find a record of forty cases of deviation of nasal septum, sufficiently severe in character to require operation. Hence the number of cases requiring tubal treatment has been limited to 10 per cent.

In conclusion, I would like briefly to emphasize two points: 1, that our cases of septal deformity, whatever their origin, should not be treated according to any cut-and-dried rule; but that each case be dealt with distinctively upon its merits; 2, that in irregular cases, having their origin chiefly in traumatism, we have no better adjunct to successful treatment than that afforded by careful and discriminate use of silver tubage. Any good silversmith can mold that soft, non-corrosive, pliable metal into the required shape. Its smooth polished surface will give cool aseptic support and compression to the incised tissues, eminently favoring epithelial repair; while the lumen of the tube will allow a free passage of air, so essential to thorough cleansing as well as respiration. The possibility of the slipping of the instrument through the posterior choana can be guarded against by a proper oversight in the construction of the tube, and by duly warning the patient. In the number of times, which number must amount to several hundreds, that the tubes have been inserted, collectively, by all my patients, this accident never occurred but once. On this occasion it slipped a little too far into the passage; and while the family physician was attempting to extract it, the tube glided over the palate and out of the mouth.

37 Carlton Street.

THE CAUSATIVE RELATION OF NASAL OBSTRUCTION TO LUNG DISEASE.

WITH THE PRESENTATION OF NEW MECHANICAL DEVICES FOR TREATMENT.

Read in the Section on Laryngology and Otolaryngology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY CHARLES DENISON, A.M., M.D.

DENVER, COLO.

The mechanics of respiration, in conjunction with the varying degrees of blood pressure within the thorax, have for some time greatly interested me. I must refer you to my address ("Abnormal Intrathoracic Air Pressures," September, 1890) read before the American Climatological Association, for the considerable amount of details which would make this paper too long to introduce it here.

Briefly summarized, sphygmographic tracings were there presented of various pulses under varying conditions of intrathoracic pressure, together with certain facts and measurements of air pressure by the manometer and of air quantity by the spirometer, so as to make plain the following general conclusion, namely, that the blood and air within the nose or less rigid walls of the thorax, may be considered as two reciprocally acting fluids. If one can not get in, in normal pressure, the other will to a certain degree take its place. It was under the influence of this reasoning that what I believe was an original discovery was made, namely, that marked decrease of pulse tension during inspiration and increase dur-

ing expiration can be utilized as a positive diagnostic sign for immediate intubation of the larynx or for tracheotomy in membranous croup or laryngeal stenosis. A delicate tactile sense in feeling the pulse and a slowly breathing child are great helps to this important conclusion. Out of thirty cases intubated by me, I have demonstrated this diagnostic sign and followed its indication for immediate interference in I believe the three last of the ten successful cases.

A logical mind needs no stronger proof of the value of this sign or of the importance of the subject I have chosen for this paper, than that which may fairly be drawn from the combined tables of all the intubations or tracheotomies which have been performed, to-wit: That children operated upon die more from a previously or coincidentally started *aspiration pneumonia* than they do from the disease or blood state which caused the laryngeal stenosis. Some of my cases have been wonderful illustrations of this suction power exerted upon the blood, because of the vacuum produced in the thorax by the interference with the ingress of air through the constricted larynx.

All the above is an argument by way of illustration, for the nose, though it is at the extreme end of the breathing tube, is as important a part of respiration as the air cells of the lungs. Because the mouth is interposed on the way is no proof that these two openings are normally supplementary to each other. They can not be, their functions and construction are so unlike.

Dr. J. A. Thompson (*Lancet-Clinic*): "Patients who are confirmed mouth-breathers or in whom the respiratory function of the nose is from any cause abolished, are sure to be the victims of laryngitis, trachitis and bronchitis. The membrane chronically inflamed, with its resistance to infection lowered, is much more apt to be the seat of tubercular disease than in those persons whose respirations are carried on normally through the nose." He further shows that the absence of the moisture contributed to the inhaled air in the nasal passages diminishes the absorption of oxygen in the lungs, which, to his mind, explains why patients with atrophic rhinitis, hypertrophics, etc., are so poorly nourished.

Bosworth attributes three functions to the nasal passages: 1, that of respiration; 2, an aid to phonation by acting as a resonant chamber; 3, as an olfactory organ.

There is evidently a purpose in the large expanse of the membrane lining those passages, in the generous blood supply to the same and in the abundant exudation of mucus from the rich glandular structures situated therein. That purpose is accomplished in the warming and softening of the air, in the sifting of all dust out of it, and so equalizing the air introduced in respiration. We used to believe the large amount of moisture ordinarily thrown off from the lungs in twenty-four hours was mainly from the lungs. Now comes an experimenter, Aschenbrandt, who claims to have demonstrated the source of this moisture to be largely in the nasal chambers. Just how much of the 7,000 or more grains of moisture daily thrown off come from this source, I will not pretend to decide. I simply give this evidence to show the great importance of the nasal passages as an essential part in the respiratory tract.

The effect of prolonged inflammatory action, such as catarrhal colds neglected, or one attack succeeding another, is not very different from similar congestions elsewhere; namely, an increase of connective tissue, except that the resulting obstruction tends to augment this effect locally and the blood once drawn into these affected parts is not normally expelled because of the suction in that direction. There is no doubt about the fact that obstructions at the nasal end of the breathing tract produce this suction influence in the naso-pharynx, and the perpetuation of a slight obstruction may in time produce more or less permanent injury in all connecting cavities or tubes, such as: 1, engorgement of the middle-ear space causing a certain amount of deafness with more or less closure of the Eustachian tubes; 2, the same hypertrophic influence in the lining of the ethmoid cells and lachrymal ducts with adenoid growths and polypi which flourish in the other unventilated parts of the pharyngeal and nasal cavities.

One has only to experiment with himself to get an idea of the varying conditions of air pressure to be noted in the naso-pharynx. For instance, after a full inspiration, while holding the nose go through the operation of swallowing, then do the same with the lungs as nearly emptied as possible; the impaction of the air through the Eustachian tube and in the middle ear is felt to be much stronger during the first part of the swallowing act with the lungs distended than when empty, and then during the last part of the act the descent of the pharynx, trachea and esophagus seems to give less of the suction influence when the lungs are distended than after a complete expiration.

This is an experiment with the nose entirely closed, but with lesser stoppages of the nasal tract even the frequent act of swallowing must correspondingly affect the naso-pharynx, for then the mouth must be closed. If one attempts to measure with the manometer the approach to a vacuum possible in the nose, he will find that a pressure represented by a very few millimeters of mercury, say three to ten, will seem sufficient to hold together the sides of the nasal passages at the outer orifices. So the stuffed-up head due to a "cold" or a series of them can be clearly understood as leading first to the hyperemia of the pharynx and nasal fossa and then to chronic pharyngitis and enlarged tonsils.

When we come to apply the same kind of reasoning to the farthest recesses of this respiratory tract, we find that the larger spaces, the trachea and bronchial tubes, are held open by their form of construction, and the fortification of connective tissue around, that by the manometer the suction or inspiration power is equal to about fifty millimeters, *i. e.*, about half of the expulsive or impactive power. Is it not reasonable, however, to believe that even though so evenly and minutely divided as this suction power is in the air cells, an equal resistance to closure does not exist in the periphery of the lung? I have had the following experiment tried on myself, which any of you can verify, to show that it is the flexible air cells which must of necessity compensate for any obstruction to the entrance of air, via the trachea during inspiration; namely, breathe out all the air possible, *i. e.*, the *complemental*, the *tidal* and the *reserve* or *supplemental* air, leaving only the *residual* air in the lungs; then while the nose and mouth are

closed make a powerful effort at inspiration. Meantime some one is percussing and listening with the stethoscope in the axillary space. Percussion will give a slight elevation of pitch and auscultation will show the movement of air away from the periphery during this inspiratory effort, the normal gradually returning so soon as the straining is relaxed and air allowed to enter the thorax. What has occurred? The more pliable and consequently more compensative alveoli have given up this residual air to supply the vacuum created in the stiffer and unyielding tubes within by this ineffectual effort at inspiration. Here it is that the compensative and equalizing influence of the blood circulation shows itself, which compensation is aided by the active capillary circulation—five times more so as I understand it, in the capillaries of the lungs than in the surface of the body. The sphygmographic tracings, previously here referred to, show how the blood is held back from being sent out of the thorax into the extremities. The pulmonary arteries not anastomosing while the veins do, the red oxygenated blood in these pulmonary veins is drawn back into arterial capillaries by such suction influences, whether due to cough or exaggerated inspiration or to obstruction anywhere in the respiratory tract above.

This explanation of Niemyer's, why a pulmonary hemorrhage, from an embolic or other plugging of a pulmonary artery, always gives the bright red, freshly oxygenated blood, serves well to impress the mind with an important fact pertinent to our present study, namely, that lesser causes, obstructive to the free entrance of air into the lungs, will produce proportionately less severe forms of congestion or engorgement. In fact, the pulmonary lesion may be in almost exact proportion to the obstruction to respiration. The determining cause being that obstruction, it follows that even slight degrees of constriction of the breathing tract, as in the nose, when perpetually operating, as deviated septa and hypertrophies of turbinated bodies do, may be the deciding causes of chronic pulmonary engorgements in the lung periphery. Especially will it be recognized that such a cause may be operative when, during the relaxation of sleep, lung resistance has been lessened by the existence of unresolved pneumonias—influenzas and catarrhal bronchitis. I have been of late so much impressed with the fact that nasal obstruction, with or without mouth breathing, is promotive of a large portion of the non-tubercular chronic diseases (especially asthma, fibrosis and pleurisy, with adhesions), that I will risk the assertion that these abnormal states in the lungs are very largely, in say 90 per cent. of them, perpetuated or caused by the nasal obstructions. As to the tubercular cases, tuberculosis may be a cause or a secondary effect, and the existence of nasal hindrance to free and healthful inspiration seems to me to be largely in excess in all this class compared with the average of healthy persons.

There are no statistics available, that I know of, to settle this question, but the experience of those of us who have dealt largely with lung cases and especially of you, gentlemen, whose duty it often is to straighten the "crooked paths" in nasal passages, ought to count for much in lieu of numerical data, toward the causative effect of this nasal obstruction to breathing. I shall be glad to learn if your experiences are confirmative of my impressions.

Through the kindness of Dr. Andrew H. Smith, of New York, I am enabled to present his "mechanical device for illustrating the movements of the lung in penetrating wounds of the chest," which may also serve two purposes here, namely: 1, to illustrate the compensating service of the circulating blood in the thorax, to take the place as I have before pointed out, of the deficient air inspired because of respiratory obstruction; 2, to illustrate the reverse effect, needed as a means of relief, *i. e.*, mechanically produced increased intrathoracic air pressure.

This apparatus of Dr. Smith's is a bellows divided to represent the right and left of the thorax. In each half of this is a thin rubber bag connected by a tube with a joint trachea. The suction of the bellows upon the bags (lungs) within, is uniform and causes them to fill with its expansion. If the glottis is partly closed it takes more strength to expand the bellows, and under these conditions if air is let into the side, but outside the rubber bag, the other rubber bag only will expand, except during compression some air will come round from the unaffected or fully filled lung. Now, supposing we agree that the air which is let into one side of the thorax, outside the lung, shall represent the blood circulation, and that it gets there because it is drawn in to take the place of the air which ought but does not get into that lung. It is seen at once that the relative amount of blood in that side bears a direct relation to the non-entrance of air in that lung. There is a reciprocal relation between the inspired air and this induced congestion. Now we come to the second illustration, the method of relief. The above defect having been recognized and the opening being left, which allowed the air (or blood?) to enter the thorax outside the bag (lung); then increase the pressure of the air which the weak lung does contain by stopping up that bronchial tube and at the same time compressing the bellows. You thus see every part of this lung brought into use, and all the air inside the bellows and outside the bag driven out. This is the office of regularly increased intrathoracic air pressure during expiration. It is the principle in correct respiratory gymnastics which I have advocated for a long time—in perfect accord with the greater use of air in the high altitude climatic cure—and the principle which is used in several breathing tubes, notably the "Howe tube." But it has been only recently that I have succeeded in combining the automatic control of both an *inspiration* and an *expiration* valve in combination with a chamber for medicated vapors and in the convenient little pocket device I have here presented.

The office of this instrument is not only by its steady, vigorous and continuous use, to drive the surplus or stagnant blood in the thorax onward in its proper channels, but by pressure on the hypertrophied linings to bronchioles and alveoli, to compel the reception of oxygen from the air once inhaled, as well as to produce such antiseptic or healing effects in diseased areas as can be done by vaporizable oils and salts conveyed in the inspired air.

The pressure used is or should be the utmost which is agreeable for a given individual, enough to close the entrance valve with a click at the beginning of expiration and to redden the face with the effort. The results in pulmonary fibrosis and all these obstructive conditions are very gratifying.¹

Reference can be made in corroboration of the

above to the article of Dr. George F. Hawley in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, May 12, describing "A New Apparatus for Nebulizing Non-volatile Medicaments, for administering the same through impacted air as a medium by the process of forced dilatation instead of inhalation, spray or douche." The effect of such increased pressure within the cavities treated is so much

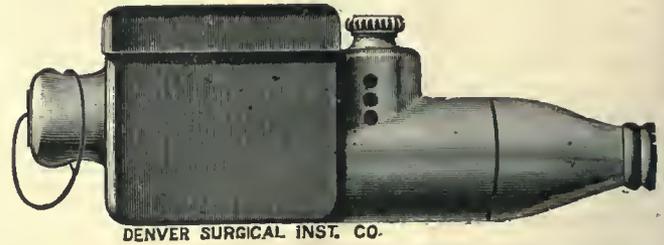


Figure 1.

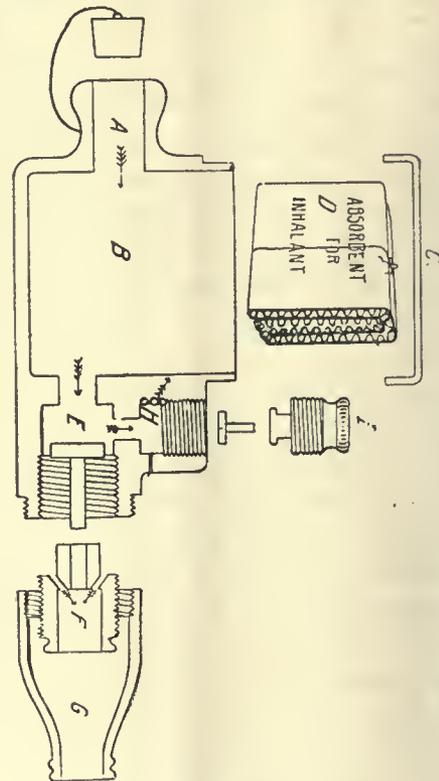


Figure 2.

DESCRIPTION OF MECHANISM.

The air enters the inhaler through nozzle "A," which is purposely made for the possible attachment of a rubber tube connected with an oxygen tank, any desired vaporizer or gas generator. In the box "B" covered by cap "C" is the Absorbent "D," made of corrugated blotting paper a little smaller in size than the inner caliber of the box. The inlet valve "E," governed by screw head "F," may be reached by unscrewing the mouth-piece "G," from the instrument. This inlet valve closes with expiration so that the inhaled air has to go off through the exit valve "H," which in turn is made adjustable by screw top "I." This constitutes the most important feature of this device. By the control of the exit valve, from 1-10 to 6-10 open, the tension of the air in the lungs may be increased at will from an easy to a difficult use, according to the need and ability of the user.

DIRECTIONS FOR USING.

After the adjustment of the valves, according to the case, (or as usually used, with inlet valve "E" $\frac{3}{4}$ open and outlet valve "H" $\frac{3}{4}$ shut) the Absorbent "D" in inhaler box "B," being semi-saturated with the Inhalant, and the plug to entrance nozzle "A," being removed, draw long full breaths through the mouth-piece "G," the chest meanwhile being expanded and shoulders thrown well back. Then, without removing the instrument, exhale into it with force so that the entrance valve "E" closes with expiration, and so continue to exhale till all the air possible is removed from the lungs. Repeat same way for three to five minutes during each of eight to twelve hours of the day. Vary the renewal of the remedy once or twice a week in chronic tubercular or fibroid lung cases, or as indicated by the use of other remedies than this Inhalant, if such are prescribed by the patient's physician.

¹ This expiration pressure will vary from twenty to seventy millimeters as gauged by the manometer for different invalids or healthy persons.

opposed to the suction influence, due to obstruction of which we are now speaking, that there is nothing surprising at all in the good resulting from such method of treatment. It is in exact accord with the proper use of the inhaler and exhaler described above. But simply to get rid of the results of obstructed inspiration, some one will say, is not doing what we ought to do, *remove the cause—the nasal obstruction*. Exactly, and that is the reason I am not going to say much about another little device I here present called the "Spirodom," made in Bridgeport, Conn., and calculated to compel the wearer to breathe through his nose while asleep. One is not required to undergo the discomfort and vexation of wearing such a thing if, as is possible in nine out of ten cases, the obstacles to nose breathing are removed.

A whole discourse could be written upon the etiology of septum deviations. But I have neither the time or intention to try to exhaust that subject or speak of their various treatments. The object here is rather to deal with the pulmonary results. Suffice it to say that, according to Zuckerkandl, the superior

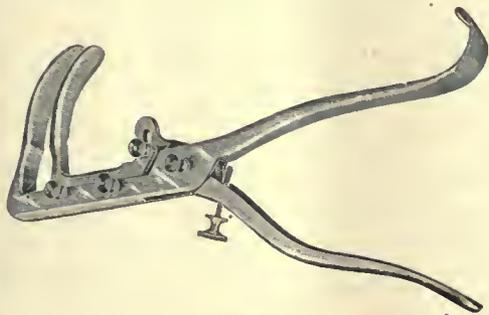


Figure 3.

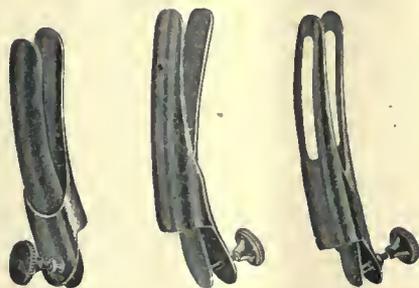


Figure 4.

racers show more deviations than the inferior. Again, the cartilaginous deviations probably exceed the bony, and Morell Mackenzie (p. 300, "Manual of Diseases of Throat and Nose") found in 2,152 skulls in the museum of the Royal College of Surgeons, that in 77 per cent. of them there were more or less unsymmetrical positions of the septum. In these athletic times, with base ball, foot ball and boxing so popular, it is no wonder that there is a considerable predominance of nasal deformities among men. The five cases I had chosen to present to you of lung disease referable to nasal obstruction were none of them from the gentler sex. I will not tax your patience by giving detailed histories. They were characterized by hemorrhagic tendencies to start with, a tendency to flat chests or retraction from pleuritic adhesions, they were non-tubercular so far as microscopic examination of the sputum could show and in one case the non-tubercular nature was thought to be proven by the high power microscopic

study of the blood according to Dr. Ephraim Cutter's method. They were all mouth breathers during sleep at some time during the course of their illness. Two had nearly total occlusion of one nostril (bridges across the cavity) while all had hypertrophied turbinates and deviated septa sufficient to make these lesions causes of the fibroid and atalectic tendencies in the lungs. As is usual in these cases the spirometrical record fell a little short of the healthy average while a pretty good manometer record was shown; and in two of these cases the respiratory sound at the apices, as heard with the stethoscope, was decidedly influenced as to quality, by the nasal obstruction. The removal of that hindrance to normal nasal breathing, the employment of compensatory lung gymnastics with climatic treatment were and are still the means being successfully employed in the cure of these cases.

The time already consumed prevents the discussion here of the various methods of surgical or topical treatment of these obstructions. I will simply add my mite to the already multitudinous surgical armamentarium for this purpose, and present the accompanying *vomer straightener* and the *right and left nasal dilators* which I have lately devised and which have been made for me by the Denver Surgical Instrument Company.

I had never seen the Adams' forceps and did not know of Gouley's septum splint when I devised this vomer straightener. However, they are all enough dissimilar to be considered unique. This instrument I present has curved nostril bars of steel, which easily fit the average of nasal canals and whose arms are controlled for any desired approximation by a screw in the handle to limit the closing. The power is the same lever principle used in my rib-cutter and is sufficient to overcome any obstacle or deflection which may be present. Oval side curvatures, displacements from fracture, or unusual hypertrophies may all be crushed to the desired normal thickness, which in many cases is considered preferable to the tedious, and to the patient, vexing and painful process of sawing or drilling away these obstructions.

Afterward the right and left nasal dilators come into use, designed to hold the passages open, till that openness becomes patent. These are made long and of light strong material and with side-screw adjustment, so that a patient can both introduce them daily for a while and gauge their pressure to what he can stand.

I have also had these dilators made with fenestrated sides (see single illustration of the right one) for the separate use of guarding other tissues than those intended to be cauterized when deep-seated hypertrophies are sought to be exposed to view.

The use of these devices as septum splints, substitutes for some forms of plugging and to obtain desired room for deep cauterizing, it is hoped will be as satisfactory in the hands of others as it has been for a limited period in those of the writer.

An Argument against the use of Boiled Water in Times of Cholera.—The Russian moujik, or peasant, is very much of a fatalist in respect of measures for the prevention of epidemic diseases. A recent letter from Minister White, on cholera at the Russian capital says, in effect, that "the moujik is in the habit of remarking, when advised to use boiled water only, as a beverage, that if Almighty God had intended him to use boiled water all the rivers and lakes would have been filled with water of that sort."

THE USE AND ABUSE OF COCAIN.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY D. BRYSON DELAVAN, M.D.

PROFESSOR OF LARYNGOLOGY AND RHINOLOGY, NEW YORK POLYCLINIC.

According to the law which requires that every positive must have its negative, and every high light its shadow, it appears that all good and useful things must have their antithesis. Of nothing is this statement more true than of drugs. Thus, alcohol is at once a life-saving stimulant and the curse of the world. Opium, the salvation of thousands—the destruction of the power and progress of nations. Probably no drug has ever been discovered of which this is more true than of cocain. Mild in action, seductive in influence, treacherous in effect, it weaves a network of silken threads about its willing victim and leaves him of all men the most helpless.

When the discovery of Köller was first made known, it was natural that the desire for new information regarding the effect of cocain should have led to much self-experimentation and more particularly so because of its apparent harmlessness. The number of cases among physicians in which the habit was formed and the victim ruined from this ignorant use of cocain was startling. Later, the drug was prescribed by physicians for their patients. It was especially popular as a cure for coryza and a panacea for hay fever. Placed in the hands of a neurotic patient it is not strange that it should soon become indispensable to him. The strangest episode in the whole history of cocain is that certain medical men who have become its victims have been the very ones to disclaim its harmfulness, to freely prescribe it, and to recommend its use in their published works. As to this charge the rhinologist has much to answer for. Under his advice the patient has used it as a nasal spray, and has continued it, until the habit has become established and the spray has been exchanged for the hypodermic needle.

More recently cocain has been used by the manufacturers of patent medicines. Catarrh snuffs, throat lozenges and various other preparations containing it are urged upon the willing public. The general consumption of the drug has become very large and its use extensive. There seems to be no section of the country where it has not penetrated. Institutions for the reform and cure of the alcoholic and opium habits now advertise to cure the victims of cocain. The testimony of intelligent physicians generally, and the writer has questioned many from all parts of the United States, is to the effect that the evil has grown to serious proportions. I have, therefore, thought fit to bring the subject before this meeting, in the hope that an earnest protest might be made by the representative association of this country, against the abuse of the drug cocain. It is not necessary to go into the details of the question, for these are already painfully familiar. We all know the story of cocain from beginning to end. We know the great value of the drug when properly used, the peculiarly delightful effect which it seems to have upon many persons, the recklessness with which it has been prescribed and the baleful effects which have followed its over use. Is it not time, then, that we who have in part been the cause of this state of things should give our attention to the subject?

In view of the present state of the matter, the following propositions are offered:

1. Cocain, one of the most useful of drugs, is capable of being more harmful than even alcohol or opium.
2. The use of cocain is increasing to a serious extent.
3. For this the medical profession is largely responsible.
4. It is the duty of the profession to guard the public by every proper means against the dangers arising from the use of cocain.
5. To this end, it is desirable that this ASSOCIATION place itself on record as distinctively discountenancing the careless use of cocain: *a*, by the manufacturers of proprietary medicines; *b*, by the general public; *c*, by the general profession; *d*, and, lastly and particularly, by the Department of Rhinology, which we represent.

PSEUDO-HYSTERICAL APHONIA.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held in San Francisco, June 5-8, 1894.

BY F. B. EATON, M.D.

PROFESSOR OPHTHALMOLOGY, OTOTOLOGY AND RHINOLOGY MEDICAL DEPARTMENT UNIVERSITY OF OREGON; OPHTHALMIC AND AURAL SURGEON, GOOD SAMARITAN HOSPITAL, PORTLAND, OREGON.

Typical hysterical aphonia is described in our treatises as a form of bilateral adductor paralysis of the larynx, usually of neurotic origin; sometimes more exactly, as paralysis of the lateral crico arytenoid muscles. As such, its etiology, symptomatology and treatment, as generally accepted, are familiar to all laryngologists. Some writers describe associated laryngeal conditions, such as hoarseness from acute cold; others loss of power of articulation. The inference is that the neurotic feature is not the only etiologic one. Indeed, many cases of this affection appear to be the result of a number of abnormal factors, though the prominent indication to be met and the one most influencing the physician in his attitude toward the complaint is the functional, hysterical, nervous one; it overshadows all the others, and treatment is directed toward its removal too often without due consideration of other important constitutional and local conditions. I am satisfied that the chief cause of many of these cases can be found in the upper respiratory region without doing violence to facts, or giving a disproportional prominence to the influence of any abnormal conditions of the nose or naso-pharynx. In other words, such cases may be regarded as primarily of nasal origin, the aphonia being the result of reflexes which are not fully understood though recognized. The term, pseudo-hysterical aphonia, is not scientifically correct, but I have ventured to employ it as descriptive of the main idea I wish to convey in this paper. Such a case I have had exceptional opportunities of studying, and I shall therefore give its history somewhat in detail:

Miss L., age 18, a relative of my own, came under my care in April 1892. Had always enjoyed robust health, parents healthy, good family history. When 13 years old she had severe coryza and much nasal discharge. A year later her voice began to "break" in singing high. Later on she lost her singing voice, "note by note," and had to sing alto. Finally she gave up singing, but made frequent efforts to regain her high notes; and as she expressed it, "one day I found another voice, but could use it only very weak and very high." About this time she experienced difficulty in

talking. At first it was only an effort; she had "to try to get the words out," and at school in order to avoid this effort she purposely allowed questions to go by without answering. She could make a loud sound easier than a soft one. When she tried to speak with little sound, her "voice would not come," and when she tried to sing in the new high voice this made the talking voice more difficult to produce, and whistling had the same effect. There was no pain, and speaking gave none, but the voice broke and there was a helpless feeling of inability to use it. When 16 she began to have "a falling down feeling in the throat" with some aching, and she then told her sister that these sensations were in the palate.

All this time she could talk by making great effort, and at school she obtained permission to speak very low. The nasal trouble was less than when she was younger.

Shortly after she was treated by a specialist who pronounced the trouble to be located in the vocal chords, though she told him she was sure it was in the palate. He cauterized the larynx daily, later every alternate day, and after each application she was better for some hours. But now aching referred to the palate became a prominent symptom, in spite of the treatment the voice steadily deteriorated and in six months she ceased to attempt to talk and returned home. Here, the family physician cauterized the throat for a follicular pharyngitis.

She now came under my care. I found a strong robust young woman of placid temperament. She had not made a vocal sound but on one occasion for three months. Patient admitted that cold in the head always made the voice worse, as well as nervousness, but thought she breathed easily through the nose. The larynx appeared perfectly normal with one exception, the chords could be approximated closely but the left lagged slightly and was further from the middle line during respiration. There was chronic post-nasal catarrh and moderate chronic swelling of the turbinated bodies, the middle ones being moderately enlarged. The vestibules were very small, and breathing moderately obstructed.

I made a diagnosis of hysterical aphonia and gave strychnia and quinin, the former in gradually increased doses, and applied a mild solution of zinc chlorid to the larynx at intervals. Later I applied a twelve cell current to the pneumogastric and larynx externally, and touched the chords with closed forceps, evoking thereby a cough with vocal sound. The use of a faradic current externally enabled her to use her voice moderately, but it would come and go, always being restored by the current for a day or two, but lost if wearied at all. Still later, after a month of treatment, the voice remained moderately strong. I learned, however, that menstruation occurred every three weeks, and uterine treatment was carried out by a brother physician. During the summer the condition became worse, the aching pain in the palate returned, and my patient rebelled against the strychnia, insisting that while it stimulated her larynx, its after effect was bad, and that the only way she could regain any use of her voice or relief from pain was to rest the larynx. In this she was undoubtedly correct.

Upon my advice, when in San Francisco, she consulted Dr. Thos. F. Rumbold, who gave as his opinion that while there were some hysterical symptoms, the main cause of the aphonia was the catarrhal inflammation of the nose and naso-pharynx, the effect of which had been to produce reflex anemia and paresis of the soft palate, and inhibition of the action of the laryngeal muscles. Paresis would hardly be a correct term to apply to the observed condition of the palate, except in reference to the vasomotor influence resulting in marked anemia. As far as motor reflex is concerned, there was no absence of distinction between the anterior and posterior pillars of the fauces, such as seen in some nasal cases. There seemed rather to be an increased motor reflex, a *quasi* spasm of the palate, referred to the levator palati muscles which with the azygos uvulæ are innervated by a descending palatine branch from Meckel's ganglion, which also supplies branches to the middle and inferior turbinated bodies.

His prognosis as to recovery of the voice was favorable, and he advised treatment mainly directed to the nasal passages. This he began himself with the spray of warm vaselin, which, however, had to be used with very little air pressure, the nasal fossæ being in a very hyperæsthetic condition. This treatment I carried out myself later, but during the chilling humid Oregon winter which followed, my patient was in every respect worse. The mucous membrane of the fossæ, especially in the upper portion, was acutely painful on the occasion of every fresh coryza, as was also the

aching "pain" in the palate. More than a very moderate use of the voice resulted in the necessity of whispered conversation, and for a time there was complete aphonia. At times there were attacks of chilliness, followed in about an hour by a condition of stupor which lasted about half an hour. During such an attack the patient appeared to know nothing of what was going on about her, nor could she be roused. When questioned, she declared that the pain in the nose and palate caused the stupor and chilliness.

There were clear symptoms of hysteria some of which, while intensified by, could not be attributed to, her ailment, such as capriciousness, rapid changes from depression to cheerfulness, lack of healthy interest in her surroundings, inability to apply herself usefully, and little self resource. Knowing the nature of her early training, the indulgence of her parents and her disposition, I state advisedly that the young woman was hysterical, using the term as descriptive of a psychosis and of mental habit. She had some dysmenorrhea, and for this the uterine canal was curetted and otherwise properly treated with no beneficial effect as far as the nasal and vocal symptoms were concerned. The use of the vaselin spray, however, had to be stopped, since it appeared to aggravate the nasal inflammation.

In the meantime the patient's brother, aged 24, applied to me for treatment of his long standing asthma. I found some hypertrophy of the turbinated bodies, a hyperæsthetic condition of the mucous membrane similar to but not so marked as that of his sister. With the advent of spring, 1893, treatment of the young lady by vaselin spray was cautiously renewed by Dr. Rumbold, who also applied the galvano-cautery and counseled me as to future treatment. During the summer I lightly cauterized the middle and inferior turbinated bodies, thoroughly, the result being in three months a restoration of normal breathing on the left side, and nearly normal on the right. All the symptoms now gradually improved, so that my patient has had little trouble during the past winter, being able to talk easily, but liable to suffer still from prolonged use of her voice, which will probably never be perfectly strong.

It is worthy of remark that while she can sing without words, very softly, and obtains relief thereby, talking is more difficult, even in a low voice. This she attributes, and correctly, to the necessity of using the palate in articulation more, and in a different manner than when singing in alto register. A coryza will still produce some aching of the palate, and she says that if she worries over this, slight symptoms of stupor sometimes come on. She also informs me that when her voice "is strong, it feels strained; when weak, it is easy;" a paradox which has some weight, for she is sure that "when my voice is strong but feels strained, if I practice my voice softly, singing low 'breathing' notes, this relieves the strain."

What I wish to emphasize concerning this case is: 1, the over-use of the voice in childhood; 2, the gradual onset of the aphonia, which has been partial rather than complete, truly adynamic, since the power of speaking by effort is present; 3, the evident objective and subjective symptoms of anemia and paresis of the soft palate; 4, the existence of mild hysteria; 5, the improvement of all symptoms when nasal stenosis was relieved, while all nerve stimulants aggravated them. Hence I conclude:

1. That over-use of the voice, nasal and post-nasal catarrh, together with hysteria, may collectively cooperate to cause aphonia.

2. That cases of so called hysterical aphonia may result chiefly from disease of the upper respiratory region, the neurotic features being subordinate, and that grave injustice and injury may be done the patient in such cases by the ordinary stimulating and irritating local treatment of the larynx.

To Dr. Rumbold, through whose experience and counsel the true nature of the case was rendered apparent, I take this opportunity of expressing my obligations.

DEFLECTION OF THE NASAL SEPTUM AND ITS SURGICAL TREATMENT.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY E. A. SPILSBURY, M.D.

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Deflections of the septum, either as a result of traumatism or inflammatory action, are probably the most frequent of the exciting causes of catarrhal inflammation in the nasal mucous membrane. Consequently, it becomes a matter of considerable importance that we should thoroughly appreciate, not only their method of development, but also the nature of their action upon the lining membrane of the nasal cavities, as well as their influence upon its respiratory functions. In health, we find the nasal septum presenting simply as a bony and cartilaginous wall, dividing the nasal passages into two symmetrical cavities. In diseased conditions, we find present in this structure certain abnormalities of contour, which undoubtedly have a marked influence in the production of an ordinary catarrhal inflammation. The earliest investigators attributed deflections to excessive growth of the septum, as a result of which it became too large to fit in its bony framework, thereby becoming warped. This theory may account for a certain number of cases, but the great proportion of cases requiring surgical interference that have come under my care, have had a clear traumatic history. Sir Morell Mackenzie in an examination of 2,152 skulls, with the bony septum entire, in the museum of the Royal College of Surgeons, found 76 per cent. presenting more or less deviation; 38 per cent. to the left side, 28 per cent. to the right, while in the remainder it was irregular. When it is remembered that a large proportion of cases as seen in practice present the deflection chiefly confined to the triangular cartilage we see that the percentage must be even larger than that given by Mackenzie. Delavan has found among European races well marked deflection in 50 per cent. of several thousand crania examined. In cases of deflection the cartilaginous or bony septum, or both portions are simply bent to one side, the cartilaginous portion usually being the most involved; the deformity causing enlargement of one nasal chamber at the expense of the other. In most instances of deflection of the septum there is also thickening, especially at the lower part of the convex surface. The deflections are sometimes double, the convexity of one bend presenting in front on the one side, and the convexity of the other bend presenting further back on the opposite side, thus forming a double deviation resembling in shape the letter S.

In cases of fracture I have found that the cartilage is the part of the septum most frequently broken. Next in order comes the perpendicular plate of the ethmoid, its articulation with the vomer being the usual seat of fracture. The vomer is very rarely influenced by the concussion, its anterior edge being posterior to the bones of the face, and the cartilage yielding to the force of the blow. The causes of this deformity are obscure, and various theories have been advanced to account for its occurrence. In regard to those deflections which are due to fracture of the septum, of course there can be no question, they are due to a direct blow upon the nose. When we undertake, however, to inquire into the causes of the

S-shaped or unilateral deviations from the middle line, a wide field for discussion is placed before us. Morgagni was the first to advance the view that these deflections are due to excessive development of the vomer. This theory was subsequently advocated by other investigators and I think it would account for a great proportion of these cases. With every regard for the various theories, I think clinical observation teaches us that traumatism is by far the most frequent direct cause of septal deformities. Where the patient is conscious of obstruction in one side of the nose, the trouble is not infrequently dated from a severe blow or fall on the face. This coupled with the fact that men are three or four times as frequently affected as women and that boys are more liable to blows on the nose than girls, indicates very strongly the probability of a traumatic element oftener than is usually supposed. I have observed, moreover, that women relate more precisely the history of a bad blow or fall upon the face, as if, the event being comparatively rare among them, they took more notice of it; while with men, a frequent answer to the interrogation is that they had the average amount of knocking about the face at school. In these cases I consider it sufficient to assume a fracture of the septum to account for all the appearances. When the deflection is great, the most prominent symptom is twisting of the nose to one side, usually to the side opposite from that affected. This deformity is sometimes very marked from bending to the side of the anterior edge of the cartilage, even though there is but little deflection farther back. More or less difficulty in nasal respiration is experienced according to the amount of obstruction. Interference with the free passage of air through the obstructed side causes the secretion to collect behind the convex portion and in the nasopharynx, giving rise to post-nasal catarrh, and I have frequently observed that pressure upon the external wall, especially when associated with exostosis, induces atrophy of the turbinated body of that side while the inferior turbinated body of the other side, is usually found to be hypertrophied; and thus it often happens that patients find respiration easier through the cavity which upon inspection seems most obstructed.

As a further consequence of this obstruction, the voice acquires a nasal twang, and mouth breathing becomes necessary with all its attendant evils. There is no disease with which deflection of the septum is liable to be confounded if a careful rhinoscopic examination is made. Most of the evil results of the obstruction can be remedied by a suitable operation, and the external deformity may be largely removed if the nasal bones have not been crushed so as to cause depression of the bridge of the nose. As to the kind of cases requiring surgical interference, it is undoubtedly bad surgery to hold that every deviation from the middle line in the position of the septum demands treatment, and it is probably equally faulty to assume that surgical means always be adopted, even when one nasal fossa is almost completely occluded. I have found by clinical experience that many individuals tolerate partial and sometimes nearly complete nasal obstruction on one side without any inconvenience whatever. It is only when actual symptoms are produced in consequence of pressure on contiguous surfaces or interference with nasal respiration that operation is demanded. Whenever, for instance, there is a chronic laryngitis,

with enough nasal stenosis to cause even a partial buccal respiration; whenever there is paroxysmal sneezing or hay fever, even though there be but little interference with nasal breathing; whenever there is post-nasal catarrh or Eustachian occlusion; whenever there is dry rhinitis of the open fossa, we may operate with perfect propriety, and with the best hope of success. The essential feature of deflections of the nasal septum which demands treatment is the stenosis, as from this arises all the sequelæ and complications which accompany them. Where the deformity has occurred as the result of a fracture, this may be accomplished either by removing the projecting portion of the deviation, or by restoring the fragments to their normal plane. The earliest effort (1750) in this direction is the method of treatment by which the patient is advised to push the septum firmly over to the opposite side several times daily; but unfortunately this simple plan is seldom capable of accomplishing any good. About a century later (1845) Dieffenbach advised that the projections be sliced off with a knife, but this proved rather unsatisfactory. In 1851 Chassaignac recommended a form of treatment especially applicable to deviations with thickening of the cartilaginous septum. This consisted in dissecting up the mucous membrane and paring off the superfluous tissue. It is not easy of accomplishment, but in certain cases no better operation perhaps could be devised. Blandin, of Paris, first advocated punching out a portion of the septum and establishing free connection between the two nares, but this operation rarely affords the desired relief and can not be recommended. An easy operation, and one which has given me great satisfaction in several cases of simple cartilaginous deflection, is an incision through the projection following its long axis. Considerable hemorrhage takes place as soon as the incision is made, but it soon ceases. The end of the finger being introduced into the nostril, the septum is forcibly pushed beyond the center and maintained there, by packing the previously obstructed nostril with carbolized oakum. The cut edges over-ride each other, and after a couple of weeks are firmly united.

The oakum plugs should be changed daily and the cavities sprayed with Dobell's lotion or a solution of permanganate of potash, gr. i—3i. Dr. Roberts, of Philadelphia, devised an operation in which a long incision is made obliquely or horizontally, as required, through the septum from back to front along the line of deviation or projection. This is done with a knife introduced into the occluded nostril. If the bony septum is deflected, it is divided by a chisel in the same direction. A long steel pin is then introduced into the normal nostril, and its point passed, with about two-thirds of its length, through the septal cartilage, a short distance above and in front of the incision. This brings the pin into the occluded nostril. Pressing the end of the nose and septum, according to the character of the case, into its proper position, the "head-end" of the pin is brought close to the anterior part of the septum, thus causing the "point-end" or portion in the occluded nostril to lie across the incision and adapt itself lengthwise along the surface of the septum beyond the incision. The pin is then pushed in up to the head, and its point is thus deeply imbedded in the soft tissues of the septum, and upper and posterior part of the occluded nostril. It doesn't make much difference where the point is fastened so that it is firmly fixed and holds

the incised septum straight. Sometimes two pins will be required to correct the deformity. In such cases the second one is inserted, not from the mucous surface within the nostril, but from the cutaneous surface of the dorsum of the nose just below the nasal bone. The operation is a bloody one, because of the vascularity of the parts and because it will be useless unless the incisions are very free, so as to take away all resiliency of the cartilage. The pins are left in position two weeks. I have operated in several cases by this method with favorable results. The patient is subject to but little inconvenience, and the cavities can resume their functions at once with no disfiguring apparatus apparent. A small square of court plaster will cover the end of the external pin, which should have a flat head. The other does not show, as its head lies within the nostril. Another method of rectifying deflection of the septum is to forcibly return it to its normal position by means of heavy forceps, as devised by Adams of London, but never having looked upon this instrument with favor I have not given Adams' operation a trial. In those forms of comparatively slight deflection with considerable thickening of the prominence causing partial stenosis, the simplest method I have found, in dealing with such cases, is that devised by Bosworth of New York. It consists in cutting off with a saw specially constructed for the purpose, the protruding portion, together with its covering mucous membrane.

The saws are two in number—one cutting downward and the other upward. The steel portion is about five inches long, the anterior half serrated and beveled, while the other carries a large wooden handle at the proper nasal angle. By this means the hand is kept away from the field of vision during the operation. The mucous membrane having been well cocaineized with a 20 per cent. solution soaked in a tampon of absorbent cotton, the saw is introduced either above or below the protrusion as may appear more convenient, and rapidly cut through, care being taken to make a straight cut without bending the instrument. The bleeding is sometimes very profuse, though it generally ceases as soon as the operation is completed. It is of great importance, in removing these projections, that a thoroughly smooth surface should be left, for when a jagged uneven surface remains the result is unsatisfactory, and the period of healing occupies an unnecessarily long time. Recently, I have adopted a new operation for the worst cases of deflected septum, whether cartilaginous only, or bony and cartilaginous combined and with very favorable results. The operation is that of Delstanche, of Paris, and the set of instruments consists of strong crushing and cutting stellate septum forceps, septum clamps, and handle or tightener. The clamps are three in number, each consisting of two blades lined with rubber, and sliding on a square bar. The handle is also used to separate the blades of the clamp when removal is required. The patient being under the influence of chloroform the stellate blade is passed into the open nostril to the required position, and the flat blade passed into the obstructed nostril to a point opposite; the blades are then locked as with obstetric forceps and pressure exerted, thus crushing and cutting the septum. This is repeated in two, three or more places, until all resiliency of the septum has been overcome, when the index finger can easily be passed up the occluded side, and the clamp then adjusted in position. In tightening

the clamps, care should be taken not to exert too much pressure as it would interfere with the nutrition of the seat of operation and probably give rise to sloughing. Frequent cleansing should be carried out by means of a spray of Dobell's solution or other antiseptic wash. The clamp should remain in position for three or four days, after which I use plugs of carbolized oakum, as they are more cleanly than hard plugs of ivory or wood and exert sufficient pressure to hold the part in the required position. They should be changed at least once daily. In some cases it will be sufficient to plug only the formerly obstructed side with the oakum, after removal of the clamp. The evening temperature may rise above 101 degrees on the second and third days after operation, but soon subsides. The three following severe cases of deflected septum, all in male patients, and of traumatic origin, which I have recently operated upon by Delstanche's method with the most favorable results, both as regards the nasal stenosis and the facial deformity, have satisfied me as to the efficiency and value of this operation:

Case 1.—A. W., age 21, consulted me, Oct. 26, 1892, for complete obstruction of the right nostril and catarrh, and expressed himself as desirous of undergoing any operation that would give him relief from the distress he experienced at not being able to breathe through the right side of his nose. At about 5 or 6 years of age a severe fall upon the face had broken the nose, nothing having been done at the time to set it, so that from that time he could not breathe through the right nostril properly, and this difficulty increased in after years, until almost complete obstruction existed. Upon examination I found the right nasal chamber almost entirely occluded by deflection of the septum in both its cartilaginous and bony portions, and of undoubted traumatic origin. The left inferior turbinated body was greatly enlarged by puffy hypertrophy, yielding easily to pressure of the probe, and it almost filled the large concavity caused by the deformity of the deflected septum. In this case as there was so much inflammatory thickening of the projecting portion into the right nostril, I removed a piece about an eighth of an inch in thickness with the saw, in order to obtain space for the introduction of the flat blade of the forceps, as well as with the view of obtaining a better result after crushing. The blades of the forceps being placed in position in their respective nostrils, the anterior portion of the deflection was crushed and cut; this was repeated in two or three places back to the posterior part of the deviation, after which all resiliency was overcome, and the finger could be passed into the occluded nostril. The clamp was then placed in position and firm but not tight pressure exerted. The temperature rose to 101.2 degrees on the evening of the second day after operation, but soon fell to normal. On the morning of the fourth day I removed the clamp, and plugged both nares with carbolized oakum which was renewed daily. After two weeks' treatment the plugs were abandoned, firm union having taken place, and the patient could breathe freely through both nostrils. The facial deformity was also markedly reduced, the nose being now fairly straight. This patient returned by appointment in about a month from date of discharge when the relief of the stenosis was found to be permanent, and the catarrhal condition had nearly subsided. At this time the left inferior turbinated body was cauterized two or three times by galvano-cautery and the patient has since remained free from any obstruction or inconvenience from catarrh.

Case 2.—F. M., age 30, consulted me Feb. 3, 1893, for almost complete obstruction of the left nostril, very marked facial deformity and catarrh. About seven years previously he had received a severe blow on the right side of the nose. Upon examination I found the left nasal chamber almost entirely occluded, and post-nasal catarrh. The deviation was both cartilaginous and bony, and of unmistakable traumatic origin. I operated by Delstanche's method with the result that in two weeks the patient was breathing as freely through the left nostril as through the right, and upon inspection there was almost as much space. In this case also the deformity of the nose externally was decidedly improved and now, in appearance, is comparatively straight.

Case 3.—G. H., age 17, consulted me, April 6, 1893, for ob-

struction of the left nostril, which was causing him great discomfort. About five months previously, he had received a heavy blow on the right side of the nose. Upon examination I found marked deflection of the cartilaginous portion of the septum to the left, causing partial stenosis, and there was also post-nasal catarrh. The facial disfigurement consisted of rather an abrupt turning of the tip of the nose to the right. I did Delstanche's operation in this case with the most satisfactory results in regard to both the nasal stenosis and the external deformity. During the past year I have treated several additional cases by means of this operation and with equally good results.

A CASE OF RETENTION CYST OF THE FRONTAL SINUS.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY F. B. EATON, M.D.

PORTLAND, OREGON.

In January, 1893, an Italian aged about 26 years, consulted me concerning what appeared to be an osteoma at the upper and inner angle of the right orbit. Three years before, the skin over the right brow and upper lid became red and swollen. The redness disappeared in three weeks; the swelling remained. Six months later a soft swelling appeared where the tumor is. Sometimes there was pain over the right brow. Nose used to run before the swelling but has "dried up" since. The hard swelling has increased slightly in the past year. No specific history.

Objectively the right eye was pushed downward and outward and there was some proptosis. The hard tumor, about the size of a hickory nut, was not tender to the touch. Nasal respiration was impeded by a very large polypoid in middle turbinated bodies, the right being fully one-half inch wide. Believing this condition might be connected with that of right frontal sinus, I snared off with a powerful instrument the anterior portion of the right middle turbinated bone, the piece being the size of a hickory nut. That night a large amount of fluid escaped from the right nostril. Later I used a small electric light and found I could illuminate the left, but not the right frontal sinus when it was placed under the brow.

In consultation I made a small incision over the projection, ten millimeters above the tendo-oculi, and with an electric drill perforated the bone which proved to be thin. The drill entered a cavity which could be probed to great depth.

Two weeks later at the Good Samaritan Hospital I made an incision parallel with the eye-brow joining it by a vertical one at the inner end, exposed the bone and with a beak-shaped bone knife removed a piece of the bony shell one inch long and one-half inch wide. The sinus was found completely and tightly packed with a fatty granular substance, which was removed with a curette as rapidly as possible, there being profuse hemorrhage. There was no capsule. The sinus was as large as a good sized egg, extending far back, and its outer and lower wall was very thin. This cavity was packed with iodoform gauze, which could not be changed for several days, owing to the free hemorrhage which returned on each attempt. I decided later on to endeavor to obliterate the cavity by keeping it packed with gauze, since there was a continued tendency to mucopurulent discharge, owing to infection from the nose. I made an attempt to secure free drainage into the nose by passing a long slender silver probe by way of the infundibulum into the sinus. To the end I attached a bit of silk suture tying it to a strip of gauze which I drew into the nose. On the following day I found the gauze caused so much irritation that I withdrew it, and continued the daily packing with gauze, which, in about four months, resulted in obliteration of the cavity. The projection of the outer wall remained, however, as well as the displacement of the eye.

The substance removed, examined under the microscope, proved to be composed mainly of fusiform cells of an epithelial character, with some amorphous fatty substance.

DISCUSSION.

DR. MANSFIELD—I have had a case of a gentleman under my observation for the past five or six years with about the same amount of aphonia as the case reported by Dr. Eaton. He has not had catarrh, and being a vigorous male can not

be suspected of hysteria; he is also able to make a much louder and better voice when he sings in a high key than when speaking. He has paresis of the left vocal band probably of cerebral origin.

REPORT OF CASE OF TOTAL ADHERENT SOFT PALATE; OPERATION AND RECOVERY.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY J. E. SCHADLE, M.D.
ST. PAUL, MINN.

Eighteen months since, James S. consulted me in reference to complete stenosis of the nasal passages and deafness which had existed for a period of seventeen years. On examination of the nasal passages they were found to contain polypoid growths varying in size, which by their presence seemed to annoy considerably the patient by creating a continuous flow of serous fluid from the nostrils and bringing on attacks of violent sneezing, which condition ceased soon after the tumors were removed.

Inspection of the throat revealed partial obliteration of the pillars of the palate, entire loss of the uvula, and total adhesion of the velum palati to the posterior wall of the pharynx. What still remained of the soft palate consisted chiefly of cicatricial tissue as was evidenced by the firmness and density of the structure. After explaining to the patient the character of his trouble, informing him of the difficulty surrounding such an operation and advising him against one being performed, he left me, determined to seek advice elsewhere. Two months ago he returned to me and insisted on my giving him relief, if it be possible.

The patient is a book-keeper by occupation, was born in Manchester, England, and came to the United States in 1885. As to family history; mother died early in life from the effects of puerperal septicemia and the father three years ago from an attack of gout. The subject of this sketch is the eldest of six children all of whom except himself are in the enjoyment of good health. The history is negative, so far as tubercular or malignant diseases are concerned. Mr. S. is now 32 years of age, married, weighs 140 pounds, is in a general way robust and healthy and complains of the local malady only, on account of which he seeks advice. He denies ever having had acquired syphilis. When 10 years old he developed a sore throat which continued to disturb him for some months when the family physician was consulted, who pronounced the disease "an ulcerated sore throat" and made repeated applications of lunar caustic. The morbid process of the throat seemed to have remained unarrested as is shown by the fact that at the age of 14, interference of nasal respiration was markedly experienced, and at 16, the sense of smell was lost, the function of the ears was impaired and the power to breathe or blow through the nose was totally abolished.

Cocainizing the parts to be operated upon as thoroughly as possible, I divided the adhesions by the use of an angular probe-pointed knife and curved scissors such as are employed in gynecologic work.

After puncturing on either side of the adherent parts with a sharp-pointed bistoury, I insinuated through the opening thus made the probe-pointed

blade of the angular knife and severed the attachments by first cutting downward to the lowest point of adhesion, thence upward to the median or uvular line where the adhesions were freed with the scissors.

These different procedures effected a communication between the naso-and oro-pharynx of sufficient spaciousness for me to introduce my index finger into the post-nasal cavity for purposes of exploration. By means of this manipulation, numerous bands of adhesions extending from the superior surface of the palate to the vault of the naso-pharynx were discovered, which bands I divided with the knife guarded by the finger. The loss of blood was slight. The patient was at once enabled to blow his nose with entire freedom and nasal respiration was restored. In a few days after the performance of the operation, a sense of smell in a measure returned and hearing without any other aid became perceptibly improved. Regarding after treatment which I deem most essential, the plan adopted to keep the denuded surfaces from reuniting, was as follows:

A piece of iodoform gauze, two inches wide, fifteen inches long, was in half its length divided, which parts were respectively drawn through the nostrils from behind the palate forward, thus by means of slight traction bringing the crotch of the tape to rest firmly against the posterior extremity of the septum narium. The broad or oral end of the tape was brought forward through the mouth, and united with the ones passing through the nose over the upper lip. This appliance was well borne by the patient, its presence interfering somewhat with the acts of deglutition and phonation. Apart from this inconvenience no demurrer was made. The dressing was changed every twenty-four hours for two weeks, after which it was omitted during the day and worn through the night only. Mono-chloroacetic acid (Smith and Delavan) was applied occasionally to the raw surfaces to insure if possible a favorable issue. Whenever a point of adhesion would show itself, it was immediately broken up. The nostrils and post-nasal cavity were kept clean by the employment in spray form of antiseptic washes.

REMARKS.—1. The cause of the ulcerative processes of the soft palate followed by adhesions, was inherited syphilis. This opinion is confirmed by the fact that the patient had typical Hutchinson teeth.

2. The operation is justifiable and made successful by effecting a thorough division of the points of adhesion, and devoting most zealous attention to all details of after treatment until recovery takes place.

TREATMENT OF HAY FEVER.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY A. C. WOLFE, M.D.
COLUMBUS, OHIO.

Bostock, himself a sufferer from hay fever, gave the first detailed account of this disease in 1819. In 1869 Helmholtz held that the symptoms were produced by vibrios existing in the nasal passage. In 1873, Blackley, by carefully conducted experiments, was led to believe that the pollen of grasses and flowers was the exciting cause of hay fever. In 1883, Roe advocated that hyperesthesia is associated with, or occasioned by a diseased condition, either latent or active, of the naso-pharyngeal mucous membrane. Harrison Allen attributed the disease to permanent

or temporary obstruction to one or both chambers. McKenzie claimed that the disease is dependent upon some functional derangement of the nerve centers as its predisposing cause. Sajous advanced that the affection was due to an idiosyncrasy on the part of certain individuals to become affected by certain emanations and that hypertrophy of the nasal mucous membrane increased its irritability and the intensity of the symptoms, and that three conditions are essential factors in the production of hay fever: 1, an external irritant; 2, a predisposition on the part of the system to become influenced by this irritant; and 3, a vulnerable or sensitive area through which the system becomes influenced by the irritant.

One of the conditions necessary to produce an exacerbation is the presence of pollen in the atmosphere; another, and very important, is the neurotic habit; and another, a local morbid condition of the nasal mucous membrane. Clinical experience teaches that these three conditions are present in all cases, and that a person in whom one or more of these conditions are absent is not susceptible to an exacerbation. I regard the neurotic condition as the most important factor in the etiology of the disease. Neurotic tendencies increase with the advance of civilization; due perhaps, to the constant worry and bustle characteristic of the American people.

The sufferers from this malady nearly all belong to the active, energetic class of so-called nervous organization. A singular feature is that it is almost exclusively confined to persons of some education, and generally to those of a fair social position. Heredity has a powerful influence. In Wyman's experience there was heredity in 20 per cent., and in Beard's 33 per cent. In forty cases recorded by Sajous, 35 per cent. have near relatives who present a clear history of hay fever, and 42 per cent. have asthmatic relatives. Beard also established the fact that the prevailing family tendency was in the direction of nervous affections, such as chorea, epilepsy, asthma and other kindred disorders. It is a matter of constant observation that the disease runs in families. The pathologic lesion in these cases is found in the lack of vasomotor control which characterizes the neurotic manifestations, and that the affection is closely allied to asthma, in which the essential lesion is due to a vasomotor paresis of the blood vessels of the bronchial mucous membrane, while in hay fever the condition is due to a vasomotor paresis of the blood vessels of the nasal mucous membrane. An investigation of the origin of the premonitory symptoms will show that a neurotic element is an essential part of the affection. The following have been observed: A tickling in the roof of the mouth, dull pains in the head and back; another experiences chills and shuddering; and a large proportion complain of palpebral pruritus some days before the symptoms begin: The symptoms may be those of a mild coryza and last only a few days, or they may assume such a violent form as to cause the patient great suffering. There are two well marked types of the disease, the catarrhal and the asthmatic. In the former the onset is usually very sudden. The attack usually begins with a sensation of itching in the nostrils, which soon becomes very intense and causes violent and prolonged sneezing; a burning sensation in the inner canthi, followed by profuse lachrymation, may accompany this symptom, or constitute the first evidence of the access. Very soon the nose becomes

occluded through turgescence of its lining membrane, and respiration through it is practically impossible. A watery discharge appears, which soon becomes very profuse. Violent sneezing may begin at once, or occur when the watery discharge begins to trickle down along the intra-nasal walls. The asthmatic form of the complaint may be superadded to the disorder just described, or may constitute the entire affection. The only disease with which it need be mistaken is an ordinary acute rhinitis; but hay fever differs essentially from the ordinary cold in the head, in the fact that the latter is marked by several stages, namely: 1, a dry stage, lasting about twelve hours; 2, a stage of serous discharge, lasting from two to three days; and 3, a stage characterized by a profuse muco-purulent discharge, which lasts from five to ten days. In hay fever, on the other hand, the discharge is a serous discharge from the onset, and is practically so during its whole course. An examination of the mucous membrane should always serve to establish the existence of a morbid condition which is due purely to a vasomotor paresis. The appearance of the membrane is characteristic, and resembles in no respect an inflammatory process. It is markedly swollen, giving rise to more or less complete occlusion of the nares, but is of a bluish-gray color, which in every respect differs from the appearance of the membrane in a state of acute inflammation, which is of a bright red color. The mucous membrane in hay fever is covered with a thin, slightly viscid, watery serum, which gives it a glassy and semi-transparent aspect. The prognosis is not a grave one, but the tendency to the development of a periodical asthma and eventually of a perennial asthma is one that should always be borne in mind. A spontaneous disappearance of the disease has been observed in children, perhaps due to increase of nervous stability, consequent upon their growth and development. As there are three factors which we regard as essential in the production of an attack of hay fever, the treatment will consist in measures for the correction of the same. The object of this article, thus far, has been to demonstrate that the experience of different specialists and writers warrant the belief that the neurotic element is the prime factor in the etiology; and I am thoroughly convinced, beyond a doubt, from my own experience in fifteen cases, that this is the correct theory. Therefore I deem it of the utmost importance in the treatment of this disease, that our main attention be given to the nervous system; although the treatment of the other factors should not be neglected.

That the disease can be cured can not be questioned. That all cases can be cured is very questionable. We can only assure our patients that a majority of cases are curable, and that much relief certainly can be afforded in the larger proportion of cases. Many internal remedies have been recommended for the neurotic habit. The most successful ones are belladonna, zinc, arsenic, phosphorus, strychnin, valerian, assafetida, bromids, iodids, chloral, opium, quinin and various preparations of iron. In my treatment of five cases last year with belladonna and phosphid-zinc combination, two of the cases commenced treatment about two months before the attack was expected, one three weeks, one two weeks, and the other during the attack. The two cases in which I began treatment early, almost entirely escaped the attack. In the two that took

treatment so short a time before the expected attack, the severity of the symptoms and their duration were very much lessened. The case which commenced treatment during the attack, was also a sufferer from perennial asthma from childhood. I continued the treatment through the attack and during the three succeeding months, during which time he had no symptoms of asthma. After he had stopped taking medicine for about a month, an attack of asthma came on, but much milder than before. I again put him upon his former treatment which he is taking at the present time, and has been exempt from further attacks since renewing treatment. Previous to commencing treatment the attack would come on once a month and last for a week or more. This leads me to believe this to be the treatment, not only for hay fever, but also for purely asthmatic patients, and I think it best to give the remedies as Bosworth has recommended in his formula. In all cases a careful inspection of the upper air passages should be made, and if any morbid lesion exist, it should be corrected and the normal patency restored as nearly as possible.

It is very essential to begin the treatment at least two months before the annual attack is expected, thus building up the general system, and bringing it thoroughly under the influence of the medicine in order that the coming attack may be warded off, or at least very much ameliorated. Blackley found that the greatest relief was afforded by the exhibition of iodid of zinc in doses of one two-hundredths of a grain. Beard and McCullough advocated the use of quinin. Good results are sometimes obtained from the administration of belladonna in connection with opium. It is best to begin the drug about three months before the attack is expected and to continue it until the end of the period. McKenzie speaks very highly of valerianate of zinc in combination with assafetida. He gives 1 grain of the zinc with 2 grains of compound assafetida pill. Bosworth regards belladonna as exercising a more specific and thorough control of the disease than any other drug, and next to this he places reliance in the therapeutic value of some preparation of zinc. He claims most excellent results from the following formula:

R. Zinc phosphidi. gr. viij.
Ext. belladonna gr. x.—M.
Fiat mass. in pill No. xl. div.

Sig: One pill three times a day, after meals.

If there is impairment of the general nutrition he adds 1 grain of arsenious acid to the above prescription.

For the local treatment of the exacerbation of hay fever, no remedy equals cocain, in relieving the local manifestations. The value of its action is in contracting the blood vessels rather than in its anesthetic action. It should be used as a spray, and in the hands of patients, the solution should not be stronger than 2 per cent.: to the solution I generally add sodic bicarb. and the borate. Another good combination is to add albolene; this not only affords the controlling action of the cocain, but also coats the membrane with the albolene in such a way as notably to protect it from the impact of pollen. The sleeplessness and nervous irritability necessitate the administration of anodynes to secure rest; for this purpose I give sulphate of morphia, one-eighth grain every two hours until relieved.

DIPHTHERIA; ITS ETIOLOGY, CHEMIC PATHOLOGY AND TREATMENT.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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HARTFORD, CONN.

ETIOLOGY.

The century which has just passed has been fertile in scientific researches. The etiology of diphtheria has engaged the attention of many of the ablest workers of our profession. Atmospheric conditions, peculiarities of soil, miasmatic conditions and filth have each in their turn been investigated to account for the origin of this most fatal disease.

The symptoms accompanying this disease as conditions of the throat, with all its clinical peculiarities; the onset fever; the sequelæ of paralysis, have long been known and accounted for by a poison absorbed in some way into the system.

In 1841 Henle expressed his belief in a contagium animatum. Schwann demonstrated the presence of lower organisms in fermentation and putrefaction. The teachings of Pasteur, "concerning the conditions under which putrefaction occurs, all tend to explain the various contagious and infectious diseases by analogy, and stimulated the search for a vegetable organism in diphtheria."

Huter found these in the diphtheritic membrane of the pharynx and larynx, inoculated them into the mucous membrane of animals and described them as dark, round active little bodies. Ortel found them in diphtheritic membrane and lymphatic glands and kidneys and other organs. He considered them as constituting the contagious element. Thus we see that the trend of scientific investigation was in the line of a microorganism as the specific cause.

It was reserved for the last decade to fully demonstrate the etiology of diphtheria which places little if any, doubt upon the subject. Paralysis is the constant and dangerous symptom following diphtheria. The problem before the investigation was to fully account for this condition.

Klebs first discovered the bacillus diphtheria; Löffler first isolated it in pure culture; Roux and Yersin were the first to show that, when introduced into the circulation of a rabbit, this bacillus produced paralysis.

Löffler, in his article published in 1884, in his histologic examination of a large number of cases of diphtheria, concluded that a specific of bacillus found by him in diphtheritic membranes, and whose morphology and biology he carefully studied, was identical with the one described in the previous year by Klebs, and is the only one present which is of any pathogenic importance. These investigations were verified by Babes, D'Espine, v. Hoffman, Artmann, Roux and Yersin, and others.

The question was considered as practically settled that the Klebs-Löffler bacillus was the cause of diphtheria, and was present in all the primary cases of this disease in the diphtheritic deposits. When inoculated into susceptible animals it produced the disease in all its features, even to the characteristic paralysis. This would have settled the question beyond a doubt had not Prudden, of New York, come to a different conclusion from the examination of twenty-four cases of diphtheria, (*American Journal*

of the *Medical Sciences*, April and May, 1889) in which he failed to find a single instance, either by microscopic examination of membrane, or by culture of the Klebs-Löffler bacillus. As Prudden was a competent bacteriologist, Löffler said: "I do not believe that in North America a form of diphtheria prevails different from that with us."

Prof. W. H. Welch, M.D., and A. C. Abbott, M.D., (Bulletin of the Johns Hopkins Hospital, Volume ii, No. 11) review Prudden's cases. All but two of the twenty-four cases occurred in children's asylums or hospitals, sixteen being in a large foundling asylum, in which measles and scarlatina were prevalent. In seven cases the diphtheria was complicated or preceded by measles, in three by scarlatina, in one by whooping cough, in four by phlegmosis or erysipelas inflammation, and in only nine was the diphtheria uncomplicated by previous disease. Of these which were apparently uncomplicated, it is uncertain how many developed in the hospitals, under the same epidemic influences as the majority.

It is evident that the cases examined by Dr. Prudden, taken as a series, could not be regarded as primary diphtheria but rather as diphtheria secondary to measles, scarlatina, erysipelas, or as developing where these diseases prevailed.

Professors Welch and Abbott further state that it is remarkable that in not a single instance in the apparently primary cases of diphtheria did Prudden find the Löffler bacillus. His observations can not be considered contradictory to others who had studied primary diphtheria. They wisely concluded that more bacteriologic examinations should be made of primary diphtheria occurring in this country.

In May, 1890, these two eminent bacteriologists commenced the examination of membranous exudations in cases of diphtheria in Baltimore. In all the cases examined by them, clinical diagnosis was positive and all were primary cases of diphtheria developing in healthy children in private practice in various parts of that city. Their examinations were made from bits of membrane removed by sterilized forceps, during life. After separating the bacillus in pure culture its virulence was tested in each case by the inoculation of guinea-pigs; they had for comparison pure culture of the Löffler bacillus obtained from the Hygienia Institute in Berlin. The identification of the bacillus in their cases was based upon a study of its morphology, its behavior in various culture media and its effects when inoculated into guinea-pigs and other animals. In all respects they found it identical with the Löffler bacillus in the culture obtained from Berlin. This series of experiments removes all doubt that the Klebs-Löffler bacillus is the veritable bacillus diphtheria.

The location of the bacillus diphtheria in the membrane is thus stated. Most superficially are various kinds of bacteria, among which the Löffler bacillus is recognized; beneath comes a feebly-stained layer, rich in cells, but containing little or no fibrin; in this layer the Löffler bacillus, both singly and in groups, are made out. In the deeper layer the Löffler bacillus is abundant. In the layer resting on the mucous membrane no Löffler bacillus are seen. The bacilli are never found in the mucous membrane nor in sections of internal organs. The Löffler bacilli therefore not only do not invade the mucous membrane, but they usually do not extend through the diphtheritic membrane.

Dr. William Hallock Park, of New York, in a careful review of the etiology says: "The toxic albumins produced by the diphtheria bacilli have been especially investigated by Roux and Yersin, Fraenkel and Brieger. This toxic substance is of a proteid nature precipitated by alcohol and soluble in water. Nearly pure it is a white amorphous mass of specific gravity and keeps its properties for a long time unchanged. With Roux and Yersin's experiments four-tenths of a milligram of the substance when inoculated killed eight guinea-pigs. The long continuance of the toxic power of the poison in the body and its slow absorption from the locally affected tissues account for the deaths which occur some time after the entire disappearance of the bacilli from the infected throats.

"Experiments with the Klebs-Löffler bacilli show that an agar tube culture in the laboratory is still alive after seven months, and bits of membrane kept in cloth still alive after six months. In dark, damp or dirty places life remains much longer, but under unfavorable conditions the bacilli might live only a few days."

Dr. Park concludes that there are two great divisions of pseudo membranous inflammations; one caused by the Klebs-Löffler bacilli and the other by some form of streptococci. The name, diphtheria, will probably be agreed upon by all for those cases in which the Klebs-Löffler bacilli are present, alone or associated with other bacteria. For the other, some name will have to be agreed upon.

Further investigation only can determine whether streptococcus diphtheria will be acceptable for the present pseudo-diphtheria. In June, 1893, Dr. W. T. Councilman, of the Harvard Medical School says: "We now regard those pseudo membranous inflammations as belonging to diphtheria in which the Klebs-Löffler bacillus is found. When that is not present, no matter what the extent and the character of the local lesions, no matter what the severity of the symptoms, the disease is not diphtheria. The Klebs-Löffler bacillus is a small organism not much larger than the tubercle bacillus. Its most striking feature morphologically is its variation in form and its irregularity in staining, the ends of the organism are frequently clubbed, sometimes at one end and sometimes at both ends and when stained it shows a series of clear spaces along with intensely stained particles. The diphtheria bacillus is not a pus producing organism, and varies greatly in virulence.

"The danger in diphtheria lies chiefly in the absorption of the virus which is produced locally, and this does not take place with anything like the same readiness in adults as in children, due probably to the more delicate tissues of a child, its greater vulnerability and possibly a greater facility of absorption."

Dr. Louis Fischer, of New York, in a series of experiments, found true diphtheria bacilli in sink traps of houses where diphtheria had prevailed.

Pseudo-Diphtheritic Bacillus.—The status of the so-called pseudo-diphtheritic bacillus can not be considered as settled. Löffler finds such a morphologic and biologic difference between it and the true bacillus diphtheria, as to lead him to regard it as a different species.

Roux and Yersin consider it as a modification of the bacillus diphtheria, from which it only differed by absence of virulence. They claim that the pseudo-diphtheritic bacillus is identical in its morphology

and its behavior in culture media, with the diphtheritic bacillus. The former is only an attenuated form of the latter.

Dr. Abbott, after conducting an extensive series of experiments, (Johns Hopkins Hospital Bulletin, October-November, 1891) is unable to finally settle the question. Clinically the practitioner can not distinguish the one from the other; both should be treated the same.

Abbott has so recently given an exhaustive review of this subject that Dr. Park in his articles gives but a brief summary.

It has been established that bacilli with all the characteristics of the Klebs-Löffler, except their virulence, are to be found exceptionally where pseudo-membranes are absent. These are never numerous, only a few scattered colonies being found on plates or tubes. Roux and Yersin found gradations in virulence. As the result of a large number of experiments these investigators hold that the morphologic and cultural difference between the diphtheria and the pseudo diphtheria bacilli are inconstant, and when present are insufficient to establish that they belong to different species. In this country the pseudo diphtheria bacilli have been infrequently found. Prudden in a large number of cases in New York did not find them once. Koplik has found them a few times and Abbott in fifty-three cases, in four. In these studies the pseudo diphtheria bacilli were met with but once as proved by animal experiments, (159 cases by Dr. Park).

Councilman says of pseudo diphtheria: "Too frequently in practice every sort of white deposit and discoloration in the membranous inflammation is perfectly distinct anatomically, whatever may be its etiology. It is always dense and firm and is made up of fibrin and degenerated cells. In the pseudo diphtheroid inflammations are masses of bacteria collected on the surface of the mucous membrane, consisting of cast-off epithelium, mucus and masses of bacteria of varied forms. In the absence of a definite diagnosis made by bacteriologic investigation, the only safe way is to consider every case in which pseudo membranous inflammation of the throat is found, whatever its character, however mild the clinical symptoms may be, as a case of true diphtheria.

The foregoing history is interesting and of great value: 1, as showing the extreme care taken to logically eliminate every element of error in this most brilliant line of discovery; 2, that the bacillus diphtheria, when subjected to culture media and inoculated into susceptible animals, not only produces the characteristic membrane at the site of inoculation; but further, is the cause of the paralysis following, a symptom observed to be characteristic of diphtheria for so long a period; 3, upon these results we can consider the etiology of diphtheria as fully settled.

THE CHEMIC PATHOLOGY.

There is a beautiful harmony existing between the etiology, as embodied in the bacillus of Löffler being the veritable cause of diphtheria, and the chemic pathology, which is the next step in the line of accounting for the tissue changes which exist in diphtheria.

Sidney Martin, M.D., F.R.C.P., in his Gulstonian lectures on the chemic pathology of diphtheria, (*British Medical Journal*, March 26, 1892) has, in his mas-

terly way, given us the most recent status of this most important study. In these lectures he demonstrated in what the diphtheritic poison consists. His exhaustive study upon the pathology of anthrax, infective endocarditis and tetanus, are applied to diphtheria. Anthrax and infective endocarditis he groups as eminently febrile; while diphtheria and tetanus manifest symptoms referable to the nervous system.

In diphtheria and tetanus the primary infective agent is found only at the point of inoculation; hence the study of its morphology does not account for the symptoms which follow. A chemic investigation is necessary, not only for the explanation of the symptoms, but for a scientific treatment of the disease. Leaving the study of the pathology of anthrax, familiar to you all, we will direct our attention to the methods described in the chemic pathology of diphtheria.

Dr. Martin conducted his experiments on eight cases dead of diphtheria. His method of separating the poisonous products from the tissue was as follows: The spleen and other tissues, with the blood, are finely minced and placed in rectified spirits and allowed to stand until the proteids are coagulated; they are then filtered and the residue is then extracted by cold distilled water until nothing more is dissolved. The extracts are evaporated at 35 degrees C., to a small bulk and placed in absolute alcohol. This precipitates most of the albumoses. After standing the alcohol is poured off, the precipitate evaporated to dryness at a low temperature and extracted by absolute alcohol, until nothing more dissolves. The process of dissolving in water and precipitating in alcohol is continued, until all traces of bodies soluble in alcohol and excess of mineral salts is removed. After the last precipitation, the precipitate is allowed to stand under absolute alcohol for about two months, after which the alcohol is poured off and the precipitate dried in a vacuum.

The resulting product is a light yellowish brown powder, which yields nothing to alcohol, ether or chloroform, and which keeps indefinitely if put in a dry atmosphere. It is soluble in water, cold or boiling. The alcoholic extract of the tissues is strongly acid and contains an appreciable amount of free fatty acid. Another acid is separated from the first by its solubility in chloroform.

The chemistry of the tissues in diphtheria results in two classes of substances, which are abnormal to the body—one belonging to the digestive proteids, namely, albumoses; the other an organic acid.

The albumoses of diphtheria can not be distinguished from those of anthrax; their physiologic effect, a test more delicate than any chemic action, is the only mode by which their specificity is made evident. It is the injection of this substance which causes the symptoms of paralysis.

The fever following the injection of albumoses is very variable, as is the case in the course of diphtheria. In the first animal injected, the fever lasted during the seven days that the animal lived. In subsequent injections the fever lasted from one to three days, varying from 3 to 4 degrees.

The symptom of paresis is more definitely marked following the injection of albumoses. In the first animal injected, paresis of the left leg appeared on the second day; it was not used so much in jumping. The paresis was more marked on the seventh day, both legs were affected on the fifth day,

and on the seventh day there was paresis of all the legs. From the injection of these substances a paresis is produced which may be more marked in one limb but always progressive and general. The paresis is not accompanied by any wasting of the muscles; when one limb is more paretic than the other it does not waste to a greater extent. The slowness of the coagulation of the blood was also characteristic of this condition of diphtheria.

Examination of the Nervous System.—Martin next makes an examination of the nerves supplying the paralyzed muscles. His method of studying the peripheral degeneration is to stain the fresh nerve with osmic acid, so that the white substance of Schwann is stained black, and counter-staining with carmine to bring out the nuclei and axis-cylinder. In all animals the same changes were found. After staining the motor nerve with osmic acid and following its course, the upper part of the fibers are normal. A little lower down they show a breaking up of the white substance of Schwann, which is thin and but little stained by the osmic acid, while lower down the white substance disappears entirely. Below the point at which the white substance disappears, the axis-cylinder is in many instances broken. After the rupture of the axis-cylinder, the nerve fibers below the rupture undergo the Wallerian degeneration.

The part of the nerve primarily affected is the white substance of Schwann, which breaks up and finally disappears. The different branches of the motor nerve are affected in a varying degree, so that in an individual motor nerve there may be fibers which can still innervate the muscle owing to the integrity of the axis-cylinder. This is the reason why the condition observed throughout life is a paresis and not a paralysis. In many nerves the change only affects a few fibers lying side by side, or a single bunch of fibers. This is well seen in many specimens of the phrenic from these animals.

Martin says that the heart is found in an advanced state of fatty degeneration; on what it depends, it is difficult to say, as there is no degeneration of the vagus nerve. It may depend upon the changed condition of the blood or the diphtheritic albumoses may have a special action on the heart. The sensory and sympathetic nerves show a similar degenerative process, oftentimes segments of degeneration. These changes thus described are produced by the inoculation of diphtheria into previously healthy animals. Martin next considers the relation of the nerve degeneration to the changes in the nervous system in diphtheria palsy in man.

Many observers, both before and after the appearance of De Jerine's work in 1878, in which he recognizes that paralysis following diphtheria is due to a parenchymatous degeneration of the peripheral nerves, have described changes in the cells of the anterior cornua of the spinal cord, and some have gone so far as to ascribe the symptoms to a mild form of poliomyelitis. The symptoms are not those of an affection of the anterior cornua of the spinal cord, as there is an absence of the wasting of the affected muscles. These are phenomena due to changes in the peripheral nerves. The poison which produces changes in these nerves and fatty degeneration of the heart may after a time affect the nutrition of the nerve centers causing a fatty degeneration and atrophy of the cells.

Action of the Organic Acid.—When the organic acid found in diphtheria is injected in a watery solution into the circulation of a rabbit, it produces a moderate degree of fever which may last two or three days. The animal wastes a little but has no paralysis following the injection of the acid even after a dose of 0.1559 per kilo of body-weight. The blood coagulates normally. Fatty degeneration follows the injection. The phrenic nerve when examined in its upper half was found normal, while the nerves to the semi-membranosus, the vastus and gastrocnemius, show different stages of the characteristic degeneration already described. Organic acid, therefore, found in the body of diphtheritic patients is like the albumoses, a nerve poison capable of producing the same anatomic changes in the nerves.

The Diphtheritic Membrane.—The chemical examination of a diphtheritic membrane was conducted, as already described, from the tissues of the body of a diphtheritic patient. Thirty milligrams were injected into a rabbit weighing 560 grams. The result of this injection was the characteristic paralysis of the muscles of the limbs, as was described in previous injections. The blood coagulated as already described. The result is important, as it shows that in the membrane there exists a poison which produces exactly the same results as the albumoses found in the spleen and blood of diphtheritic patients, only being much more virulent. There was entire absence of microorganisms in the tissues of the body.

The Bacillus Diphtheria.—All observers agree that the bacillus diphtheria is limited to the superficial layers of the membrane and is not found in the tissues of the body. When inoculated into the body it kills the animal, but its growth is limited to the site of the inoculation.—(Sidney Martin's "Conclusions.")

From the facts under consideration it is clear that: 1, "the bacillus diphtheria forms from proteid products of the same chemic nature as those found in the bodies of patients dead of diphtheria, albumoses and organic acid;" 2, "the albumoses formed by the bacillus diphtheria in artificial cultivation have in single and multiple doses the same physiologic action as those found in cases of diphtheria in man; this action is the production of fever, of diarrhea, of loss of body-weight and of progressive paresis of muscles, dependent upon degeneration of the peripheral nerves;" 3, "the bacillus diphtheria is therefore the primary infective agent of diphtheria." "That this liberates in the membrane a ferment which, when absorbed, digests the proteids of the body forming albumoses and an organic acid." "These digestive products are the agents producing death, in causing fever and the depression and paralysis which follow diphtheria." "The diphtheritic product found in the body does not all come from the membrane."

In the case where there were but a few specks of the membrane found in the larynx, yet in the body a large amount of diphtheritic products was present, it is probable that the ferment absorbed from the membrane digests the more or less stagnant products in that organ. We know that the spleen contains a proportionately greater quantity than the blood of bodies formed from proteids such as uric acid, etc.

TREATMENT.

There is no disease which is subject to such a

latitude of random treatment as diphtheria, some believing diphtheria to be first a local disease, others that it is primarily a constitutional disease and treat accordingly. Still others give no attention to the nature of the disease, whether it is local or constitutional, but administer one drug for a few hours and if there is no improvement try another, and so on, meanwhile having no clear conception as to just what is to be accomplished. When death occurs there is a great feeling of satisfaction that all was done that could be done, because the doctor did not fail to use every remedy possible.

J. Chalmers Cameron wisely says: "If there is one disease more than another in which man should have the conviction, and courage to act upon it, it is diphtheria."

From the etiology already given, based upon the researches of Klebs, Löffler and Welch, and the chemic pathology of Roux, Yersin and Sidney Martin, the question may be considered as settled, that diphtheria is first a local disease caused by the bacillus diphtheria, with the membrane at the site of inoculation and should be treated as such; also, that the bacilli diphtheria liberate a ferment which, when absorbed, digests the proteids of the body, forming albumoses and an organic acid. These are the agents producing death; fever and paralysis following diphtheria. This is the secondary or constitutional stage of the disease.

In diphtheria we have to deal with the same condition, whether the primary site of inoculation is nasal, tonsillar, pharyngeal, laryngeal or elsewhere. Hence these local divisions are unnecessary. We should treat the disease and not the location.

We would emphasize the fact that every practitioner should have a clear conception of the condition which he is to treat, and a well-defined outline of his methods based upon scientific knowledge. The first or local stage of the disease is necessarily of short duration. If seen in time, treatment should be directed to the destruction of the bacillus diphtheria at the site of inoculation; this done, further treatment is unnecessary.

Ruling out a thousand and one pet nostrums which physicians use without reason, we will confine our discussion to two methods. The first is known as the tincture of the chlorid of iron treatment, which has constituted the standard treatment by the medical profession for over a century. Second, the bichlorid of mercury treatment, which has been in use for about fifteen years, although used by some for a longer period.

Chlorid of Iron Treatment.—Prof. J. E. Winters, writing on the use of iron, states ("Diphtheria and its Management," p. 36): "If we are to obtain the decided effect of the drug in a case of septic diphtheria, at least 1 dram of the tincture should be administered every hour to a child from 2 to 5 years old. We have given 2 drams every hour for forty-eight hours to a boy 8 years old." This may be taken as a sample of using the iron treatment as a method. Yet Professor Winters states to his class that with this treatment he loses about 50 per cent. It is safe to say that during the last century the iron treatment has been used by the ablest men of the profession, with a death rate of about 40 per cent. and upward, recording as death from diphtheria those who died before the membrane had disappeared from the site of inoculation. Of the large number who have died

within a few days to a few weeks from paralysis and heart failure the per cent. is unknown.

It is the undoubted experience of all the practitioners that a large number of those treated with iron have paralysis, more or less extensive, following the disappearance of the local symptoms in the throat. This is the point to bear in mind in judging of the final value of any form of treatment. The fact that paralysis follows the use of iron as a treatment so frequently, means that the drug does not exert a controlling influence over the liberation and absorption of the ferment, and its farther action in digesting the proteids of the body and the formation of albumoses and organic acid, which are the cause of the degeneration of the white matter of Schwann in the peripheral nerves, causing the paralysis. It is here that the physician makes the great error in considering the patient cured and recording it as such, as soon as the membrane has disappeared from the location of inoculation, when in fact the most serious trouble is in progress, viz.: Paralysis and death. The lesson is that we should not too early abandon the treatment.

The Bichlorid Treatment.—The corrosive sublimate treatment, used some fifteen years ago by Billatti, is highly esteemed by many. Dr. Jacobi says ("Practical Therapeutics," Hare): "Diphtheria can not be treated by any other drug as well as by the bichlorid, as it is readily soluble and counteracts the specific poison."

(*Berlin Klin. Woch.*, August 26.) . Rennet recently reported his year's treatment with the bichlorid, the result of which was sixty-two consecutive cases of diphtheria, all of which recovered. In none of his cases was there mercurial poisoning.

His formula is:

Hydrarg. chlorid corrosive 1 part.
Acid tartaric 5 parts.
Aque 1000 parts.

He applies this solution to the membrane thoroughly every six to twelve hours.

In England the bichlorid treatment as advocated by Dr. C. R. Illingworth, has been highly praised. The membrane disappeared in from two to five days. O'Dwyer, in speaking of emetics in laryngeal diphtheria says by their aid he has succeeded in getting many cases through; especially those which were put on the bichlorid treatment at the commencement of the disease, that would otherwise have required intubation. In the practice of the writer he has used the bichlorid treatment for nine years. During this time he has carefully recorded *one hundred and eighty-five cases of diphtheria with six deaths*, making a loss of 3.2 per cent. (One hundred and twenty-eight consecutive cases without a death). Fourteen were nasal, eight laryngeal. Paralysis appeared in but one case.

The following table shows the death rate from diphtheria in Hartford from 1886 to 1891:

| | Reported | Deaths | Per Cent. |
|----------------|---------------|---------------|-----------|
| 1886 | 94 | 17 | 19.14 |
| 1887 | 66 | 28 | 43.42 |
| 1888 | 148 | 43 | 29.00 |
| 1889 | 348 | 111 | 32.00 |
| 1890 | 130 | 63 | 48.40 |
| 1891 | 271 | 92 | 33.50 |
| | 1,057 | 354 | 33.39 |

During six of the nine years in which he has used the bichlorid treatment, the death rate from this disease in Hartford has been 33.39 per cent. The aver-

age death rate in New York City from diphtheria from 1880 to 1884, was 42.405 per cent.

In the epidemic of diphtheria in Bridgeport, there was reported to the city clerk from March, 1885, to March, 1886, 131 cases of diphtheria, with 68 deaths, making a death rate of 51.90 per cent. (Proceedings of the Connecticut Medical Society, 1886.)

In this epidemic 99 per cent. of the physicians in Bridgeport used the iron treatment with chlorate of potash locally.

The writer can better illustrate his method of the bichlorid treatment by giving a detailed history of a few cases where corrosive sublimate was the only treatment and milk the exclusive diet:

Cases 37 and 38 are interesting and instructive, as the history shows.

Nov. 8, 1884, I was called to see a child in consultation with Dr. Coogan, at 34 South Prospect Street. The child had been sick five days. When the Doctor first saw the child he said there were small spots on the tonsils which he thought of little account. A day or two later, he said the child was hoarse and croupy; still he thought there was no danger. On the fifth day he saw the child who was suffering from extreme dyspnea. I expressed the opinion that it was laryngeal diphtheria as there was a diphtheritic membrane covering one tonsil. I was of the opinion that treatment would be of no use. The child died a few hours later.

Nov. 24, 1884, two weeks later, was called to see Joseph N. and William H. F., aged two years and three months, and one year and two months, respectively, in the same building. The older child had a rough croupous respiration, dyspnea well marked. Bearing in mind the fatal case in the same building, I lost no time in putting the child under treatment. I ordered the wash-boiler put upon the stove, the room well filled with steam, and gave one twenty-fourth grain of corrosive sublimate every two hours, with milk between each dose. I returned in a few hours later and found the treatment had been stopped by a meddling old woman, on the ground that it was useless to torment the child, as it would die any way. Treatment was resumed and at my next visit again stopped; but a few positive words settled the matter and treatment was not interrupted again.

The next day the younger child, one year and two months old, was taken in a similar way and similarly treated. The breathing in both cases became alarmingly stridulous. They were typical cases of laryngeal diphtheria. Dr. Woods kindly assisted me by making several calls daily to see that the treatment was faithfully continued; I made three visits myself. Four days later, November 28, the breathing became somewhat easier. There was a steady improvement until the 30th inst., when both children were breathing freely. All obstruction was removed and treatment stopped. The older one had taken one twenty-fourth grain every two hours for seven consecutive days and nights. He showed slight symptoms of gastric irritation, which soon subsided when treatment stopped. The younger one showed no signs of gastric irritation.

Cases 53 and 54—I was called to 17 Chapel Street, May 18, 1885, 10 p.m., to see George W. P., and George L. L., who were sick with a very malignant form of diphtheria. The third child had just died with diphtheria within two weeks, under the treatment of a clairvoyant and magnetic healer, who had applied blood-root and other "purely vegetable" remedies to the throats; also gave them Dr. Conant's compound vapor baths, etc., until three died and two more were very sick. The cause of the outbreak was the cleaning of a very large privy vault, which had not been disturbed for many years. George W. P. had been sick four days with diphtheria. Posterior nares, pharynx and both tonsils were covered with diphtheritic membrane; patient was restless. The fatality that had occurred in this house was good evidence that it was genuine diphtheria. I ordered one twenty-fourth grain of corrosive sublimate every two hours, with milk between each dose. Second day, constitutional symptoms were improved; less restless; less fever. Third day, there was an improvement in the appearance of the membrane. It began to thin out and granulations began to appear. The treatment was continued every two

hours for five days. The improvement was such that I gave it once in three hours for two days longer, when the membrane had entirely disappeared and the treatment stopped. I then gave an iron tonic. He made a good recovery.

George L., who was sick in the same room, underwent the same treatment eight days and recovered. The clairvoyant doctor seemed less satisfied with the results of these two cases than she was with those that proved fatal. There was quite an epidemic of diphtheria in the neighborhood, resulting from the disturbance of this cesspool.

Case 94.—Master Eddie C., aged 4 years.

This case furnishes the most valuable study in the use of the bichlorid treatment of any I have had to this date.

The following is the history of diphtheria in this family:

Jan. 7, 1887, I was called to see a case of diphtheria in consultation with Dr. Welch, a girl aged 11 years, whom he had treated for about five days with one-twentieth of a grain of the bichlorid every two hours. The diphtheritic membrane had, the previous day, extended to the larynx. We increased the medicine to one-twentieth grain every hour. The next day, January 8, the dyspnea was so great that there was nothing to be done but to relieve the patient's suffering by tracheotomy. At my suggestion Dr. Wainwright was called in to perform the operation of intubation which was not satisfactory, and later I performed tracheotomy. The child was put on one-twentieth grain every hour, with milk and stimulants. Dr. Root stayed with the patient three nights and administered the medicine, which was continued three days with fair prospect that the patient would rally. We then gave the medicine every two hours for twelve hours; then every three hours which was followed by decided failure of the patient who died Jan. 13, 1887. In reviewing the case it seemed to me that if the medicine had been given every hour for a longer time there would have been a greater chance of saving the patient. With my subsequent experience I am more firmly convinced that my conclusions were right. I have detailed this case, which I saw in consultation, to show its relation to Case 94, which I treated from the beginning in the same family, to which we will return.

January 8, Eddie C. (brother of the one just referred to) was sick; examination revealed a large membrane on one tonsil. Dr. Welch asked me if I would take charge of the case. He said he would render me any assistance he could, but wished me to direct the treatment, which I did. One-twentieth grain bichlorid of mercury was given every hour from 11 A.M., January 8, until January 9, 7 P.M., thirty-two hours; one and one-third grains. The improvement was such that I gave one-twentieth grain every two hours until January 11, 7 P.M.; forty-eight hours, one and three-fifths grains. The medicine was then given every three hours until January 12, 11:30 P.M. The next morning the membrane had rapidly extended through the entire nasal passages so that it could be seen in the interior nares. I then returned to the one-twentieth grain every hour, which I continued for seventy-two consecutive hours; three and three-fifths grains were given. There was sufficient improvement to again warrant my administering the medicine every two hours, which was done for twenty-four hours; three-fifths of a grain was given. The medicine was given one-twentieth grain every three hours until January 17, 9 A.M., when treatment was stopped; seven and three-twentieths grains were given in nine days.

Dr. Wainwright saw the case several times. He came in just as I had stopped the one-twentieth grain every hour, which had been given seventy-two hours. The Doctor was surprised to see how bright the little fellow was after this treatment. He said our theories must be wrong as to the use of the bichlorid of mercury. The Doctor related the case in the Hartford Medical Society at the next meeting. The two cases acted similarly; one suddenly becoming laryngeal and the other nasal. As the vigorous and long continued use of the medicine in the latter case resulted so favorably, I believe it would have been equally successful in the former had we pushed the treatment as persistently.

I will further add that the same family lost a child by diphtheria a few months previously in the same house. The teaching of my successful case in this family is that it is necessary to give the large dose and continue it until there are signs of im-

provement, and that there is great safety in so doing.

Case 121.—Laryngeal diphtheria. I was called to Wethersfield in consultation with Dr. Fox, Jan. 15, 1888. The patient, aged 15 years; Dr. Fox gave the following history: Thursday, January 12, he was called to see the patient, who was suffering from a sore throat. Complete aphonia and marked dyspnea. He was put under treatment and there soon appeared a diphtheritic patch on the pharynx, which spread to the tonsils. When I saw the patient there was complete aphonia; pharynx, tonsils, palate and uvula were covered with a solid diphtheritic membrane. The boy lay on his back, mouth wide open, breathing heavily; the case looked doubtful.

I advised the giving of one-tenth grain of corrosive sublimate every hour and milk one-half hour later, with stimulants. The first dose was given at 6:30 P.M., January 15. I saw the patient next day—condition about the same, only that the membrane was softening a little. I advised the same treatment continued until January 17, 7:30 A.M. Patient had now taken one-tenth grain of corrosive sublimate every hour for thirty-five hours; three and one-half grains had been given; a marked improvement in the patient; medicine was given less frequently; at the end of five days treatment was stopped; five and seven-tenths grains of corrosive sublimate had been given.

The first movement of the bowels was in forty hours after treatment commenced, the second fifty-six hours after treatment commenced, the third sixty hours after treatment commenced, the fourth eighty-one hours after treatment commenced. No paralysis following, he made an excellent recovery.

Those who have used the bichlorid treatment intelligently get the most satisfactory results, as far as the prompt disappearance of the disease is concerned. The important point is that the cases so treated not only make a satisfactory recovery immediately, but are exceptionally exempt from paralysis and heart failure, following the disappearance of the throat symptoms.

This one fact of the absence of paralysis would leave ground for a legitimate conclusion, *that the bichlorid of mercury has a controlling influence over the production of albumoses and an organic acid*; known to be the direct cause of death, paralysis and heart failure, as previously stated. If this be so, we have in the bichlorid of mercury a remedy, which, when properly used, will prove of incalculable value in the treatment of diphtheria.

As has been seen from Case 94, I have administered one-twentieth grain of corrosive sublimate for seventy-two consecutive hours with most beneficial results. In Case 121 I used one-tenth grain for thirty-five hours with no constitutional symptoms.

The best results are secured when no cathartic effect follows the administration of the medicine. In case of looseness of the bowels, I usually give a little morphin to control the movements. The more completely the mercury is retained in the system the more rapidly is the disease controlled.

The treatment should be administered according to the severity of the disease, irrespective of the age or weight of the patient. A malignant case of diphtheria is just as hard to control in an infant as in an adult. In my experience it requires just as heroic treatment in one case as in the other. The sooner the patient is brought under the control of the mercurial, in the infant or adult, the shorter will be the duration of the disease and less of the drug will be administered.

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ABUSE OF THE GALVANO-CAUTERY IN RHINOLOGY.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY W. H. DALY, M.D.

PITTSBURG, PA.

Since I may justly be considered by the profession to have been one of the founders of the school of intra-nasal surgery in America, I trust I may be pardoned if I speak briefly upon some of the abuses that have grown, with the tremendous advance of the special work of this branch of surgical practice.

There are unfortunately always zealots who are ever ready to out-Herod Herod in any field of work; indeed there have been Christians, who have destroyed their fellow beings for the love of God. But it is of the modern, indeed the very latest crop of rhinologists about which I here, with some hesitation ask permission to speak, and in doing so beg to disclaim any intention of personal offense, but none the less I have an ardent desire to hold our excellent special branch of medical practice safe from the wild and injurious vagaries of the injudicious ones who are liable to do us as well as their patients serious harm, by their well-meaning but excessive zeal.

I do not hesitate to say that where positive hypertrophies exist within the nasal cavities they ought to be reduced or removed, with due regard to safety, and the securing of ample and sufficient breathing capacity for the nose; such as Nature intended the individual to enjoy.

But to endeavor to cure half of the fleshly ills, including chronic diarrhea, by the cauterization of turbinates that do not in any way encroach upon the lumen of the nasal canal is beyond doubt a foolish, if not a most reprehensible practice. What I shall say may do little or no good, but I shall nevertheless do what little I can to prevent obloquy cast upon a most useful branch of medicine, to which I have devoted the best years of my professional life.

In 1880 I read a paper before the AMERICAN MEDICAL ASSOCIATION, entitled: "An Analysis of the Value of the Galvano-Cautery in the Treatment of Diseases of the Upper Air Passages." Therein I spoke of the possibilities of this instrument, pro and con, and I supposed that the admonitions of one who had already then used the galvano-cautery in more than two thousand operations might be of some use to the profession as a warning to be careful in its employment, but it proved like the admonition to children "not to put beans in their noses"; they go straight away and do it.

There was an increased demand for galvano-cautery batteries, and the thousands of poor noses and throats that have since been mercilessly burned will probably never be told of, but we hear of many nevertheless, and now and then I have heard of a case where some one has had their nasal interior freely cauterized and gone home, had a chill and died within six days, from intercurrent inflammatory disease traceable to the operation. True, patients will sometimes die from the result of a trivial operation; if this be granted then more's the need that every possible precaution be taken.

Professor Bosworth, has, I believe, always agreed with me that the galvano-cautery ought to be used only by the expert and cautious rhinologist.

I am always in the habit of looking with consider-

able apprehension for inflammatory complications of the middle ear, so that I rarely allow a patient to go from under my immediate care, after the employment of the cautery, until such danger is passed. I much regret this care is not more generally observed; as I have seen as consultant, in the practice of others, serious inflammatory mischief follow the employment of the galvano-cautery, the evil consequences of which were only counteracted by prompt measures, which are in themselves sometimes fraught with quite dangerous possibilities to the hearing; such as perforating the membrana tympana, which must be resorted to for the relief of acute otitis; media purulenta, a not uncommon liability following intranasal cauterizations.

I am sometimes appalled by what I have heard concerning the abuse of the galvano-cautery within the nasal cavities, and I have been sometimes subjected to feelings of chagrin when called upon as consultant, to help bear the responsibility encountered in accidents following the unwise if not cruel and needless cauterizations within the nose.

In conclusion, I do not desire to be understood as making a wholesale condemnation of the employment of the galvano-cautery, in cases where the removal of hypertrophies and growths interfere with the breathing capacity through the nares, pharynx or larynx; but I do most earnestly ask that those who use the instrument will not resort to its employment needlessly, and when they do let them ever bear in mind that the most watchful care is needed to prevent and meet damaging inflammations that may follow to the middle and internal ear, and possible damage, even to the life of the patient.

ABSTRACT—A LARYNGEAL NEOPLASM SIMULATING THE EVERTED VENTRICLE.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY S. K. MERRICK, M.D.

PROFESSOR OF DISEASES OF THE NOSE, THROAT AND CHEST IN THE BALTIMORE MEDICAL COLLEGE.
BALTIMORE, MD.

[Patient, male, age 48, in good general health presented himself accompanied by his physician, May 12, 1893, for laryngoscopic examination. Had impairment of voice and breathing since November 1892, growing steadily worse, until he fell on the street and became unconscious from laryngeal stenosis and over-exertion. Laryngoscope revealed a soft ovoidal, inflamed tumor filling up the left ventricle, concealing left and part of right, and occupying three-fourths of the glottic space. Patient's breathing loud and stridulous. Syphilis denied by family physician and the case diagnosed as probably everted ventricle associated with laryngitis. Later, patient confesses he has had syphilis and the neoplasm is diagnosed as a gumma and treated successfully as such. Comparative rarity of the two affections and the instructive features of the case.]

Mr. W. G. W., age 48, height 6 feet, weight 175 pounds, occupation capitalist, was brought to my office May 12, 1893, by his physician, Dr. Wilmer Brinton, of Baltimore, Md. Dr. Brinton said his patient had been suffering with dysphonia, (he feared from some laryngeal growth) since November 1892; that his condition had steadily grown worse, until his breathing had become so seriously embarrassed, that he had fallen on the street a day or two previously in a state of asphyxia, becoming cyanotic and unconscious. After restoratives were administered freely, the patient slowly regained consciousness. No doubt over-exertion precipitated this attack. Up to this time patient had declined to consult a throat specialist, although frequently urged to do so by his physician. He now gave his consent. Nothing in the family history was elicited which had any bearing on his case, except that his father at this time was suffering with a carcinoma of the face. With this information, furnished

by his physician and the assurance of the latter that he was sure there was no specific taint in the patient's constitution, as his children were all healthy, I began the examination.

The man's breathing was stridulous and there was both inspiratory and expiratory dyspnea and marked dysphonia. His condition was such that he was not permitted to come to my office without an attendant, and his wife did this service for about ten days after treatment was instituted.

The laryngoscope revealed a diffuse intense laryngitis and an ovoidal inflamed tumor, filling up the left ventricle and concealing the anterior three-fourths of the left cord to which it was attached either by adhesive inflammation or as the site of the neoplastic formation. On adduction the growth overlapped the right cord, covering its anterior two-thirds and on quiet breathing about one-half. The ventricular bands were so inflamed and infiltrated that they met at their anterior thirds and covered in the growth at its anterior attachment, thus concealing a considerable portion of the tumor. I now made a careful drawing of the laryngeal image which I kept for comparison in the future progress of the case.

After some days of mild astringents and antiseptic sprays and nightly inhalations of medicated hot vapors, without any very marked benefit therefrom, a consultation was had with Dr. Jno. N. MacKenzie. He was inclined to believe the tumor was an everted ventricle, associated with a severe laryngitis.

While the tumor was compressible and yielding and could be made to occupy largely the ventricular cavity by means of the probe, the left cord could not be exposed by this manipulation, and it was evident that the cord was the primary site of the tumor as the adhesions had been so uniform that it was bound down firmly to all parts of the concealed portion of the cord. I myself inclined to the opinion, that the growth had its origin in the cord, and as it grew it filled up or encroached upon the ventricular as well as the glottic space.

A few days later, Dr. MacKenzie saw the case again with me and affirmed his former diagnosis. Up to this time no change had been made in the treatment; there was possibly some improvement in the laryngitis and the patient was permitted on his own request, to come to the office alone in the future.

May 25, I saw the patient for the first time when his wife was not at his side. Not being fully convinced that I had to deal with an everted ventricle, and yet unable to account for the presence of a soft tumor of the cord, I determined to question the patient myself as to his past history, this being the first opportunity in the absence of his wife, who had always followed him into my operating room. I asked him if he had ever had syphilis at any time during his past life. He confessed at once that he had a chancre fifteen years ago and that he had gone through a course of treatment for six months or a year and was pronounced well. He said he had withheld this information from his physician, and feeling sure his throat trouble was in some way caused by this disease he shrank from a laryngoscopic examination which he believed would lay bare this part of his history; this he said explained his reluctance to consulting a throat specialist.

Believing now that I had to do with a gumma of the cord and a specific laryngitis, I began at once to give iodid of potash cautiously. The drug was well borne and after consulting with Dr. MacKenzie and making known the result of inquiry, it was agreed that the agent should be pushed to iodism, unless contra-indicated. Improvement began in less than a week, and in two weeks Dr. MacKenzie saw the case again and agreed with me that the improvement was great, and that the tumor was doubtless a gumma.

A rapid amelioration in all the symptoms took place and on July 22, 1892, I made another careful drawing of the laryngoscopic image and by comparing it with the one made May 21, it was estimated that two-thirds of the growth had been absorbed and the diffuse laryngitis and infiltration of the ventricular bands had nearly disappeared. Local and constitutional treatment were continued for about six weeks without any marked change for the better, and Dr. MacKenzie suggested that pure lactic acid be applied to the remains of the growth, with the view of destroying it or stimulating its absorption. Undiluted lactic acid was now applied twice a week to the growth and the iodid continued internally. Very slow absorption under the use of the acid took place, but at no time ulceration.

By Oct. 20, 1893, only a slight local bulging of the diseased cord could be seen, and the patient visited the World's Fair at Chicago, where he took cold and had a decided set-back. A

severe laryngitis set in resulting in some swelling of the growth and ulceration of the right cord. It took the remainder of the year to get my patient back to the condition he was in, before he went to the Fair. Improvement has gone on steadily since Jan. 1, 1894, and I now see him once or twice a week—he is practically well. The cord has not quite regained its normal pearly white appearance, and I shall keep the patient under observation until I see no trace of the disease left, knowing the liability to relapse.

I have reported this case somewhat minutely in view of its being a rare affection and one simulating another affection which is equally rare; at the same time presenting difficulties in diagnosing to so competent a laryngologist even, as Dr. Jno. N. MacKenzie is acknowledged to be.

The first to recognize the everted ventricle during life was Lefferts who reported his case in the *New York Medical Record*, June 3, 1876. Since then a number of cases have been reported, but the rarity of the condition may be inferred when such observers as Cohen, Elsberg and Semon each have been unable to report but one case.

The gummy tumor of the larynx doubtless occurs much more frequently than the everted ventricle, but owing probably to the great activity of the structures when it is likely to form, it breaks down so readily and forms an ulcer so quickly that the latter process is fully established before the lesion is observed. The rare instances where the tumor does not break down for some unknown reason constitute the class to which my case belongs. Such cases have been reported by Luca, Delie, Charozoc, Fischer, Cardone, Schech, Massie, Sewin and Mandl, which will not probably outnumber the cases of everted ventricle reported.

The foregoing case emphasizes:

1. The difficulty of differentiating the gummy tumor from the everted ventricle, when the former fills up the ventricular cavity.
2. The great importance of excluding syphilis in all laryngeal tumors if possible.
3. The brilliant results which follow specific treatment, although tracheotomy may appear to be necessary, for the stenosis.

A NEW APPARATUS FOR THE TREATMENT OF FRACTURE OF THE INFERIOR MAXILLA.

Paper read before the Colorado State Medical Society, June 23, 1894.

BY CLAYTON PARKHILL, M.D.

PROFESSOR OF THE PRINCIPLES AND PRACTICE OF SURGERY AND CLINICAL SURGERY IN THE UNIVERSITY OF COLORADO; SURGEON TO ST. LUKE'S AND ARAPAHOE COUNTY HOSPITALS, ETC., ETC.

Last October I was consulted by Mr. C., who gave the history of having been sandbagged the night before. The right side of his face and the parotid region presented evidence of serious contusion. The mouth was open and fixed, giving him the appearance of having a dislocation of the jaw. The incisors were separated about three-quarters of an inch, the posterior molars being in contact. There was no lateral displacement. On examination under an anesthetic, I found a fracture of the neck of the jaw. Crepitus was marked. There was apparently no displacement of the upper fragment. Reduction was effected very easily, the teeth coming into perfect articulation. A gutta-percha splint was molded to the jaw, and attached by tapes to a cap covering the head, making an apparatus similar to what is known as the French Dressing.

No sooner had the influence of the anesthetic passed away than the deformity returned. I then



Fig. 1.

applied in turn the various bandages which have been recommended, only to be met by failure with each one.

On the following day I requested Dr. H. P. Kelly,



Fig. 2.

an expert dentist of this city to see him with me, and make a model for an inter-dental splint. It was

found impossible to separate the molars sufficiently to get the plastic material between them. I then



Fig. 3.

applied the Hamilton Dressing, only to suffer another defeat.

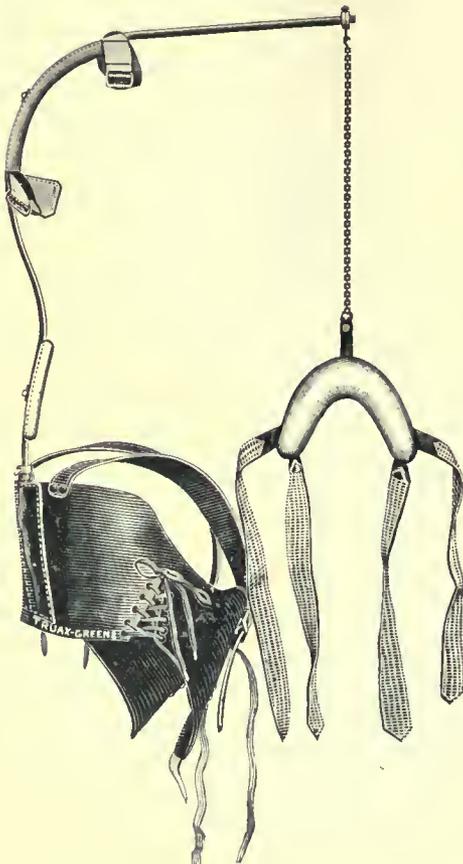


Fig. 4.

It was evident that the displacement was due to the action of the temporal and masseter muscles on the

side affected, and that a dressing capable of holding the jaw in place must be one having an upward and forward pressure, antagonizing this force.

I had the Denver Surgical Instrument Company make for me the apparatus shown in the accompanying cuts. The corset is made of heavy leather and has a socket fitted in it at the back to receive the spring. The spring is in shape similar to the ordinary jury-mast, and is made of steel. It has attached to it an inter-scapular pad and an occipital pad. On its anterior extremity there is an adjustable ring fastened by a set screw. This is intended to regulate the tension by shortening or lengthening the spring. The jaw-piece is made of copper, molded to the shape of the maxilla. The horizontal and vertical tapes attached to the jaw-piece posteriorly are self explanatory. The small chain attached to the jaw-piece anteriorly ends in a hook. This chain is intended to pass through the sliding ring, and when the proper tension is attained, to hook back into one of its own links.

This apparatus was applied with the patient under an anesthetic. The deformity was completely corrected, and there was never the slightest tendency towards its recurrence. The patient expressed himself as feeling no discomfort. He removed it contrary to my directions at the end of twenty-one days. I had intended that he should wear it four weeks. The result, however, was perfect.

A fracture through the neck of the jaw, is a very rare injury, but I believe this apparatus will prove equally good for other forms of fracture of that bone. I propose to have made another jaw-piece which will extend upward around the maxilla and afford a lateral support. With this addition I think the instrument will apply as well to either simple or multiple fractures of the body of the bone, as it does to the neck.

The results obtained in fracture of the lower jaw are far from satisfactory in many cases. Within the last three years I have operated on three cases which were sent to me suffering from ununited fracture. This number of failures to get union in a fracture of no greater frequency seems to me to indicate that present modes of treatment are not entirely satisfactory, and affords me encouragement to present this new method of treatment to the profession for its approval.

THE BUBO PLAGUE IN CHINA, WITH A BRIEF ACCOUNT OF THE GREAT PLAGUE OF LONDON.

BY BURNSIDE FOSTER, M.D.

SURGEON TO THE SKIN AND VENEREAL DEPARTMENT OF THE ST. PAUL CITY AND COUNTY HOSPITAL; DERMATOLOGIST TO ST. LUKE'S HOSPITAL; DERMATOLOGIST TO ST. JOSEPH'S HOSPITAL; VISITING PHYSICIAN TO THE ST. PAUL FREE DISPENSARY, ETC.

ST. PAUL, MINN.

Although the possibility of there being in this country an epidemic of this terrible disease is a very remote one, it would not be at all surprising if an occasional case should be brought to the Pacific coast from China, where it has been raging so recently, and where it still exists. In view of these facts I have thought that some account of this, by far the most fatal and horrible of all epidemic diseases might be of interest—as well from an historical as from a medical point of view. The first extensive epidemic of the plague, of which history has recorded any definite account, occurred in the sixth century, A. D.,

and is usually described as the Plague of Justinian, since it existed during nearly the whole of that emperor's reign.

Although there are some discrepancies in the various accounts which I have consulted, the epidemic seems to have had its origin in Lower Egypt in the year 542. From its starting point it traveled up the Nile, and then leaving that stream it swept with increasing fury into the interior of Asia Minor. Constantinople was visited, with the result that for some days the people died at the rate of 10,000 daily. In the next year it traveled over Greece and Italy; in 545 it extended into Gaul and in the following year reached the cities of the Rhine. During the seventy years of its existence this fearful disease visited all parts of the known world and its victims were numbered by millions. In several instances historians have recorded that more than half the population of many of the cities perished, and that scarcely people enough were left alive to bury or destroy the bodies of those who died. In the words of a recent German historian (Baas): "For long years this plague endured, intermixed at the close with small-pox, sweeping away in its devastating course the bloom of manhood and youth and destroying the greater part of women, maidens and children in all the then known world. It loosened too, almost all the rootlets of the ancient civilization, so that the withered stem was able to maintain for centuries only a feeble and sickly existence."

During the succeeding years of the Middle Ages we have no knowledge of any very extensive plague epidemics until the sixteenth century. In the year 1500 it raged in Germany, Italy and Holland for seven years; in 1534 in southern France; in 1562 for six to eight years it was pretty general throughout Europe. During these epidemics we find it recorded for the first time, that to some extent epidemics were considered preventable, and that there were attempts at disinfection and isolation. Sulphur, arsenic and alcohol were among the earliest disinfectants; and the plague physicians, "Pest Medici" as they were called, wore special gowns and masks, and anointed their hands and arms with medicated oil before coming into contact with the sick. During this and the seventeenth centuries a number of severe and fatal epidemics of this dread disease occurred in all parts of Europe, but the one of which I will make special mention is the Great Plague of London which occurred in the year 1665.

There came by chance into my possession recently two curious old books which were written, the one by a layman and the other by a physician; both inhabitants of London at that time. I refer to De Foe's "History of the Plague," and to the "Works of Dr. Thomas Sydenham," a very eminent physician of that time. These two books give, from their different points of view, such a comprehensive and interesting account of the events of that dreadful year that I shall quote from them both in some detail:

In September, 1664, there began to be rumours in London that the plague was again raging among the Dutch and in the latter part of November two men said to be Frenchmen died of the plague in a house at the upper end of Drury Lane. During the next few months there were occasional cases in the same part of the city, but it was not until early in the following May that there began to be any serious apprehension. With the warm weather the cases became more numerous and in the second week in June about one hundred died of the plague in the out parishes and the disease began to appear in the city, and by July 1 the pestilence had

become so general that business of all kinds was suspended and many of those who had the means to do so shut their homes and places of business and fled to the country. The panic among the people became so great that many went mad through fear and others deliberately committed suicide to avoid the infection. Great numbers of quacks, mountebanks and impostors seized the opportunity to prey upon the fear and credulity of the people.

De Foe records that the posts of houses and corners of streets were plastered over with doctors' bills and papers of ignorant fellows quacking and tampering in physic and inviting the people to come to them for remedies.

"Infallible, preventive pills against the plague. Never failing preservatives against infection. Sovereign cordials against the corruption of the air. Anti-pestilential pills. Incomparable drink against the plague. The only true plague water. The Royal Antidote against all kinds of infection, and such a number more that I can not reckon up, and if I could would fill a book of themselves to set them down."

Others assuming specious titles summoned people to their lodgings by such bills as these:

"An eminent High Dutch physician, newly come over from Holland, where he resided during all the time of the great plague last year in Amsterdam and cured multitudes of people that actually had the plague upon them."

"An ancient gentlewoman having practised with great success in the late plague in this city, Anno, 1636, gives her advice only to the female sex."

"An Italian gentlewoman, just arrived from Naples, having a choice secret to prevent infection, which she found out by her great experience, and did wonderful cures with it in the late plague there, wherein there died 20,000 in one day."

"There is no doubt," says De Foe, "but these quacking sort of fellows raised great gains out of the miserable people, for we daily found the crowds that ran after them were infinitely greater, and their doors were more thronged than those of Dr. Brooks, Dr. Upton, Dr. Hodges, Dr. Berwick, or any, though the most famous men of their time."

The Lord Mayor and Aldermen adopted very sensible and very stringent measures for the separation of the sick from the well, and for general disinfection, which doubtless had a considerable effect in controlling the disease. An infected house was at once shut up and a watchman appointed to guard it day and night, to see that none entered or left it without special permission. By this means, harsh and cruel as it was in many instances, the infection was to some extent confined and localized. During August the deaths became so numerous that it was impossible to give decent burial to the bodies. Great ditches were dug, and the bodies, without discrimination were cast into them. It was estimated that above ten thousand houses in London were deserted and that about two hundred thousand people left the city. From August 8 to October 10, according to the mortality bill there died in London 59,810 people, of whom 49,605 died of the plague. The total number of deaths from the plague during the epidemic is placed by De Foe at 100,000. From November 1 the number of cases began to diminish, the death rate of those attacked became smaller and as winter came on, people returned to London, resumed their business and by February of the next year the Great Plague was over.

A very accurate clinical description of the disease is given by Sydenham, and I will presently refer to it. In regard to the nature of the infection by which the disease is spread, De Foe, after discussing various opinions says: "Others who talk of infection being carried through the air only, by carrying with it vast

numbers of insects, and *invisible creatures*, who enter into the body with the breath or even at the pores with the air, and there generate, or emit acute poisons, or poisonous ovæ which mingle themselves with the blood and so infect the body." Strange that the actual discovery of germs and of the ptomaine theory should have been delayed for two centuries!

The symptoms of the disease are thus described by Sydenham:

"Its first approach is almost always accompanied with shaking and shivering like the fits of an ague; presently violent vomiting, a pain about the region of the heart, a burning fever with the usual concurrence of symptoms perpetually afflict the sick till either death itself or a happy eruption of a bubo discharges the morbid matter and so frees them from that deplorable condition. It does now and then happen that it comes without any sense of fever before and suddenly kills men; the purple spots which are the forerunners of death breaking out as they are about their business. But this sudden death scarce ever happens but at the beginning of a dreadful plague. It sometimes also happens that swellings appear when neither a fever nor any violent symptoms went before. The victims sometimes died within a few hours of the first symptoms, and rarely lingered beyond four or five days. If the buboes suppured it was considered to be a favorable circumstance and they were therefore treated by incision or by caustics."

The other local manifestations were carbuncles, furuncles and ecchymoses. A peculiar and characteristic stench was emitted from the bodies of the sick. At the beginning of the London Plague upwards of 90 per cent. of those attacked, perished. Towards the end of the year the disease seemed to become milder and the mortality was much less.

I have gathered from various sources a pretty accurate description of the epidemic now devastating China, and its identity with the above is undoubted.

The disease first appeared in the Province of Kwantung in the latter part of March and spread principally among the poor and filthy, with frightful rapidity. More than half a million people perished in two months and the great commercial centers, Canton and Hong Kong were soon attacked. In the former city with a population of 1,000,000, the number of deaths exceeded 100,000!

The symptoms are thus described: With or without premonitory warning in the shape of malaria or chill there is a sudden onset of fever, rising to 105 degrees F. or over; there is much headache and cerebral disturbance, accompanied by stupor. In from twelve to twenty-four hours glandular swellings occur in the neck, armpits or groin, rapidly enlarging to the size of a hen's egg; these are hard and exceedingly tender; with or without a decline of the fever the patient sinks into a deeper condition of coma and dies usually at the end of forty-eight hours or sooner. If six days are reached recovery is hopeful. The glandular swelling shows no signs of suppuration, in some cases epistaxis or vomiting of blood occurs. Petechiæ appear in a few but there is no regular eruption. The mortality is about 90 per cent.

In the latter stage of the disease, when the local manifestations are most apparent, the fever usually diminishes and there occurs a sticky and very offensive perspiration. The inguinal and femoral glands are those most commonly affected, although those in the axilla and neck are often involved at the same time. The carbuncles are of less constant occurrence than the buboes and are usually seen on the lower extremities, the buttocks and the back of the neck. Among the sequela in those who finally recover, are

continuous suppuration of the buboes, abscesses of the skin and muscles, pneumonia, dropsy, partial paralysis and mental disturbances.

The malady is undoubtedly a filth disease and caused by a bacillus. Indeed, Professor Kitasato, a competent bacteriologist and a pupil of Koch, claims to have discovered the specific germ. There is no doubt and it has been repeatedly demonstrated during the last one hundred years, that efficient quarantine gives absolute protection from the disease, and that modern sanitary means can rapidly stamp out an epidemic should a few cases be imported into a well ordered community. It has been well named, "the disease of barbarism," from the fact that it only occurs among the semi-civilized. There is little to be said concerning treatment. There is no known specific and the treatment, like that of all acute fevers, must be supporting and symptomatic. Should there be given sufficient opportunity to study this disease scientifically, which is not at all likely, I am convinced that the only specific medication would be found in the development of the antitoxin theory. It is also probable that immunity might be given by inoculation of an attenuated virus. Fortunately our shores are so well protected by quarantine and our communities are so well ordered from a sanitary point of view that it would be impossible for this plague to make much headway within our borders, even should a case or two find their way through the gates of commerce.

THE DESTRUCTION OF CONJUNCTIVAL GROWTHS BY ANIMAL FERMENTS.

BY T. O. SUMMERS, M.A., M.D., F.S. Sc., LOND., ETC.
WAUKESHA, WIS.

Having been for some time past engaged in the work of experimentation upon the therapeutic uses of the animal ferments in surgical diseases, I desire among many remarkable instances of the powerful digestive action of these agents upon the neoplastic structure to call the attention of the profession to a case of cauliflower excrescences upon the conjunctiva of the lower lid, which are well known to the ophthalmologist and have hitherto been considered amenable only to surgical treatment—complete excision. In the case referred to, the lower lid was covered with a number of these growths, columnar in structure and of rapid growth. The removal of them by escharotics was not for a moment to be considered on account of the danger of injury to the normal structures in which they were imbedded. After thoroughly cleansing the surface and applying cocain to relieve the pain I covered the surface thoroughly with a paste of glycerin and peptinzyne (Reed & Carnrick's preparation from the gastric, splenic and intestinal glands). To my great satisfaction I saw that the growths were immediately attacked and after three or four applications they were completely removed without the slightest injury to the surrounding tissues. I consider this a triumph of therapeutics over surgery and heartily recommend the use of these ferments in all these abnormal neoplastic growths which spring up like mushrooms from mucous surfaces. I shall have more to say of the action of the dialytics upon false membranous deposits in another paper upon this subject.

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SATURDAY, SEPTEMBER 22, 1894.

THE JOURNAL OF THE AMERICAN MEDICAL
ASSOCIATION.

By the time this number of the JOURNAL reaches our readers, the goods and chattels of the ASSOCIATION will have been housed in more commodious quarters. It has long since outgrown the little space in the Wabash Avenue building in which for the last decade the business of the JOURNAL has been done and the faithful compositors have worked. The erection of the new city library building cut off the light and air to a great extent. The gas has been lighted continuously during business hours for the last six months, and owing to the cramped space the editorial work had to be done elsewhere.

The editor was last year authorized by the Trustees to secure other and better accommodations, but it was thought best, owing to the unsettled outlook of business matters generally, to wait another year. The year passed, and finds the ASSOCIATION once more with a sufficient balance in the treasury to warrant it, and new offices are being fitted in the Times Building, 84-86 Fifth Avenue, where the members of the ASSOCIATION, and the subscribers to the JOURNAL, will be made welcome should they visit the office.

For the first time in its history, the JOURNAL will in one week from the date of this issue, be printed on its own presses, the best and fastest that can be purchased at this date, while the remainder of the machinery is of the latest and best pattern. No fault can be found with the excellent press work so long furnished by MESSRS. BLAKELY & ROGERS, but it has not only seemed to the Committee on Management, more economical but vastly more convenient, to have all the work done under the immediate supervision of the editor. The experienced foreman, who has been with the JOURNAL, with slight interval ever since its foundation, will continue in that capacity for many

years we hope. While the first outlay will be considerable, the ASSOCIATION will be the gainers in having the office fully equipped, probably better than any medical journal in the world. In business matters it is an axiom that to do business one must be prepared for it. The preparation has now been made and the Trustees confidently appeal to the medical profession at large, scarcely less than to the members of the ASSOCIATION to approve of the great advance in medical journalism by renewed and active interest in the ASSOCIATION, and its JOURNAL, which is published in the interest of the *entire* profession.

In the face of this great improvement in the material interest of the JOURNAL we trust we may be pardoned, if we refer with pride to the steadily onward progress the JOURNAL has made since its commencement. The wisdom of its founders has been made apparent, and the broad lines of development laid down by the first Board of Trustees are bearing their fruit. Carping critics have not infrequently amused themselves by predicting the downfall of the JOURNAL, but supported by the ASSOCIATION, it has continued to prosper beyond the most sanguine hopes of its best friends. With the increase in its subscription list that must follow, the JOURNAL will soon be able to enlarge its scope, by adding new departments from time to time, as its support justifies.

IS SMALLPOX A SPOROZOAN DISEASE?

Smallpox belongs to that class of acute exanthematous diseases like scarlet fever, measles and chickenpox, in which, notwithstanding the patient efforts of bacteriologists, a specific microbe has not been demonstrated. From time to time, since bacteriologic methods have been employed, the report of the discovery of the specific bacterium of one or another of these diseases has appeared, only to be refuted by more extended studies. That smallpox, for example, with its well-marked typical course; its pronounced infectious character; and the long-known possibility of preventive inoculation should escape the most searching analysis of the bacteriologist, is indeed singular. Reasoning from the analogy with other infectious diseases, nothing would apparently be more simple than to isolate from the vaccine virus, the bacterial parasite of smallpox. It is scarcely to be wondered that the few remaining critical scoffers against pathologic mycology have pointed to these negative results with vindictive emphasis.

These failures indicate one of two conclusions: 1, either smallpox is not a parasitic disease; 2, or, being caused by a parasitic organism, this organism is one which does not yield to any of the methods employed in the ordinary bacteriologic technique. To admit the first postulate would be to undermine the whole foundation of modern parasitology. Obvi-

ously, in the still comparatively new state of bacteriologic science, such an inference would be premature. The only reasonable attitude, therefore, toward the unsolved problems of the etiology of that class of diseases of which smallpox is a type, is that indicated by our second postulate—an attitude of patient expectancy.

Recent studies in parasitology, however, tend to stimulate us with the hopes that ere long we may be rewarded by the discovery of specific organisms for many of those diseases which still baffle our investigations. These hopes are kindled by the progress made in the past few years in the study of a class of lowly animal parasites which do not respond to the usual methods of investigation employed by the mycologists. The current literature of micro-biology bears witness to the eagerness with which the work on the protozoan parasites of man and the lower animals is being pursued. The remarkably prolific discussions on the protozoan theory of cancer have furnished the attentive medical world much information concerning this hitherto overlooked (in human pathology) class of parasites. Along this same line is the work that has given us the specific parasite of malaria—a protozoan microorganism* with well defined characters.

The large proportion of the studies on the sporozoa as disease-producing organisms have been confined to the lower animals, especially to the lower vertebrata—fishes, amphibians and birds. The coccidia disease of rabbits and other mammals has long been known. The probable identity of a sporozoon organism residing in the blood of infected cattle, with the parasite of Texas fever, has been established by the investigations of THEOBALD SMITH (Texas Fever, U. S. Department of Agriculture, Bureau of Animal Industry, Bulletin No. 1, 1893; and preceding communications herein referred to).

With these introductory researches on the sporozoon diseases in view, it is not surprising that the presence of the protozoan parasites should have been suspected in those infectious diseases which had escaped the investigations of the bacteriologists. In fact, KOCH predicted more than ten years ago, (*Deutsche Medicinische Wochenschr.*, 1890, p. 757) that in measles, scarlet fever, variola, typhus, etc., which had resisted mycologic study, animal parasites would be found. Doubtless with these predictions in mind, a number of investigators have undertaken the study of the non-bacterial diseases—including smallpox.

For a long time careful observers have noted peculiar bodies ("inclusions") lying in the substance of the epithelial cells of the vesicles of variola and vaccinia. These bodies have been described, and in part, illustrated, by POHL PINCUS, WEIGERT, KLEIN, BAREGGI, PLAUTH, ZÜRN, ISIDOR NEWMAN, BIRCH-

HIRSCHFELD, HELFAUT, CORNIL and BABES. These pioneers did not, however, suspect the parasitic nature of these cell inclusions.

L. PFEIFFER (*Monatshefte f. prak. Dermatologie*, Bd. vi, Nr. 10-15, 1887; and *Die Protozoan als Krankheitserreger*, 1890, and 1891) was the first observer to ascribe to these intra-cellular bodies in variola and vaccinia a parasitic protozoan character. VAN DER LOEFF (*Ibid.*, Bd. vi, Nr. 5 u 10) published his observations almost simultaneously with PFEIFFER. The reports of PFEIFFER and VAN DER LOEFF were confirmed by the studies of GUARNERI (*Archivo per le Scienze Mediche.*, Vol. xvi, Nr. 22, 1892) on smallpox.

Recently, RUFFER and PLIMMER (*British Medical Journal*, No. 1748, page 1412, 1894) have reviewed the previous work and have, in their personal researches, been able to substantiate the claims of the foregoing authorities who regard as protozoa the cell inclusions of smallpox.

PFEIFFER describes the sporozoa of smallpox as existing in two forms—a free flagellate organism residing in the blood plasma; and an amœba-like inclusion in the epithelial cells. In a case of vaccinia in a child he found the free flagellate protozoa in the blood at the fourth day after vaccination and marked their presence until the sixth or seventh day had expired. When stained by the Biondi Ehrlich reagent the organisms exhibited a small central nucleus; and in preparations stained by the Biondi-Ehrlich reagent, and followed by Löffler's flagella stain, distinct flagella were noted—a single flagellum to each organism. PFEIFFER found similar organisms in the blood in cases of varicella and zooster. He was rarely able to discover these amœbæ in segmentation stages as observed in the plasmodia of malaria. Similar forms to those just described, but minus the flagella, were found in the contents of newly formed vesicles of zooster, varicella and vaccinia. The amœbæ were never found in the substance of the red blood corpuscles, and the investigator concludes that the free parasites in the blood represent but one stage of the infection.

With the disappearance of the organisms in the blood in smallpox, a secondary cell infection makes its appearance in the epithelium of the epidermis. A similar phenomenon occurs in the *stratum lucidum* in scarlet fever, zooster, varicella and measles. The intra-cellular bodies increase in size, pushing the nucleus of the cell to one side. Bodies similar to these cell inclusions also appear in the cellular interspaces of the epidermis. Eventually these inclusions, after increasing greatly in size, undergo a multiple segmentation with the production of countless, very minute spores.

This is, in substance, the description given by PFEIFFER of the sporozoon parasites of the acute exanthematous diseases, and it is, in the main, sub-

stantiated by the more recent investigators above cited.

The whole subject of sporozoon parasitology is still in its infancy; and we have much to learn ere we can definitely discuss any of the interesting problems suggested by this line of work. The knowledge of the morphology and biology of these parasites is still largely undetermined, even in the case of the best known sporozoa of comparative pathology. Notwithstanding repeated efforts, we are still practically unable to isolate and cultivate in artificial media, these peculiar organisms. Thanks to the patient work of comparative pathologists, however, we are coming to a better understanding of the life history of the pathogenic sporozoa; and the immediate future doubtless has in store for us a method of artificial cultivation. What OGATA has accomplished in the cultivation of certain of the larger protozoa will soon be applied to the sporozoa.

With these facts in mind we must regard as very suggestive and very promising the researches into the sporozoon character of the acute exanthemata. When it is remembered, for instance, that such a well known protozoan as *Heteromita* has been repeatedly observed, in its multiple fission, to form spores so minute as to be almost beyond detection with the most powerful lenses of the present day, then it will not appear so remarkable that many of the protozoan parasites have escaped detection. With this well established phenomenon in mind it would not be difficult to account for the fact that up to the present time no visible organism has ever been detected in the vaccine virus, with the clinical effects of which we have been so long acquainted. The "resisting spores" of smallpox doubtless exist in so minute a form as to be ultra-microscopic.

HAS VACCINATION ANY THERAPEUTIC EFFECT?

PROFESSOR COMBEINALE furnishes the *Bulletin Médical du Nord* his conclusions as to the necessity of re-vaccination and, incidentally, as to the effect of vaccination performed during the incubative stage of smallpox. These conclusions are founded upon his observation of 330 cases of the disease during the epidemic of 1891-92 at Lille—89 of the cases being children under 12 years of age. He concludes that: 1, it is necessary to re-vaccinate children every five years; 2, adults can be assured of real and continued immunity only when they, too, are re-vaccinated every five years; 3, in case of failure of vaccination in children it must be repeated every year until successful; 4, re-vaccination during the stage of incubation does not influence the course of the disease any more favorably than a primary vaccination—meaning, it is assumed, that the vaccination performed on a previously vaccinated person after

the disease had been contracted, would have no influence. Unhappily, the subjects involved in these conclusions promise to be of more than passing interest to the profession in this country during the next few months. As indicated in last week's JOURNAL, there is a general apprehension among health authorities of an epidemic prevalence of smallpox this coming winter.

Passing over his conclusions with regard to the necessity of re-vaccination, it may be worth while noting that COMBEINALE's fourth conclusion as to the inutility of re-vaccination during the incubative stage of smallpox does not accord with that of the late DR. RAUCH on the same subject. In an argument advocating the use of humanized, rather than of bovine, virus—on the ground of the greater promptness and certainty of action of the former—DR. RAUCH asserts most positively the therapeutic value of vaccination as well as its prophylactic power¹. His language may be profitably quoted in this connection, when opportunity for the application of its lesson may be afforded in the near future. "Thus," he says, "if a patient be vaccinated during the febrile stage and the vaccination progress normally—there being nothing antagonistic between the two diseases, variola and vaccinia, to prevent such normal progress—the areolar stage of vaccination will be reached before the dangerous tenth day of the variolous disease; and, as has been repeatedly witnessed [during the epidemic of 1881-83] the graver disease will be aborted, jugulated or materially modified." As an illustration of this abortive power of vaccination he cites an instance (MARSON'S?) which, he asserts, was almost exactly paralleled in the epidemic under his observation: Of three children, equally and simultaneously exposed to a case of smallpox, one had been vaccinated and the other two were unprotected; the former escaped entirely, but the others in due time exhibited the usual symptoms of the disease; one of these was vaccinated immediately on the appearance of the symptoms, but the other remained unprotected; the disease seemed equally severe in both up to the eighth or ninth day, when the vaccinated child began to improve, the pustules dried up, no secondary fever followed and the case went on to convalescence; "in the unvaccinated child the disease runs the usual course of unmodified smallpox, and during the tenth to twelfth days—the period of greatest mortality, and when the other child is entirely out of danger—this one has about equal chances for and against recovery."

Finally, in a study of 1,931 cases of the disease during the epidemic of 1881-83—nearly six times the number observed by the French writer—DR. RAUCH found that, whereas, the average duration of all cases

¹ The Relations of Smallpox and Vaccination. By John H. Rauch, M.D., Springfield, Ill., 1884.

non-vaccinated, vaccinated and re-vaccinated, was 20.8 days (rising to 29.8 days in the non-vaccinated), the duration was only 13.8 days in those re-vaccinated after exposure, *i. e.*, during the stage of incubation. Not only this, but the veteran American sanitarian has shown that, while 93.18 per cent. recovered of those who were vaccinated or re-vaccinated *before* exposure only, 94.20 per cent. recovered of those vaccinated *after* exposure only; and all cases—sixty-eight in number—recovered who were vaccinated both before and after exposure. It was upon these results that DR. RAUCH based his apothegm: *It is never too late to vaccinate.*

CORRESPONDENCE.

Cataract Extraction, an Office Operation.

Reply to Dr. Kollock's Letter.

Sr. Louis, Mo., Sept. 18, 1894.

To the Editor:—I do not usually take public notice of such an article as the one by Dr. Kollock, of Charleston, S. C., in the JOURNAL of September 1, condemning the methods of dealing with cataract patients as practiced more or less by Drs. Cheatham, Le Mond, myself and others. I might add, *many* others; but the wide circulation of our JOURNAL and the severity of the criticisms calls for a word of defense for myself, as well as for the other gentlemen named, for the quite large number who have not as yet published their experiences with this method and are conscientiously and satisfactorily making use of it. Dr. Kollock openly condemns the procedure without offering any well founded reasons for so doing beyond mere opinion.

Such a course as this is not conducive to the advancement of science in any of its departments, but rather is the spirit that checks progress. According to the views expressed by Dr. Kollock any one who departs from the "well beaten path" should fall under the condemnation of all "conservative surgeons;" and, he suggests, become liable to suit for malpractice,—a spirit of uncharitableness in the profession that we had hoped was long since extinct. It is that spirit which has in all times opposed true progress. Any procedure in surgery that is fraught with danger is sure to bring its own condemnation and lead to its abandonment. If I am a "progressive and intelligent ophthalmologist," as the gentleman gives me the "honor" (?) of being, I certainly would not tenaciously hold to and advocate a method that contained any essential elements of danger. About eight years' experience with the method in question on my part, and fully nine years by Dr. Cheatham certainly ought to have shown us the danger, if danger there be, in it. Every operation on the eye is attended by some risk, and we can not always foresee where the point of danger lies, but we usually see it afterward.

I have shown in former articles on this subject that the great secret of success in cataract extraction lies in a well performed and smooth operation done under strictly aseptic rules, and followed by a careful adjustment of the lids over the globe (for which I prefer a strip of plaster), and interfering as little as possible until the corneal wound has united. Hardly any one will gainsay this proposition. As to the control of the patient after the operation the views of men of large experience radically differ, but one thing must be noticeable to every one who has followed this subject, and that is, the old method of bandages, dark rooms and strict confinement in bed are being rapidly abandoned

by the ophthalmologists of to-day. Nothing ever brought me more expressions of gratitude from my patients than the abandonment of dark rooms. Next to this came the omission of bandages; and last, the greater liberty allowed my patients after extraction. In my hands these departures from the stereotyped methods have proved blessings to the afflicted, but they each and severally have suffered opposition and criticism by the profession.

Ours is an experimental science, and the conservative experimenter, not the reckless adventurer, is the one who makes valuable improvements in our methods of dealing with disease without sacrificing his patients.

In adopting cataract extraction as an office and dispensary operation I led up to it by very cautious steps and well matured convictions. My several contributions on this subject show it. When fully convinced of the safety of the procedure I began to advocate it on the ground of its many advantages. The first question to determine its claims for adoption is, *Is it safe?* To whom should we look to answer this question? To the men who have made repeated and fair tests of it, or to those who have never tried it, perhaps never saw it used, and who, as the Western politician would say, are "constitutionally agin it?" For information on this subject I would refer Dr. Kollock and all who think as he does to the reports of Dr. Cheatham, myself, and to the experience of others whose names I could give. No man who has had the courage to rise above "popular opinion" and make a test of it has ever after had any fears of performing an extraction in his office and allowing the patient to go home. The invariable experience has been, in so far as I know, *it is eminently satisfactory and the results are as good as are obtained when the operation is performed on the bed where the patient is to lie.* Dr. Cheatham reports better results with his fifty-three cases, and I have certainly had better results since adopting it, but I attributed it to greater dexterity in operating. If the method is safe, then what are the advantages that can be claimed for it?

First, the appointments of a well arranged office or dispensary furnish much better facilities for performing a neat and skilful operation than the home of the patient. These advantages are of much importance. This is particularly the case with poor people who constitute the great majority operated on. As has been already suggested, a well performed operation is far more important to success than the pose of the body afterwards. The element of time can not be ignored by the busy surgeon, and the saving in this particular is very great, especially in a large dispensary practice. The extent of territory from which dispensary patients are often drawn in our large cities makes this a very important item. The chief surgeon can do the operation and one of his assistants can visit the patient and render the necessary after attention. Such important work should not be given out to inexperienced operators. The poor are entitled to the same skill as the rich, for their sight is just as valuable, and to them more important. See what Dr. Baker has to say in his address as President of the Section on Ophthalmology, on the subject of who are qualified to operate for cataract. Many dispensary patients will not suffer any one but the chief surgeon to operate on them, and his services become necessary. Certainly by far greater opportunities for success are given the patient skilfully operated on at the dispensary and permitted to go home, than would be given him if some unskilful operator were to go to his home and perform the operation. By carrying his parody of reasoning a little further, Dr. Kollock would render every surgeon liable to suits for malpractice in the legitimate pursuit of his calling. Every operator has some methods peculiar to himself that others object to, but which he honestly prefers. Why not grant him the privilege of exercising

his personal judgment and discretion if he is so entitled by reason of his experience, learning and observation?

In conclusion, I will only say: If I have sown "dangerous seed" I may look out for thorns and thistles, but so far it has been my observation, and the observation of many others who have adopted the procedure, that the extraction of cataract as an office or dispensary operation has borne only good fruit. I would humbly request Dr. Kollock to make a test of it before he writes another criticism. If he does a neat operation, other conditions being favorable, I guarantee a good result.

T. E. MURRELL, M.D.

Emasculation and Ovariotomy.

HAMILTON, OHIO, Sept. 17, 1894.

To the Editor:—The article on this subject by Dr. Robert Boal, in your issue of September 15, leads me to think that the belief in castration for crime is orthodox in the medical ranks. In the Cincinnati *Lancet-Clinic* of August 25, I protested against that proposed punishment, and up to date I have not found an article or editorial on that question which was at all heretical.

The castrationists seem to forget that after castration society deals with a eunuch, not with a man; and while lauding the virtues of the lazy, fat, oriental eunuch, whose ideas of individual rights are almost *nil*, they overlook the fact that our emasculated product, before deprived of virility, was a desperate, vicious person who had a very clear conception of rights, even though he had no regard for them. It is very doubtful if the American eunuch would be the docile, useful thing that his Asiatic prototype is. On the contrary, there are many reasons why he would become a dispenser of dynamite. There seems to be some causal relation between over-government and explosives. At least they are found together.

If castration and ovariectomy are begun, where will be the stopping place? If the morally weak and undeveloped are to be unsexed, is it not consistent to do likewise to the physically deranged—the puny, the weak, the tuberculous? If an affirmative answer is given, then it may be asked who can pose as the infallible arbiter who will say when operation is needed? Difficulties would here arise which no mortal judge could cope with. It would be impossible for a supreme court made up of Galtons and Ribots to say what would be the offspring of any given parents. This nice old couple has been sorely troubled by a vagabond son. Should that couple have been sterilized? Remember the proverbial wickedness of preachers' sons. On the other hand, remember that Australia was partly colonized by convicts; and that waifs from the metropolis often do well when taken to the country.

Rights imply duties. My right to talk, to move, to live, in short to exercise my faculties, provided they do not interfere with the like faculties of others, implies that it is the duty of all men not to infringe on my rights. It may therefore be questioned on the grounds of equal freedom, the alleged right of the community to hang, to imprison in some barbarous place, or to castrate. That the criminal should be restrained, and that society should be protected, no sane man will deny; but no humane man will for a moment think of anything but ultimate reformation of the evil-doer, and that, without the destruction of a faculty.

If the criminals' rights are denied, one can consistently say that one has no duties to them. Such an attitude is not fair to the criminal; while to free men it is demoralizing, inasmuch as it tends to make them oblivious to the great ethical law—the law of equal freedom to all. That castration would not accomplish what is expected of it, and that it

would encourage cruelty, despotism and anarchy, I have attempted to show in my article mentioned above.

Now if castration *must* be tried to see how it works, may the official castrator not forget some prison officers, skilled in torture; some policemen, who believe their efficiency proportionate to the number of their arrests; some judges, who stupidly say, "thirty days," and who really imprison for poverty; some commissioners, who perpetuate our vile county jails—"compulsory schools of crime at public expense"; and last but not least, some tenement-house owners.

Castration and ovariectomy as penalties for crime, can not be reconciled to any ethical system worthy the name. It savors of the ethics of the forest, the sea, and the air, best shown by the wolf, the shark, and the dragon-fly.

Many crimes have been committed in the name of law and religion, but here is a proposed one under the guise of science. That science will do more than religion or law to make men better, I really believe; but it does not appear to me to be scientific to attempt reformation by deformation; or to try to insure the survival of the fittest by blunting the moral sense of the whole community. Surely it is a greater triumph to guide the morally diseased to health, or even to try it, than to change their natures by destroying hopes and powers.

Some day the story of humanity's struggle with brutal punishment will be written, and I fear that it will not reflect the credit on the present medical profession that the history of most reformers has.

In conclusion let me call attention to the writings of that much maligned man, Gov. John P. Altgeld. His criticism of the penal machine would not inspire the castrationists.

Yours very sincerely,

MARK MILLIKIN, M.D.

The Oldest Doctor.

PULLMAN, ILL., Sept. 17, 1894.

To the Editor:—I observe that in the *JOURNAL* of September 15, Dr. Corson, of Montgomery County, Pa., is declared the oldest physician in the United States, which, if the date of his birth given is correct, is doubtless true.

Dr. Lewis Dyer, residing in Du Quoin, Ill., was born Feb. 24, 1807. He graduated in medicine in 1828, was Surgeon of the Eighty-first Regiment Illinois Volunteers from August, 1862, to the close of the war, and is doubtless the oldest army surgeon living in the United States, unless Dr. Corson was in the army.

Dr. Dyer is in full possession of his mental faculties, does some consultation practice, reads the journals, and takes great interest in the current events of the day.

I called on him a month since, and found him reading the history of the late war, and on his table were maps and charts of campaigns and battlefields, which he was consulting.

JOHN McLEAN, M.D.

Objects to Animal Extracts.

CLINTON, IOWA, Sept. 12, 1894.

To the Editor:—In the issue of August 25, appears an advertisement of the Columbian Chemical Company setting forth the virtues of "Ovarine," presumably an extract of pigs' ovaries, with quotations from Professor Hammond and others, having reference to the healing qualities of animal extracts in general, and this one in particular. Then follows a letter from E. Houston, M.D., who has boldly put "a highly intelligent lady, aged 26 (presumably married) on ovarine as a steady diet, which he proposes to 'continue till she becomes pregnant,' when he promises to report further.

In the same issue, Armour & Company offer to send to

any member of the profession samples of desiccated thyroids which the enterprising firm claim has produced most gratifying results. Then follows some unscientific and misleading statements asserted to have been made by Prof. Solomon Solis-Cohen.

I would suggest to the Columbian Chemical Company, and Armour & Company to enlarge their field of usefulness by furnishing the regular profession with tr. uteri, testicular fluid, tablet triturates of perineal gland, elix. gray matter (avoiding an infringement on "cerebrin") granulated liver, dosimetric granule of appendix vermiformis. Finally, I would ask the publishers if it is not time to expunge such "rot" from the advertising columns of a journal which claims to be an exponent of the best there is in scientific medicine to-day?

Very truly yours,

ALBERT REYNOLDS, M.D.

A Case of Abortion.

WHEELING, W. VA., September, 1894.

To the Editor:—The following case terminated so happily that I feel like recommending the method as much more safe than that employed in a case recently before our court, in which the fundus of a pregnant girl had been punctured by a sound with fatal result.

Mrs. A., age 25 years, mother of two children, last menstruated August 5-8. At 10 A.M., September 14, thirty-seven days after last date she introduced the closed end of a common wire hairpin into the cervix, in the effort to produce an abortion. It slipped from her fingers and disappeared beyond her reach. Eleven hours later I saw her, and no sign or symptom of local disturbance was present. My index finger, inserted as far as possible into the cervix, felt no foreign body. I concluded that the woman was so agitated during her criminal effort that the pin had dropped into the vagina, and afterwards escaped; or, that she was lying to me in the hope of inducing me to explore the uterus in search of a hairpin and to deliver her of a fetus instead. I, therefore, concluded to defer action and instructed the woman to send for me if certain symptoms presented.

September 25 at 10 P.M.—Twelve days after the hairpin was said to have been lost I was called again and found that an abortion had occurred an hour before. This history was elicited: In the afternoon of each day since my former visit, a little bleeding had occurred, but none at other times. No pain had accompanied this. Bleeding was continuous on the 23d, 24th and 25th. On the last day patient walked three-fourths of a mile to spend the day with a friend, and walked home in the evening. Bleeding was free during the afternoon, and at 7 P.M. pain set in for the first time. Two hours later the abortion occurred.

On examination, I found the cervix just sufficiently open to admit the index finger. A portion of the ovum remained and lying perpendicularly I felt the hairpin, the open ends downward. After several failures, I at last grasped both ends of the pin with a uterine dressing forceps, and removed the instrument of death. From the rounded end to the open extremities, it measured two and a quarter inches. No damage to the uterus seemed to have resulted from a twelve days' presence of its unusual tenant, and the patient had an uneventful convalescence.

S. L. JEPSON, M.D.

BOOK NOTICES.

Young's Orthopedic Surgery; A MANUAL OF ORTHOPEDIC SURGERY, FOR STUDENTS AND PRACTITIONERS. By JAMES K. YOUNG, M.D., Instructor in Orthopedic Surgery, University of Pennsylvania, Philadelphia. In one octavo volume of 446 pages, with 285 illustrations. Cloth, \$4; leather, \$5. Philadelphia: Lea Brothers & Co. 1894.

There will be found little that is new in this book; it is apparently a book written as a text-book for students, from which they may memorize the general principles of the orthopedic art. What is in the book is clearly stated, the arrangement is excellent, and as a rule the teaching is sound

and conservative. The author in speaking of the severer operations on the foot, such as Ogston's says, p. 393: "These severe operations should only be resorted to when milder measures, after due trial have failed; for comparative relief will in the majority of cases be obtained by the milder remedies in about six or eight weeks, whereas several months are required after any cutting operation upon the tarsal bones before the foot may with impunity be freely exercised." The same wise conservatism is seen in speaking of erosion, p. 125: "The operation as thus performed substitutes in many cases the graver operation of excision, and where the bone destruction has been small it offers great advantages over the latter operation." In the treatment of pes planus the steel spring arch for the sole is commended. The use of iodoform emulsion injection is not mentioned nor are many operations described; as for all major operations the reader is referred to works on general surgery.

The Science of Vital Force; Its Plan, Division of Functions and Operative Methods in Health and Disease, an involuntary agent of nature that can be harnessed and utilized. By W. R. DUNHAM, M.D. CL., pp. 198. Boston: Damrell & Upham. 1894.

The author says: "The object of this volume is to designate and demonstrate the fundamental principles of the science of vital force—a department of natural science that is directly applicable to the preservation of health and the treatment of disease. It is implied in fundamental principles and laws of Nature not yet recognized and presented for consideration, and is a department of science that will require a large amount of literature to illustrate its practical application to individual and national affairs. It also implies a revolution of the recognized plan and principles of a department that has been erroneously presented; a revolution as significant as was effected in the ideal change of the solar system, and the principles involved as being as capable of a positive demonstration. We allege that medical practice both regular and irregular is based on imaginary fundamental principles as unreal as was the Ptolemaic system of astronomy on theories that are as insufficient for the safe guidance of treatment, and dangerous in their application."

After this introduction the reader is at once prepared for a startling demonstration, but the author soothes us on page 16 by saying that "this whole matter is easy of comprehension when considered from a correct standpoint." The author then gives various definitions and divides vital force into four ultimate vital properties, namely, *sensibility, instinct, sensation and contractility*. No one can seriously disagree with the definitions and interpretations the author gives under these divisions, but there may be serious differences of opinion as to the extent and degree of "revolution" that may follow acceptance of them.

The book should be read carefully, and when so read can not fail to be appreciated. It is entertaining, novel and instructive.

Fundamental Problems, THE METHOD OF PHILOSOPHY AS A SYSTEMATIC ARRANGEMENT OF KNOWLEDGE. By DR. PAUL CARUS. Pp. 373, paper. Chicago: The Open Court Publishing Company. 1894. Price 50 cents.

This is a work, somewhat remarkable for its makeup, and as it is intended to occupy a new field in literature, it is filled with definitions of terms old and new.

Its chapters on Ontology and Positivism; Sensation and Memory; Cognition; Knowledge and Truth; the foundation of Monism; Form and formal Thought; with its survey of Kant, etc., goes to show we have to deal with an independent thinker, whether we accept his premises or not. These papers have been previously published in the *Open Court*.

There has been added an appendix in which the critics from various quarters have received an appropriate answer. How far the author has succeeded we must leave our readers to judge, simply reminding them of the words of Solomon that "of the making of books there is no end," while as a matter of fact there is nothing new under the sun. The effect of the word, "unthinkable," as used by our author is the same as inconceivable, and it seems as if much of the new philosophy consists in the invention of new forms of speech rather than the expression of new ideas. Metaphysics and psychology seem drifting into the hands of mere word jugglers.

The New Sydenham Society's Treatise on Malaria.

This volume consists of two parts, the first giving a translation of the monograph of Marchiafava and Bignami, the translation having been done by Dr. J. H. Thompson, formerly of Washington, D. C., with revisions by Dr. T. E. Charles, of Rome; the second part comprising an essay by Dr. Julius Mannaberg, translated by Dr. Felkin of Edinburgh. The original work of Bignami, in 1890, in aid of the differentiation of the forms of parasite in the different manifestations of malarial fever forms an important part of the first monograph. His opportunities led him to a study of the morbid appearances met post-mortem in malarial diseases, and he endeavored to interpret the ante-mortem systems by the knowledge gained from those phenomena. Quartan fever was found to be due to an amœba whose cycle of life is three days. The sporulation or segmentation of the amœba is complete at the time of febrile paroxysm, and much pigment forming is incident to the development of the parasite. After the paroxysm, the young amœbæ without pigment, may be seen in the red corpuscles. Tertian fever has for its parasite one whose life cycle is two days only. The amœbæ of the quartan variety discolors the red corpuscles less rapidly and less thoroughly than that of the tertian. Their movements are less lively in the quartan form. The quartan parasite has more sharply defined outlines than the other. The granules of pigment in the quartan amœbæ are coarser than in the other. The two varieties, also, exhibit differences as to the manner of their sporulation. There is a plasmodium of the quotidian intermittent, also, whose life cycle is a day. This is to be seen especially at the height of the paroxysm, one or two of the parasites occupying the red corpuscle and manifesting a power of lively movement; in shape sometimes annular and sometimes discoid. The amœbæ of the malignant forms of fever are peculiarly active in propagation and lively in movement. This malignancy is more often a sequel to the quotidian and tertian fevers, and is probably an expression of the cerebral complications created by the amœbæ and their hematic changes. In reference to malarial melanemia, Dr. Mannaberg's treatise advances the idea that the melanin is an undigested residue of the nourishment, exacted by the parasite from the corpuscle; and may, with propriety, be described as a parasitic fecal matter, although it has not been extruded or voided. The anemia of the fevers appears as an inevitable result when it is seen how largely the red corpuscle is fed upon and demolished by the parasite. The compensating power of the blood-forming organs of the system is still the unknown factor which must next be wrought out by these or other expert observers. Until this shall have been done, we will still be unable to explain why it is that certain of our malarial patients resist the anemic and melanemic symptoms so much more readily and steadily than do the other and easier victims to paludal poisoning. Regarding the laboratory work done with quinin in connection with the plasmodium, the earlier monograph gives the best summary of expert opinion and investigation.

The above facts regarding this new publication are drawn from an early notice of the book, appearing in the *London Lancet*, pp. 258-260, for August 4, 1894.

Transactions of the Texas State Medical Association.—Twenty-sixth annual session held at Austin, Texas, April 24 to 27, 1894. Pp. 450. Galveston. 1894.

The volume contains a list of the officers and members, constitution and by-laws, the minutes of the meeting, and the papers read at the session with the discussions thereon. The resolutions passed by the Association, include a resolution in favor of a Secretary of Public Health, and a Department of Health, and by formal vote it accepted the invitation of Chairman Holland to attend the meeting of the Mississippi Valley Medical Association which will meet at Hot Springs in November next. In addition to the usual section divisions, this society has a section on microscopy and pathology which judging from the printed papers is doing excellent work. The Texas transactions are yearly growing more interesting.

SOCIETY NEWS.

Mississippi Valley Medical Association.—The twentieth annual meeting of this well-known organization will be held, as previously announced, at Hot Springs, Ark., November 20, 21, 22 and 23, 1894.

The general committee of arrangements held their final meeting on September 1, in the city of St. Louis, there being present, in addition to the committee, President Scott, of Cleveland, Vice-President Strauss of St. Louis and Secretary Woodburn, of Indianapolis. Dr. T. E. Holland, of Hot Springs, presided. All of the preliminary arrangements for the meeting of the Association were completed.

Owing to the hearty coöperation of the railroads, the arrangements in this direction will surpass those of any previous meeting. On motion of Dr. I. N. Love, of St. Louis, a committee of five railroad officials was appointed to secure the desired reduction of rates. This committee consists of Messrs. Townsend, Crane, Snyder, Wishard and Ives.

The interest and enthusiasm manifested in all parts of the country concerning the meeting in November, is certainly remarkable. The fact that Hot Springs is to be the meeting place is probably an inducement for many to attend. From the large number of favorable responses to his preliminary announcement, the Secretary feels justified, even thus early, in predicting an attendance double that of any previous meeting of the Association.

Let every doctor who can possibly leave home for a few days go to Hot Springs in November. Let him take his family and his friends and not only a profitable meeting, but a royal good time will reward him for the exertion.

FREDERICK C. WOODBURN, M.D., Secretary.

399 College Avenue, Indianapolis.

Tri-State Medical Society of Iowa, Illinois and Missouri.—The third annual session of the Tri-State Medical Society will be held at Jacksonville, Illinois, Oct. 2 and 3, 1894. The Secretary is authorized to announce that papers will be read by the following gentlemen: J. H. Kellogg, M.D., Battle Creek, Mich.; Joseph Eastman, M.D., L.L.L., of Indianapolis, Ind.; A. H. Ohmann-Dumesnil, A.M., M.D., of St. Louis, Mo.; W. B. LaForce, B. S., M.D., of Ottumwa, Iowa; J. J. M. Angear, A.M., M.D., of Chicago, Ill.; Sarah Vasen, M.D., of Quincy, Ill.; Charles W. Adams, A.M., M.D., of Kansas City, Mo.; E. H. King, M.D., of Muscatine, Iowa; Heine Marks, M.D., Louis, Mo.; John Punton, M.D., of Kansas City, Mo.; Boerne Bettman, M.D., of Chicago, Ill.; F. B. Dorsey, M.D., of Keokuk, Iowa; J. F. Binnie, M.B., C.M., of Kansas City, Mo.; Anne H. McFarland, M.D., of Jacksonville, Ill.; James H. Etheridge, A.M., M.D., of Chicago, Ill.; A. A. Henske, A.M., M.D., of St. Louis, Mo.; M. P. Hatfield, M.D., of Chicago, Ill.; Ellet Orrin Sisson, M.D., of Keokuk, Iowa; B. B. Griffith, M.D., of Springfield, Ill.; Jacob Block, M.D., of Kansas City, Mo.; James A. Close, M.B., M.R.C.S., of St. Louis, Mo.;

James Moores Ball, M.D., of St. Louis, Mo.; W. M. Catto, M.D., of Decatur, Ill.; J. Fred Clarke, B.S., M.D., of Fairfield, Iowa; Geo. D. Purinton, A.M., M.D., P.H.D., of St. Louis, Mo.; S. G. Gant, M.D., of Kansas City, Mo.; D. C. Brockman, M.D., Ottumwa, Iowa; Frank Parsons Norbury, M.D., of Jacksonville, Ill.; Robert H. Babcock, M.D., of Chicago, Ill.

It is expected that Professors Senn and Murphy, will both be present and read important papers. The second day's session will be held in conjunction with the Capital District Medical Society of Illinois.

It is expected that reduced rates will be obtained on all railroads, and no doubt the meeting will be the best yet held in the history of the Tri-State Medical Society.

The Address on Medicine will be delivered by N. S. Davis, Jr., of Chicago. The Address on Surgery will be by Dr. A. V. L. Brokaw, of St. Louis.

JAMES MOORES BALL, M.D., Secretary.

810 Olive Street, St. Louis, Mo.

PUBLIC HEALTH.

Anthrax in Hides Again.—M. Lancereaux has recently made a communication to the Council of Hygiene of Paris (*Progrès Médical*) concerning three cases of malignant pustule resulting from handling foreign hides which should have been disinfected before being touched. Unfortunately, all agents hitherto employed for this disinfection, especially the sulphate of copper, cause a deterioration of the hides, so that there is a disposition to evade this requirement whenever it can be done. Schutzenberger has proposed the use of formal which is to be tried.

Deforestation as a Cause of Mortality.—Descourtis claims (*Revue d'Hygiène*) that deforestation of a given region increases the death rate. His argument is founded on the investigations of Dr. Jeanel, who reports that the mortality in the woodless departments of France, is 1.64 per 100, while in those with forests the mortality is only .18 per 100. The proportional loss then is nine times greater in the thirty treeless departments than in the fifty-seven wooded departments. If deforestation is really the cause of the disproportionate death rate and of the diminished population in many parts of France it must be regarded with as much solicitude as the contamination of water supplies, unhealthy dwellings or the contagion of zymotic diseases.

Insanitary Condition of Havre.—Prof. Brouardel, in a lengthy paper of some thirty pages in the *Annales d'Hygiène*, reviews the general sanitary state of the city of Havre, the hotbed of typhoid fever in the south of France. He does this by discussing the memoir of Dr. Gibert, in which it is contended that pollution of the under soil of the city is the only cause of the defective sanitary conditions which exist, while Prof. Brouardel attributes the prevalence of typhoid and other zymotics to the polluted water supplies. It is very evident that Havre is in great need of thorough sanitary regeneration, which the discordant views of these two savants only emphasize.

Source of a Typhoid Fever Epidemic.—Another outbreak of typhoid fever is traced to the dairy as its source. The little village of Montlignon near Paris has had a visitation of the disease for some months past. Dr. Hourlier, one of the attending physicians, undertook an inquiry with regard to the method of spread of the infection and communicates to *Progrès Médical* the following conclusions: The first case, origin unknown, occurred in a child May 15, who recovered. The clothes of this child were washed in a brook which flowed past a milkman's place and this milkman was in the habit of washing his milkpans in the brook. Dr. Hourlier is con-

vinced that this man carried the disease in the milk served to his customers and directly traced to this source one case in the person of another dairyman who, being out of milk for his own use, borrowed some from the first milkman and was subsequently attacked. The village authorities have instituted vigorous prophylactic measures.

Epidemic Diseases.—Although the cholera continues to spread in Russia, Galicia, Bukovina, in certain parts of Germany and in Holland there is no uneasiness felt except as to Marseilles, the sanitary state of which, *re cholera*, causes much anxiety in the south of France. Simultaneously with the announcement in consular reports of the presence of the cholera at that port, the municipality suspended the publication of statistics as to the number and the causes of deaths usually issued. The *British Medical Journal* says there was undoubtedly choleraic disease in Marseilles early in August, and the reticence of the authorities encourages the belief that matters have not improved and that the disease is really Asiatic cholera. Elsewhere, except as mentioned, the disease gives no serious concern and the danger for this country for the present season is steadily subsiding.—Thus far the development of the smallpox incidence in the United States is mainly in the interior, and in the States of Indiana, Illinois and Wisconsin. Secretary Metcalf of the Indiana State Board of Health reports to the *JOURNAL*, since August 16, four cases in Kosciusko County; one in Whitley County; two in Indianapolis, Marion County; one in Marion, Grant County. The case in Whitley County and the four new cases in Kosciusko County were the results of exposure to the original case in the latter county. The first case in Indianapolis was in the person of a negro tramp who said that he had recently come from Chicago. The case in Marion was that of a lady who recently came from North Dakota and, on her way to Indiana, stopped over for a short time in Milwaukee and Chicago. The origin of the Walker-ton outbreak has not been satisfactorily determined. There is a gradual increase in the number of new cases—including arrivals from other infected places—in Chicago, and an occasional case appears in the State at large. During the week a case was reported at Toluca (?) said to have been contracted in Chicago. The City Council of Chicago will be asked, immediately on its re-assembling, for an appropriation for a permanent contagious-diseases hospital. The situation is not materially improved in Wisconsin, although the Health Commissioner of Milwaukee has been sustained by the courts. A dispatch from La Crosse, dated the 17th, announces that Dr. Charles Marquardt of the State Board of Health is down with the disease at his home in that city; the disease was contracted in Milwaukee while there on official business. The disease has also been imported from Milwaukee into Racine County. There are a number of cases in Leavenworth, Kan. In Detroit, Mich., the outbreak has almost entirely subsided. New cases continue to occur in New York city, chiefly in one locality. The Newark, N. J., City Board of Health has applied for an extra appropriation of \$25,000 to defray expenses incurred in suppressing the smallpox outbreak in that city.

Diphtheria at the Congress of Hygiene.—At the recent International Congress of Hygiene, at Buda-Pesth, Prof. Oertel proposed an international investigation for the better understanding of the origin and spread of diphtheria. He sketched a form which will entail an exhaustive inquiry into the whole subject, regarding feeding, exposure, climate, dwellings, surroundings, etc. He urges that by comparing the results of such an investigation, carried on in Europe and in America, some more satisfactory knowledge may be obtained than that which we now possess.—Prof. Löffler said that the specificity of the diphtheria bacillus and

the value of its recognition as a means of diagnosis in doubtful cases are now generally recognized, and he strongly advocated the appointment of bacteriologists in every district, to whom should be committed the duty of making the necessary examinations.—Dr. J. S. Billings, for the American Committee, showed by a series of maps that in 1880, out of every 1,000 deaths from known causes 78 were due to diphtheria, whereas in 1890 only 49 per 1,000 were ascribed to that disease. In the rural districts of America the proportion in 1880 was 83 per 1,000, and in the cities and towns it was 57 per 1,000; but in 1890 these figures had fallen to 49 for the country and 50 for the city. This diminished mortality was attributed chiefly to the recognition of the contagious character of the disease and the consequent enforcement of disinfection and isolation. The results of the system of bacteriologic examinations instituted in certain cities of the United States showed that 80 per cent. of the cases usually returned as croup were true diphtheria.—The report of the British Committee, submitted by Dr. Edward Seaton, dealt with the increase of the disease in the United Kingdom during the twelve years ending in 1892, certain features of which suggested that the spread of diphtheria was governed mainly by the habits of population. The great change to be noted in these habits is the influx of country population into towns and the collection of children in schools. It was urged that the education of the public in systematic encouragement of scientific observations and research in matters connected with the public health is the most pressing need of the day.—The importance of the early recognition of the disease, which could only be attained by the systematic observation of the throats of children, was the theme of the report of the French Committee. M. Roux, of the Pasteur Institute, spoke strongly in favor of the antitoxin treatment of the disease and of prophylactic inoculations; he stated that the use of Behring's serum had reduced the mortality from diphtheria in one of the Paris hospitals from 40 to 25 per cent.

NECROLOGY.

CHAS. H. DARE, M.D., Bridgeton, N. J., died August 25. He was for seventeen years County Physician, and was Surgeon of the Fourth New Jersey National Guard.—Jacob Newkirk, M.D., Binghamton, N. Y., died August 13, aged 89.—Charles H. Williamson, M.D., formerly a surgeon in the U. S. Navy, died at St. John's Hospital, Brooklyn, N. Y., in the sixty-ninth year of his age. He was a native of Portsmouth, Va., and a graduate in medicine from the University of Pennsylvania. He had served at several stations as naval surgeon, prior to the breaking out of the late war, but he went with his State when Virginia dissolved her allegiance to the Union. He received a Confederate commission and served as naval surgeon, upon the *Charleston* and in other capacities. After the war Dr. Williamson took office under the Pacific Mail Steamship Company, not only as surgeon on the vessels sailing to and from New York, but also as a resident employé of the company at the harbor of Panama. In this latter relation he spent nearly the whole of the last ten years of his life. A widow and two daughters survive him.

MISCELLANY.

Frontier Medical Association.—The Frontier Medical Association of Canada, which embraces the Counties of Huntingdon, Chateauguay and Beauharnois, held their annual meeting at Valleyfield the election of officers resulting as follows:

President, Dr. Sutherland, of Valleyfield, reelected; First Vice-President, Dr. Wells, of Huntingdon, reelected; Second Vice-President, Dr. A. G. Hall, of Ormstown; medical Council, Dr. Groulx, of Valleyfield; Dr. Monk, of Rockburn, and Dr. de Moulpied, of Hemmingford; Secretary and Treasurer, Dr. C. Marshall, of Huntingdon.

Latest Quotations in the Diploma Market.—A London correspondent says the trade in bogus American academic degrees, which Labouchere broke up by his exposures in London *Truth*, is again booming. "England is a peculiarly rich field for this sort of swindle, for John Bull's pet weakness is his ambition to write a long string of letters after his name. The latest quotations for degrees from the bogus American University are M.D., or LL.D., \$150; any other degree, \$125."

Actinomycosis in Finland.—Dr. Borsdorff has been able to collect only eighteen cases of actinomycosis occurring in Finland up to the present time. Of these, ten occupied the face and neck; one, the lungs and thorax; seven, the abdomen, including two of actinomycotic perityphlitis. Nine of these cases were cured, seven died and two are still under treatment. Borsdorff thinks that operative treatment is the most effective and, perhaps, the only certain means of cure—at least in the more chronic cases.

Statue to Marion-Sims.—On November 13, prox., the anniversary of his death, a massive bronze statue of James Marion-Sims, M.D., LL.D., will be unveiled in New York city. The statue will be erected on the north side of Bryant Park, where a completed pedestal of dark granite marks the site. In making this announcement it is said that this will be the first instance of such a tribute being paid to a member of the medical profession in this country; "but even this monument will not be as fine as the Woman's Hospital of which he was the founder."

Poisoning by Crayfish.—Crayfish poisonings must now be added to the long list of those caused by lobsters, mussels, shrimps, crabs and oysters. Cases have recently been reported in *Progrès Médical* from four different localities in France—the most serious at Geaudeize, where forty guests at a wedding feast after partaking of a bisque of crayfish were seized with vomiting and violent colic. Although medical aid was soon at hand many of those attacked succumbed. The supplies in all cases had been obtained at Cologne, which is the chief market for this article of food.

Conviction Can Not Stand.—A corollary to the decision of the Supreme Court of Montana in the case of *State v. Kellogg*, referred to in the *JOURNAL* of August 18, pages 288 and 289, is found in another decision of that court, entitled the same, but rendered June 4, 1894. Here the court holds that when a physician's license is revoked by the State Board of Medical Examiners, and, pending an appeal, through the district court, to the Supreme Court, the physician is convicted of practicing medicine without a license, the latter judgment will be set aside after the Supreme Court has reversed the one revoking the license, for the reason that there is nothing to support it.

Flies as Contagion Carriers.—Travelers in Egypt notice the large number of blind persons and those afflicted with diseases of the eye. In pus collected from the conjunctiva, gonococci or other microbes are frequently found—sometimes both. A very potent agent in the dissemination of these diseases is to be found, according to Lucien Howe (*Rev. Int. de Bibliog. Méd.*) in the flies which infest Egypt in myriads. He has observed that when these flies walk over gelatinous bacteria develop in their tracks, and notes that the Bedouins of the desert, where few flies are found, rarely

have any disease of the eyes. Dr. Howe neglects to mention, however, another important cause of this class of diseases, namely, the irritation of the conjunctiva from fine particles of sand.

An Ambulance Surgeon Murderously Assaulted.—Dr. Thomas Garvey, ambulance surgeon to the Harlem Hospital, New York City, came very nearly losing his life while removing a desperate patient to the hospital for treatment. The man, who was partially intoxicated, and suffering from a dislocation of the humerus, drew a pistol and fired on his surgeon while they were in close quarters in the removal wagon. The bullet took effect in the right shoulder of Dr. Garvey, causing a painful but not serious wound. Before the man could follow up his murderous attack, the surgeon threw himself forward on the man and disarmed him. The man subsequently stated that he mistook the surgeon for an officer who had him under arrest. Whatever the motive of the man may have been, his missile went very near to blotting out the life of a worthy young surgeon.

To Abolish the Coroner.—The Constitutional Convention now in session for the State of New York has voted to strike out the office of coroner, as a constitutional position, by a vote of ayes 97, naves 43. This is one step in the direction of giving to New York the system of medico-legal experts, such as has been possessed by Massachusetts for many years. The ratification of the action of the Convention must be obtained, at the polls, by the general vote of the people of the State. There seems to be a strong presumption that the revised constitution will be adopted; at all events, the medical societies, such as the Academy of Medicine, the medico-legal organizations and others, that have been fighting for years to do away with this relic of barbarism, will have their sympathies warmly enlisted to work for the new constitution in order to secure this reform, if none other.

Surveillance of Mineral Waters.—The growing consumption of mineral waters in this country and the entire absence of official surveillance of the business lend interest to the recent action of the Academy of Medicine of Paris, in the adoption of the following resolutions: 1, the Academy is still of the opinion that certificates for all mineral waters that are charged and bottled should be withheld; 2, certificates should be granted only when the water in question contains no pathogenic bacteria; 3, the Commission on Mineral Waters shall be furnished all the apparatus in the laboratory of the Academy necessary to study any water for which a certificate is asked, to ascertain its freedom from microbes and the stability of its composition. In times of epidemics, when the populace has recourse to mineral waters instead of the usual supply, the Academy will assume the additional duty of pointing out the danger of drinking these waters indiscriminately and of insisting that none be sold unless they have been examined and certified to be innocuous.

The Earliest American Symphyseotomies.—Dr. R. P. Harris, of Philadelphia, writes to the *New York Medical Journal*, August 25, that he has found three unreported symphyseotomies that antedate that of Dr. Jewett, of Brooklyn. These were done in 1880, 1884 and 1889, the two latter operations being supported by sworn evidence. He has reason to believe that the earliest American symphyseotomy was done in 1880. These three early cases will be duly reported so soon as he is convinced that they were actually performed as alleged. In not less than two cases studied out by Dr. Harris, he has been compelled to certify that the claims of operators have been factitious. One of these had been publicly, though mistakenly, credited as the first of its kind. Dr. Harris will continue his detective work until the truth

shall have been brought to light. The operation of Dr. Jewett will probably prove to have been not earlier than the fourth.

A City Home for Epilepsy.—The ideal location for a retreat for the care of epileptics is in the country rather than in the city. The satisfactory working of certain colonies or farms, both abroad and in America, has been abundantly proven. These charitable undertakings are, for the major part, in their infancy and are not sufficiently numerous to make it possible to do away with city homes for the unfortunates of this class, and it will be a long while before they can all be provided with ideal protection. A new charity has been organized at Brooklyn, known as the Non-Sectarian Hospital and Home for Epileptics, having accommodations for forty inmates. The medical staff is large and competent, embracing among others the names of Drs. D. Simmons, C. H. Schapps, Charles Shepherd and W. G. Preston. The support will be entirely that yielded by charitable citizens and physicians. The Home will be located at 1038 Green Avenue.

Neutralizing Serpent Venom.—M. Tricard, of Martinique, has lately experimented on the effects of different agents in neutralizing the venom of serpents. The experiments were made on the smaller animals—rabbits, rats and pigeons—he not having been able to obtain any dogs. The drugs used were a solution of iodine, permanganate of potash, chromic acid and chlorid of gold. He concludes (*Arch. de Méd. Nav.*) that we have drugs capable of completely neutralizing this venom and that chlorid of gold is the most efficacious and the most easily managed. Many injections must be made and it does not suffice to make them in the subcutaneous cellular tissue alone; some must be made in the muscles at a point below where the fangs have penetrated. It will be remembered that Prof. Daniel Brainard, of Chicago, many years ago proposed tr. iodine as an injection in cases of snakebite. Successful experiments on animals were repeatedly made in the surgical amphitheater.

Anecdote of Von Helmholtz.—Although the late Prof. von Helmholtz was among the most popular instructors of the University of Berlin, he was not the kind of man of whom many anecdotes are told. The following, however, has found circulation: A number of years ago the Professor attended a celebration in honor of the birthday of Prof. Bunsen at Heidelberg. The toast of the evening was responded to by Prof. Kirchhof, one of the best known men at the time in Heidelberg, and the associate of Bunsen. He ended his address with, "Long live Bunsen." The cheering had not ended when Prof. Helmholtz stood up and said: "Bunsen must indeed be immortal when even the graveyard (Kirchhof in German means graveyard) wishes him long life." Von Helmholtz was a man of remarkable appearance and his eyes are said to have been among the most beautiful and penetrating ever set in a human head. A few years ago his favorite daughter was married to Dr. von Siemens to the great joy of von Helmholtz, thus uniting two famous houses. She is an unusually clever woman.

CO₂ and Mental Activity.—Elaborate atmospheric determinations, made four times daily during the last nine years in the various rooms of the Walker building of the Massachusetts Institute of Technology, have now been tabulated and made public. An increase of about 0.5 parts over the ordinary proportion of carbonic acid in the outer air is found in 10,000 parts of the air in the rooms when empty, and this increase is attributed to decomposition of the organic matter present in the flues, floors and walls. The air of those parts of the building which are open and in which people are constantly moving about shows about five parts of car-

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ORIGINAL ARTICLES.

HYPERTROPHY OF THE PHARYNGEAL OR LUSCHKA'S TONSIL.

Read in the Section on Laryngology and Otology, at the Forty-fifth
Annual Meeting of the American Medical Association, held at
San Francisco, June 5-8, 1894.

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Hypertrophy of the pharyngeal or Luschka's tonsil, by some authors termed adenoid growths, consists of an abnormal enlargement of the glandular tissues normally found in the vault and walls of the pharynx. It is characterized by obstruction of nasal respiration, with catarrhal symptoms and in many cases partial deafness, with alterations in the voice partially due to obstruction of the resonant chamber in the posterior nares, and partially to changes in the larynx caused by mouth-breathing. There is also more or less deterioration of the general health, and frequently deformity of the chest; in many instances mental hebetude and imperfect physical development are very pronounced. Attention was first directed to this condition by Meyer, of Copenhagen, in 1860, and later by Loewenberg, of Paris, who reported three cases in 1865. The same author subsequently published a complete *résumé* of the subject in 1879. A thorough discussion of the subject was brought out by Meyer's paper at the International Medical Congress in London in 1881; since which time so many articles have been written upon the subject that it has been worn almost threadbare. Nevertheless it appears to me that an analysis of a considerable number of cases occurring in private practice may furnish some new items of interest concerning the affection, or at least aid in settling some of the uncertain points in its clinical history.

Notwithstanding the many cases that have been reported by laryngologists, the disease is not so common as would at first appear. I find among my records of private patients since 1881, histories of between 11,000 and 12,000 persons, of whom about 90 per cent. or in even numbers 10,000, came to me because of some disease of the chest, throat or nasal cavity. Of these, 203 or in even numbers, 200, equaling only 2 per cent. of the whole, had hypertrophy of the pharyngeal tonsil. It is impossible to determine the relative frequency of diseases of the chest, throat and nose, but as only 2 per cent. of these special cases suffer from enlargement of this gland, it is clear that the percentage must be infinitely smaller when all classes of disease are considered.

I find in 10,000 consecutive cases of diseases of the chest, throat and nasal cavities, 200 cases of hypertrophy of the pharyngeal tonsil. Of these 65 per cent. were residents of the city, and 35 per cent. came from the country or smaller towns. As only 27 per cent. of the whole number of my private patients

within the last decade have come to me from out of the city it would appear upon the face of these statistics that the disease is about 50 per cent. more frequent in the country than among residents of the city. This does not agree with my deductions when considering the influence of sex, where I state that because of their living more out of doors boys seem less liable to the disease than girls. Possibly the disparity in this respect is due to the relatively larger number of city physicians who would treat this affection, thus diminishing the number of such patients who would consult any one specialist.

Out of the 200 cases of hypertrophy of Luschka's tonsil that have consulted me, in some the condition was of so little importance that it had not attracted the patient's attention, and was only discovered incidentally in making the ordinary examination; in many others I was consulted merely for diagnosis, and in still others for various causes the history has been imperfectly taken, so that the records are worthless for purposes of study. Excluding most of the foregoing I have selected 100 cases as nearly consecutive as possible, not from any special feature which the case might present, but simply because of the completeness of the history, and I have excluded a considerable number of cases similar to these, not from any peculiarity of the history, but because it is more convenient to deal with an even hundred. These cases therefore, ought not to be considered as selected cases in the ordinary acceptance of this term; though it is probable that patients presenting the most pronounced symptoms were most carefully interrogated by my assistants who took the histories.

In my further consideration of this subject I shall confine myself to a study of these 100 cases which I think fairly and honestly represent the cases of well developed hypertrophy of the pharyngeal tonsil who would present themselves to a physician in private practice in this country.

The affection nearly always develops in infancy or early childhood. From the ages of the patients recorded, it appears that the disease is most frequent in children between the ages of 2 and 15; 54 per cent. being observed between the second and eighth year and 37 per cent. between the ninth and sixteenth. But the affection is also seen in older persons. Seven cases were found between the ages of 18 and 25, and one each at the ages of 26 and 37 respectively. These results differ widely from Meyer's, who observed less than 37 per cent. under 10 years of age, and less than 62 per cent. all told under 15. They differ even more widely from Bosworth's statistics which show less than 30 per cent. under 15 years of age. The difference is probably to be explained by the fact that I have ignored cases in which the growth had not attained sufficient size to cause the patient inconvenience, or had atrophied to such an extent as to have become unimportant.

A more critical examination of the histories in the endeavor to ascertain when the symptoms first appeared, indicates that the disease was certainly developed in 90 per cent. of the cases in infancy or very early childhood. Many of these cases were said to have had difficulty in breathing since birth, and it is probable that in some of these the growth was congenital. I doubt very much whether the disease is ever developed after puberty.

From my statistics the affection appears to be more frequent in girls than in boys, 41 per cent. having been recorded as males and 59 per cent. females. This is possibly due to the fact that boys being so much more out of doors than girls are apt to be more vigorous and consequently less liable to hypertrophy of the adenoid tissues.

In Meyer's cases a little over 51 per cent. were males, but in Bosworth's cases only 36 per cent. were males. When it is remembered that in Copenhagen and its vicinity, the girls live more as do the boys than in this country, and are consequently more vigorous, my explanation of the influence of sex seems partially substantiated and it appears probable that under the same hygienic conditions there would be no difference in the frequency of this affection in the two sexes. Militating against the correctness of this view is the fact that Greville Macdonald and Sir Morell Mackenzie found the disease considerably more prevalent in males. This, however, may have been due to their considering many cases in which the gland had dwindled into insignificance; for it would appear reasonable to suppose that as puberty occurs at an earlier age in girls than in boys and as these glands usually atrophy at that period, the hypertrophy among girls would be noticed less frequently among them after the age of 11 or 12 than among boys of similar years. The fact that Woakes, also of London, found this affection about equally in the two sexes suggests that there must have been some radical difference in the method of analyzing the cases by different observers. Keeping in view the fact that 90 per cent. of the cases I am considering were observed before the age of puberty, and that all of them were well marked, there seems little room for doubt that, in this locality, at least, the disease is more prevalent among girls than boys.

The anatomic and pathologic characteristics of this affection have been so thoroughly described by Meyer, Loewenberg, and subsequent writers that I will pass them by.

Etiology.—In an affection which has generally existed for years before the physician is consulted, it is impossible to obtain any very accurate idea of the causation; but this analysis seems to prove that enlargement of Luschka's tonsil in the great majority of cases is due to the same causes as hypertrophy of the faucial tonsils. It is attributed by various authors to hereditary influences, to the strumous and rheumatic diathesis, to diphtheria and the exanthematous diseases, to catarrhal troubles and to frequent colds.

I find among my cases several that appear to be congenital, though in none of these could this be stated certainly. Ten per cent. were apparently of hereditary origin as shown by the occurrence of two or more cases in the same family; 3 per cent. appeared to follow immediately after measles; 4 per cent. after scarlet fever; 1 per cent. after diphtheria; 3 per cent. were attributed by the parents, or

the patient, to pneumonia or influenza; and a large number, amounting to 16 per cent., were attributed to frequent colds, or to what is doubtless included in the classification of some authors as a catarrhal condition. In 63 per cent. nothing could be discovered which appeared in any way to account for the origin of the disease. I find in the same connection that 35 per cent. of these patients were subject to frequent diseases of the throat.

In 76 per cent. one or both of the faucial tonsils were also enlarged in the same case; in 7 per cent. one, and 69 per cent. both. This coincident enlargement of the faucial tonsil occurs in such a large number of cases as to indicate that the two conditions are commonly dependent upon the same causes, and it leads us to suspect that many of the results formerly attributed to enlargement of the faucial tonsils, more especially affections of the eye and ear and alterations of the voice, were in reality due to enlargement of Luschka's tonsil. In the great majority of cases where any of these symptoms just referred to appear with enlargement of the faucial tonsils, excision of the latter will be found to have but little influence, unless the pharyngeal tonsil is also removed. Scrofulous affections or enlargements of glands in other parts of the body were noted in only 2 per cent. of the cases.

Symptomatology.—The symptoms which are most commonly noticed by the parents or friends are: Snoring, loud breathing at night, restlessness, poor sleep with bad dreams, mouth breathing and general debility. The most frequent objective symptoms are: Impairment of the voice, deafness, and partial loss of the sense of smell. The patient's strength as indicating his general condition is noted in 65 cases, in 80 per cent. of which it was found to be good, in 18 per cent. only fair, and in 2 per cent. poor. The general debility apparently resulted in most of these cases from the imperfect aeration of the blood in consequence of obstructed respiration. Pains in various parts of the body were complained of in a few instances. The sense of sight was affected in 1 per cent. of the cases, and the sense of smell in 11 per cent. Frequent headache was complained of in 27 per cent. of the cases. Deafness is a common result of hypertrophy of Luschka's tonsil, the sense of hearing having been found impaired in 33 per cent. of these cases. In only 38 cases has any reference been made to the patient's mental condition, but because of the frequency with which these patients appear to be dull, I am surprised to find that in only one case is it noted that there was any impairment of the mental condition, and in this case it is stated that the patient appeared to be idiotic, a condition which seemed to have had no relation to the obstruction of the naso-pharynx. The condition of the voice is noted in sixty-five cases; in 30 per cent. of these it is said to be normal, but in fifteen muffled, impeded or thick; in forty nasal, and in fifteen hoarse or husky, showing that it was affected in 70 per cent. of the cases where the condition of the voice was mentioned.

The condition of the respiration was noted in forty-six cases, in 60 per cent. of which it was found to be unaffected, but in 40 per cent. there was decided dyspnea. In only 8 per cent. of these the dyspnea was said to have occurred at night or during sleep, while in the remaining 32 per cent. the dyspnea was also noticed during the day.

More or less cough is a frequent symptom, with

regard to which I find notes in seventy-three cases; of these 60 per cent. had no cough; in 12 per cent. it was described as slight or inconsiderable, in 12 per cent. as hacking to clear the throat, and in 12 per cent. as severe. In 6 per cent. of these seventy-three cases the cough occurred especially at night, or in the early morning.

The condition of the nasal cavities is noted in eighty-six cases, in 30 per cent. of which they were described as free or normal; in 12½ per cent. they were obstructed by exostosis from the septum, and in 50 per cent. by hypertrophy or swelling of the inferior turbinated bodies. Excessive secretion or other catarrhal symptoms were also noted in 60 per cent. of the cases. This would appear to sustain the theory advanced by MacDonald ("Diseases of the Throat and Nose," 1890), that a majority of cases of enlargement of Luschka's tonsil are due to obstruction of the nasal passages consequent upon rarification during inspiration of the air in the naso-pharynx. However, as my records do not enable me to determine whether in these cases the obstruction of respiration preceded or followed the enlargement of Luschka's tonsil, the evidence for or against this proposition can not be considered conclusive; but there has always been a question in my mind whether the obstruction of the nasal cavities from swelling of the soft tissues in such cases was not the result rather than the cause of the hypertrophy of the pharyngeal tonsil.

The excessive discharge in nearly all of these cases is clearly the result of obstruction in the naso-pharynx, which independently of its influence on the congestion of the mucous membrane, prevents evaporation of the secretions and causes their collection in the nasal fossæ.

In many cases, enlargement of the pharyngeal tonsil may be suspected from the appearance of the follicles in the lower portion of the pharynx. I find the condition of the pharynx noted in eighty-one cases, in 25 per cent. of which the follicles were found decidedly enlarged.

Deafness is noted in forty cases; the right ear was affected in twenty-four, the left in twenty-one, but there seems to be no relation between deafness upon one side and enlargement of the corresponding faucial tonsil; indeed, deafness appears to have been present quite as frequently when the faucial tonsils were but little enlarged as where these latter organs were greatly hypertrophied: therefore, so far as these statistics go they would seem to substantiate the statement already made, that affections of the special senses formerly supposed to have resulted from hypertrophy of the tonsils, have doubtless in most cases been caused by enlargement of the pharyngeal tonsil. In twenty-two of these the deafness was entirely cured or greatly improved by the treatment.

The form of the chest walls has been noted in only fifteen cases, but it is fair to suppose that in a majority of the others it was in a normal condition, otherwise it would have attracted the parents' attention and have been mentioned in the course of the examination. In the records where the condition of the chest walls is referred to it was normal in twelve and more or less deformed in only three of the cases.

Diagnosis.—The diagnosis in these cases was usually made by inspection of the posterior nares with the rhinoscope, aided sometimes by anterior rhinoscopy and the nasal probe, but in young or unmanageable children in whom the throat mirror could not be

properly used, it was verified by the finger passed into the naso-pharynx.

Treatment.—Many of the cases that have come under my observation were brought to me simply for diagnosis and suggestions for treatment, the patient subsequently having been placed under the care of some other physician. In some instances where the parents feared an operation, internal treatment has been recommended and carried out for a greater or less period of time, sometimes with advantage but in others with no effect. In still other instances surgical procedures have been carried out by other physicians, and I have been unable to obtain information of the results.

In the whole 200 cases, removal of the gland by operation was recommended in only 120 or 60 per cent., and in the 100 cases I am now considering it was recommended in only 90 per cent., and performed by me in only 76. In a considerable number of the patients upon whom I have operated, the records of treatment are very imperfect for the reason that speedily after the gland was removed the symptoms disappeared and the patient was considered well, so that I have heard nothing more of the case.

The records show that in fourteen cases internal treatment consisting of syrup of the iodid of iron or syrup of hydriodic acid, was suggested, and that in ninety cases surgical procedures were recommended. By consulting my records and the replies of parents or friends to my letter of inquiry, I find that the hypertrophied gland was removed in 76 of these 100 cases; that it was treated by local applications of chromic acid in 11 cases, but that the patient received internal treatment only in 13 cases. In fifty of the cases operated on, one or both of the faucial tonsils were also found more or less enlarged and in twenty-two cases they were removed at the time of the operation on Luschka's tonsil.

One of the most notable results of freeing the naso-pharynx from this obstruction has been its effect upon the general condition. It is not uncommon for young children within six months after the operation to gain from 20 to 40 per cent. in weight and correspondingly in vigor and endurance.

Although in very few cases was the mental condition noted when the record was first made, I find by inquiry of parents or friends of the patient that the mental condition has been improved in 12 per cent. of cases in which an operation has been performed.

Deafness was noted in only forty cases and the effects of treatment upon the sense of hearing was recorded in only thirty-seven. In 30 per cent. of these there had been no improvement; in 4 per cent. there has been slight improvement, and in 66 per cent. the deafness has been greatly ameliorated or cured; the latter result being noted in 33 per cent. of the cases.

In the whole number of cases the voice was noted to have been affected in forty-five. In three of these no improvement was observed as a result of treatment; in some no subsequent history could be obtained, but in thirty-five, or 77 per cent., great improvement has been observed.

Of these 100 cases, 56 complained of catarrhal symptoms. Eighty-six per cent. of these have been greatly improved by the treatment, though 14 per cent. seem not to have been benefited. This appears to justify the opinion, already expressed, that the obstruction of the nasal passages is often the result

instead of the cause of hypertrophy of the pharyngeal tonsil.

There is an undoubted tendency for hypertrophy of the pharyngeal tonsil to disappear by atrophy about the time of puberty; but an analysis of these cases, of which 9 per cent. were over 16 years of age, shows that this fortunate result is not so common as generally supposed. There appears to be a common impression among laryngologists that unless such growths are removed by surgical measures the condition of the patient is almost sure to go from bad to worse, until the twelfth or fourteenth year, when atrophy usually begins. In twenty-seven of these cases, for various reasons no radical operation has been performed. Eleven of these were treated by applications of chromic acid through the nostril, and I find that eight of them were apparently cured by this treatment. In the remaining sixteen cases we have relied entirely upon internal treatment, consisting of the syrup of hydriodic acid or of the iodid of iron, the latter being given when anemia was apparent. I have been unable to obtain the subsequent history in four of these. In 50 per cent. of the twelve whose histories are completed there appears to have been great improvement or complete recovery, apparently as a result of the treatment. Four others were somewhat improved from various causes, and two appeared to have made no gain. This goes to show that although the most brilliant and satisfactory results are obtained by surgical procedures, constitutional remedies are adequate to the removal of the disease in a considerable number of cases, but this should not be made an excuse for allowing the patients with well marked hypertrophy of this gland to go on from year to year in the hope that internal remedies or time may effect the cure; because in the meantime in very many cases, inflammation of the Eustachian tube and middle ear will have caused deafness, or the voice may have become permanently altered, while deprivation of the patient of the amount of oxygen to which he is normally entitled will have stunted his growth, impaired his constitution, and possibly will have left a permanent impress upon his mental faculties from which nothing can ever relieve him.

An analysis of these cases leads to the following conclusions:

Hypertrophy of Luschka's tonsil is comparatively infrequent, occurring in only 2 per cent. of the patients with diseases of the chest, throat and nasal cavities, and probably in not more than one-half of 1 per cent. of all cases.

In this locality the disease is apparently 50 per cent. more frequent in the country than in the city, and it occurs more frequently in girls than in boys.

The disease is observed in 90 per cent. of the cases before the fifteenth year of age and is probably always developed in infancy or early childhood, some cases appearing to be congenital.

Ten per cent. of the cases are apparently hereditary. Sixteen per cent. may be attributed to frequent colds; but in 63 per cent. no etiologic factor can be discovered.

In the great majority of cases the affection is apparently due to the same causes as enlargement of the faucial tonsils, and in 76 per cent. of the cases the faucial tonsils are also hypertrophied.

In a considerable number of cases, amounting to 18 per cent. the general health is materially injured by this affection.

The sense of smell is obtunded or lost in 11 per cent.

Hypertrophy of Luschka's tonsil is a frequent cause of headache, it being present in 27 per cent. of the cases.

It is a frequent cause of deafness, the hearing being affected in one-third of the cases. The deafness so caused may be benefited in a large majority (70 per cent.) of cases by operative procedures, 66 per cent. being greatly ameliorated and about half of these being completely cured.

The disease causes much alteration in the voice in about 70 per cent. of the cases. In nearly eight-tenths of these the voice may be greatly improved as the result of treatment.

In about 40 per cent. of the cases there is decided dyspnea, resulting from partial closure of the nasopharynx.

Forty per cent. of these patients have more or less cough, in about one-third of which it is quite severe.

The pharyngeal follicles are enlarged in about one-fourth of all the cases. The nasal cavities are more or less closed by swelling or hypertrophy in 50 per cent. of the cases, and 56 per cent. complain of catarrhal symptoms, but in about nine-tenths of these the symptoms are removed by extirpation of the glandular tissue.

Although deterioration of the general health is not usually complained of, it is found as the result of operation that in many cases great improvement occurs immediately, the patient often gaining 30 per cent. in weight within six months.

THE THROAT APPEARANCES IN MYXŒDEMA.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY H. HOLBROOK CURTIS, M.D.

NEW YORK.

One year ago a patient presented herself at my office to have her throat examined, in order to undergo treatment for difficulty in speaking distinctly. Her history from my note book was as follows: Age 48, weight 190 pounds. Had five children. Menstruation stopped two years ago. Suddenly became very stout about ten years ago, after a prolonged and exhaustive experience with nursing a sick relative, at the same time undergoing intense mental agitation from other sources. Has had no perspiration for ten years. Water always very distasteful as a drink. Partakes sparingly of tea and coffee. Six years ago legs became glazed and waxy, the small hairs disappearing from same. Some edema of ankles but no pitting on pressure. Had been twice to Carlsbad for jaundice within seven years. Much brown pigmentation on abdomen. Had to stop playing piano some six years ago, because great weakness developed in her arms. Walking became very distasteful. Commenced at this time to become partially deaf. Could only hear in theater in the front rows. Eyes also commenced to appear small by reason of swelling of the lids. Speech became thick every afternoon at 5 o'clock, but without hoarseness. Often disinclined to talk and became sad and morose. Eighteen months ago throat symptoms became more marked. Often in talking "a spasm would choke her." Patient likened it to a cramp of the throat. Far back on the sides of the

tongue a marked stiffness was complained of, and the point seemed thick and difficult to control. The end of her tongue was always "in the way." During this time patient always slept well. Pulse 72, temperature slightly subnormal. Patient was always cold, and very anemic. Ears presented a waxy appearance. More recently the gums were swollen and deficient in nutrition. The lips had recently become difficult to manage easily; they felt very thick and stiff. Was apt to say bore for more, etc. The last two years mental symptoms had commenced to develop. Patient would frequently use the wrong word but always corrected it herself. It was very often a great effort to think quickly. A sudden surprise would make speech almost impossible. Coming into a room where there were strangers would confuse ideas and speech. Upon examination of the nose, the mucous membrane appeared bluish and pale, the turbinate bodies enlarged and very soft, (inflated) making nasal respiration wellnigh impossible. The uvula was very thick, very pale with a yellowish tinge, and the pillars of the fauces were thickened and of the same general hue. The posterior pharyngeal wall was yellowish, with the blood vessels prominent and very red. There was atrophy of the glandular tissues of pharyngeal vault, and also at the base of the tongue. The arytenoids were enlarged but had a fatty yellowish appearance, instead of the bluish edematous look they present in laryngeal phthisis. The interior of the larynx was full and flabby, the tissues intruding into the caliber, while partaking of the yellowish hue of the rest of the membrane of the throat. The false cords seemed especially thickened. The vocal bands were normal, as was also the epiglottis with the exception of the pallor. In October last, the patient suddenly developed edema about her eyes, and the characteristic appearances of myxœdema. At the same time loss of hair under the arms and on the head was commencing. I had not seen the patient for four months, and the difference in appearance was quite striking. There was no albumen found in the urine. Suspecting that it was an undoubted case of myxœdema, I commenced treatment by giving 5 drops of the extract of thyroid gland in glycerin (Gibier) morning and night after meals, increasing the dose to three times a day at the end of a week. Patient was living on a simple diet but not restricted. At the end of two weeks a marked change appeared to manifest itself in the general comfort of the patient, and the spirits commenced to improve; at the expiration of three weeks the tongue began to become more manageable and breathing was easier upon exertion. In six weeks the patient began to lose flesh rapidly, had to get smaller gloves and shoes and commenced to have clothing taken in. The dose meanwhile had been reduced to 5 drops twice a day, and two weeks afterward to 4, at the same interval. At the end of six months there had been a loss of twenty pounds in flesh. The speech is fluent. No disturbance of ideas. Tongue perfectly free; thickening disappeared from the folds of fauces. Uvula, pharynx and larynx healthy. Color of the mucous membrane changed from the yellow waxy look to normal, and there persists but slight injection of the blood vessels. The measurements of one of the extremities taken by Mr. Riker for an elastic stocking before and after taking the thyroid extract show the following differences, and may be of interest:

Ankle, 9½; 8½. Calf, 16; 14½. Knee, 15½; 14½. Thigh, 21½; 19. In the corset measure the hips appear to have decreased five inches, the waist three, and the bust four inches.

The above case is interesting in that it presented itself to a laryngologist. The difficulty with enunciation antedated the loss of hair and brittle finger nails by a year. Absence of albumen in the urine, no previous loss of hair, and no facial edema accounted for a late diagnosis of the true condition. However, to-day the patient is restored to apparent health, looks younger by ten years, is as bright and cheerful as possible, and thoroughly enjoying life.

NOTE.—Patient is taking 3 drops of thyroid extract twice daily, and is in excellent health, Sept. 22, 1894.

THEORIES AND FACTS CONCERNING DEFLECTION OF THE NASAL SEPTUM.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY W. A. MARTIN, M.D.
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That the major portion of nasal troubles is caused by the deviation of the septum, I think will be admitted by those who have devoted much time to the treatment of nasal troubles and have investigated the causes of these troubles. As a nation the Americans may be said to be universally afflicted with deflected septa, and to this cause alone we may safely attribute 75 per cent. of the nasal affections that are so frequent among them. I have been unable to find any extensive statistics concerning this trouble in the United States, but from my own observation I will venture to place the percentage of deviated septa as high as 90 per cent.

The only reliable statistics of any extent furnished on this subject are those of Mackenzie among the English and of Zuckerkandl among the Austrians. The first taken from the skulls in the museum of the College of Physicians and Surgeons in London and the latter principally from the cadaver. Other statistics have been published by Semeleder, Theile, Allen, Potiquet and others, but all in smaller numbers than the first mentioned. In this country, statistics so far as I have been able to find, have been limited to those who have applied for the treatment of some nasal trouble and consequently are of no value in determining the frequency of its occurrence, as there are untold numbers to whom it causes no inconvenience and a large proportion of the population who suffer in silence and never consult the specialist.

The statistics of Mackenzie show that in 2,152 skulls examined, 76.9 per cent. of the septa were more or less deflected. Those of Thiele, Semeleder and others taken in Germany differ only 1 or 2 per cent. from Mackenzie. Statistics of Zuckerkandl show that in 370 skulls examined in Vienna, 53.2 per cent. of the septa were deflected.

The most diverse theories have been evolved to account for this frequent condition of the septum, some of them most amusing when one considers the source from which they emanate. A few of the many I will quote are:

"Blowing the nose habitually with the same hand. Habit of sleeping with the same side of the face to the pillow. Habit of putting finger in one side of the

nose. Action of astringents, rickets, syphilis. These causes I simply mention and do not consider it necessary to give them any further thought as causal factors in producing deflections of the septum. The following causes are the ones accepted by the leading specialists of to-day: Traumatism, over-development of the septum, obstruction in one or both nostrils, heredity, evolutionary and devolutionary changes." The first mentioned of these causes, viz: Traumatism is the one accepted by Bosworth, who seeks to defend it in his text-book, "Diseases of the Nose and Throat," as being the most frequent source of the trouble.

It is remarkable how readily a patient will recall some cause for the deformity, when informed that such a condition exists, in the shape of a blow on the nose fifteen years ago; a tumble down stairs, a frequent cause given by mothers is a blow from the baby's head, and numerous other causes are assigned too numerous to mention, but with which you are all familiar. It is peculiar how sensitive individuals are concerning any deformity which is congenital, or for the source of which they have no natural or physical cause to offer. They seem to consider it a blight cast on their lives by nature, but if they can offer a cause in the shape of some physical force, the defect is regarded as of little consequence or even as an insignia of glory, showing the prowess of the individual or the martyrdom through which he has passed. Now deformities of the nose are no exception to this rule. There is no feature about which people are so sensitive as the nose; reference to the shape will give offense, and many individuals who are perfectly satisfied with the external appearance of that organ will doubt the ability of the specialist, who informs him that the interior is twisted and contorted. He immediately recalls some manufactured or almost forgotten reason for the existing condition, but the patient is willing to retract somewhat after being informed that his nose does not differ materially from the general average.

Bosworth informs us that "an injury to the nose need not necessarily give rise to the immediate development of a notable deformity as in fracture, but it may set up a low grade of morbid action which going on through a number of years will develop a condition by which the normal function of the nose is seriously hampered."

Why this low grade of inflammation should continue for years, without causing any inconvenience excepting the resultant deformity and having caused the deformity should cease is not apparent. One might give it some little consideration if we had only nasal spines and crista to deal with, but we know these are dependent on a curvature of the septum, and that condition would have to be first accounted for and could not be accounted for in this way. The frequency with which we meet with this deformity is the strongest argument against the theory of trauma. Certainly 90 per cent. of Americans and 75 per cent. of the European population have not suffered sufficient injury to their noses to produce this almost universal defect in this particular portion of their anatomy.

In a neat little brochure, Mr. Mayo-Collier distributed broadcast throughout the land his idea of the real cause of this deformity. I quote here the introductory notice: "The ready and full acceptance of my views on the causation of deflections of the nasal septum by the very competent tribunal to

which I submitted them has lent some warrant for my placing this small monograph before the profession."

The tribunal referred to is the British Laryngological and Rhinological Society. Certainly, if such a competent tribunal has passed favorable judgment on Mr. Mayo-Collier's views I can not ignore them.

The sum and substance of Mr. Collier's conclusions is, that the deflection of the septum is caused by a stenosis of one or both nostrils and the resultant atmospheric pressure acting on the unoccluded side, thus pressing the septum toward the opposite side. The theory is pretty, but it does not work in practice. In the first place most specialists agree that the septum is seldom if ever deflected in the posterior third, and that the curvature is almost exclusively confined to the anterior two-thirds. If the deflection is the result of atmospheric pressure, the posterior third would certainly be more exposed to such pressure than any other portion of the septum. In every case of stenosis, where we find a curvature in the middle or anterior third, the posterior third would be exposed to the same or greater pressure than the part affected.

One of the favored points of deflection is in the cartilage. Jurasz asserts it is always there; now certainly a stenosis never occurs anteriorly to the cartilage; it may occur as far forward as the cartilage, but then this would not furnish the necessary condition for a deviation that is confined mostly to that portion.

Artificial stenosis, as in the case of foreign bodies retained in the nose, furnish conditions most favorable for the production of a deflection if Mr. Collier's views are correct. Since reading his monograph I have had five such cases under treatment where the foreign bodies had been *in situ*, periods ranging from three months to five years; in each and all of these cases, the deflection was toward the unoccluded side. The cases were all children of from 3 to 9 years of age; a time of life when the septum is most pliable and when it would be most easily affected by such pressure.

Mr. Collier lightly disposes of polypi in "one breath." Certainly they deserve some consideration as one of the causes of stenosis. At the time of writing I have under my treatment a boy 9 years of age, who has had the right nostril obstructed for a year or more. The entire right side of the face is undeveloped. The septum, however, is very little if at all deviated.

Because 80 per cent. of savages and aborigines have symmetrically placed septa, Mr. Collier reasons that civilized people are more prone to colds and injuries, etc., that produce stenosis, which leads ultimately to the deflection of the septum. A great many scientists hastily conclude, that because civilized people are subject to affections from which the uncivilized are free, that the manner of living must necessarily be the cause. Civilization and refinement I admit are accountable for some of the minor ills from which mankind suffer, but there are great laws that control the human race and which are unaffected by the manner of living, and certainly there is no law that produces a deformity that has such serious consequences as the deformity under consideration, that does not have some more reasonable explanation than that it is simply a result of civilization.

Certainly, we do not live under any more unfavor-

able conditions than the Chinese, and again take the statistics of the American negro as stated by Allen. Here is a race living in the same country and climate and under more unfavorable conditions than the majority of Americans, and still the statistics show that only about 20 per cent. are affected with deviation of the septum.

As a "liqueur" to the feast, Mr. Collier quotes the results of Ziem's experiments on animals as proof of the efficacy of the great cause for which he contends. No one attempts to dispute the effect of stenosis of long standing, but unfortunately Mr. Collier has mistaken the cause as an effect. The most frequent and most permanent form of nasal stenosis is the deviation of the nasal septum and it is secondary to no other form of stenosis; it is the form that produces asthenopia, and assymetry of the face.

Over-development of the septum as first mentioned by Morgagni and later by Chassaignac, and accepted as a satisfactory explanation of the cause of this deformity by numerous specialists of to-day is decidedly unscientific. If there is a tendency to over-growth of the nasal septum we must have an explanation of the cause of this over-growth.

We are willing to admit that in the case of a deflected septum there is a profligacy of Nature in supplying such an abundance of material, but it is the wherefore we are seeking and not the fact that it is there, which is palpable to every observer.

Heredity as a cause is equally unscientific. It is no cause; it is merely a law that perpetuates the deformity. I can relate a circumstance where three brothers and one sister were all affected with exactly the same form of deviation. The external appearance of the noses was so much alike that one could call any of them by name, having been introduced to one of the four. It was a family nose inherited from their father. Heredity explains it thus far; are we to be satisfied with the explanation, or shall we seek farther and find that it descended from one generation to the other until the original of this type of the family nose is found?

Evolutionary or devolutionary changes. Here is the field in which our researches are most likely to be rewarded. There have been several searchers in this field working mainly in the same direction. Among the more prominent are Potiquet, Bendelack Hewetsen and Zuckerkandl. They commenced with the same theory, namely: That the condition was the result of a change from prognathism to orthognathism. Zuckerkandl merely suggests it without offering any particular reasons.

The paper read by Bendelack Hewetsen a few months later than the monograph read by Mr. Collier, shows that there was at least one member of the British Laryngological and Rhinological Society who did not accept the latter gentleman's theory as absolutely conclusive. Hewetsen in his paper discussed "The Relations between the Various Forms of Nasal Stenosis and Deafness." He found that nasal stenosis was associated with a narrowness of the jaw, crowding of the teeth and an elevation of the palate. This narrowing of the modern face, "the ultra refined face", as he terms it, he attributes to the fact that civilized men partook habitually of a much softer food than that which fell to the lot of savage man. He had examined large numbers of natives of the Zanzibar coast, of Hindoos, and lastly large numbers of Arabs in Morocco. In none of these people did he find any nasal

stenosis. It is to be presumed that there being no stenosis in these people examined, that the septum was quite or nearly symmetrically placed. Mr. Lenox Brown very correctly observed in the discussion of the paper that "the diet of lentils and curries which Hewetsen said formed the principal food of the people examined, did not seem as difficult of mastication as the average specimen of meat, which the modern European was called upon to masticate. The Mongolians certainly subsist on softer food than the Europeans.

Dr. Potiquet gave the result of his researches on this subject to the Paris Society of Laryngology, Otology and Rhinology in July, 1892. His researches were conducted on the 400 skulls in the museum of the amphitheater of the hospitals. I quote from a report in the *Journal of Laryngology*: "His conclusions are that in the Parisian, the osseous nasal septum tends to incurve so much the more, as the movement of rotation of the pre-maxillary around the point of junction, of the posterior extremity of the vomer with the body of the sphenoid taken as a center, is more marked. This conclusion may be regarded as a verification applied to a very limited group, of a law common to the whole series of primates, to-wit: That the nasal septum has so much the greater chance of lateral incurvement as the axis of the face is itself the more inflected in its antero-posterior direction. As this axis is more and more inflected as one rises from the anthropoid to the European male, the septum tends to incurve laterally more and more as one follows this ascending series. Lateral curvature of the septum therefore appears to be an evolutionary phenomenon related to the degree of antero-posterior inflection of the axis of the face." Farther along in the same article the writer remarks: "It would not be extravagant to say that a man has only exceptionally the septum which belongs to him."

It is difficult to argue this point without fuller statistics at one's disposal. For my own part, however, I do not believe that the rotation of the axis of the face in the European male is greater than in the case of the Hindoo and Arab, who Hewetsen claims are seldom if ever troubled with stenosis, but Potiquet says: "It is a law applied to a very limited group," and I judge that in this way he excludes all except the Europeans and their immediate descendants, but Nature's laws are not elective. If this condition is the result of evolutionary changes pure and simple, a change produced simply by the progressive or retrogressive state of man to accommodate him to a new condition of things, then it is the only instance I have been able to find where there has been such a marked assymetry of development as to impair the usefulness of the organ. We have instances where parts have atrophied when they were of no more use or left in disuse, but as far as I am aware none where there has been a hypertrophy.

It is possible that the nose, as an organ of sense, has not the magnified function that it had when man was in a less civilized state, but the peculiar shapes that characterize different races are probably not so much a result of the increased or impaired functions of that organ as a result of sexual selection. The nose, one might say, is the center of attractiveness in the determination of beauty in the eyes of most races. This being the case it is not strange that in the development of the different races we find in

their perfect development a type of nose that varies very little in the different individuals of the same race.

There is no feature or characteristic of a race that is so typical as the nose. The features of the purer races as the Mongolian, African, or Polynesian are so much alike that it is with the greatest difficulty that even the most skilled physiognomists are enabled to distinguish between individuals without a close acquaintance with them. This fact is aptly demonstrated by the difficulty we have had in finding some positive way of excluding our Mongolian brother from the confines of our country.

From the statistics at our disposal of Mackenzie, Zuckerkandl, Adams, Hewetsen and others, we find that the nasal septum of these different races, namely, Chinese, Japanese, Malay, Hindoo, Arab, American Indian and Polynesian varies as little in shape as does the external appearance of the nose.

Among the Europeans and their immediate descendants we find that there is no characteristic type of nose. In Paris, in the classification they have adopted for the recognition of criminals, they distinguish nine distinct types of noses and with subdivisions have as many as twenty-seven. These distinctions are from—the outline of the nose, convex, rectilinear, or concave—base of nose, ascending, straight or descending; these in the different combinations make nine varieties, and either of the combinations may be either thin, medium or broad. The interior probably offers greater variety than the exterior in so far as the septum is concerned. There are distinct types of noses, however, preserved in limited areas of Europe that were originally typical of a grand subdivision of the Caucasian race, as for instance the Roman, the Grecian, the Semitic; and again the other subdivisions as the Teutonic, Slavonic and other tribes that at one time had distinctive noses. The same law that produced the Mongolian or African type was effective in shaping the nose of the Roman, the Greek or the Teuton. It was the outcome of centuries of exclusiveness, and I venture to make the assertion that these people were no more troubled with the deflection of septum and the resulting stenosis than the Mongolian and other purer races of to-day. Their noses were the outcome of natural evolutionary changes.

How about the European population of to-day? The modern European and the immediate descendant to a greater extent represents a composite anatomy. The work of centuries in building up and fashioning tribes of distinctive types of features has been undone in a comparatively short period by the commingling and mixture of these distinct tribes. The commingling has not been limited to the people of the Caucasian races, but other races of a distinctive type, as the Mongolian and African, the American aborigines and others equally as distinct, have all united in lending characteristics to the modern European and American. I need not enter into the genesis of the European. It is a matter of history and accessible to all. The mixture, the result of conquest and slavery in ancient times and in later years of emigration and intermarriage between persons of different nationalities has equalized to a greater or less extent the distinctive type of features.

If we could examine the skulls of the purer ancient types as the Roman, the Grecian or the Semitic, I dare say we should find the deflected septum as rare

among them as among the purer races of to-day. If we should take the septum from the skull of one of these people and attempt to fit it into a Chinese or negro skull we would assuredly find a misfit, but this is the condition imposed on Nature by the mixture of races and a condition that is not likely to be modified for centuries to come, as the evolutionary changes necessary for Nature to accommodate herself to this innovation will be slow; as all evolutionary changes are.

We might accept it as a law that the straight or symmetrical septum is distinctive of a pure race, while the deviated septum is characteristic of a mixed race.

Such being the case, where would we expect to meet with this deformity most frequently? I think that you will all agree that the people of the United States are the greatest sufferers in this respect. In England, Mackenzie's statistics show that 76.9 per cent. of the population suffer with this deformity. If we could have statistics from Russia where there has been less of a mixture of races than in other European countries we would probably find the straight septum more the rule. Zuckerkandl's statistics show only 53.9 per cent., as we would naturally expect, as the farther east we travel the nearer we approach to original racial types. In the purer races as the negro and the Mongolian, we find the same shape to the nose in the child that we find in the adult, and other things equal we see no variation from the original type. The child resembles both its father and its mother, and in fact the whole race as far as features are concerned. In the European and American, however, the case is quite different; here there is apt to be a reversion to ancestral type. The offspring may resemble any progenitor as far back as its simian ancestors and excite no particular comment. An American with a Roman nose who takes for a spouse a woman with a *retroussé* nose may find in his several children as many different shaped noses. The only fact he can safely predict is that one and all will have a deflected septum. In a well regulated Roman, Grecian or Semitic family I venture to remark that if any of the children had had a *retroussé* nose that there would have been an investigation set afoot.

That deflected septa are as frequent as 20 per cent. in non-European and non-American people is readily accounted for by the fact that even in the most isolated races there is a certain percentage of mixture. There are few people whom we have the opportunity of examining among whom the whites have not mixed. Missionaries, adventurers, travelers and shipwrecked persons have gained a footing in even the remotest corners of the earth and their imprint is found stamped in the nasal septa of the inhabitants.

Another important factor must not be overlooked as accounting for a certain percentage of the deflected septa both in the civilized and uncivilized races, that is owing also to a disparity in the development of the cranial and facial bones. We find not infrequently that the cranium is small in proportion to the development of the facial bones, owing to the too early ossification of the cranial sutures. This need not be sufficient to bring the individual within the limits of cretinism, but sufficient to be an important factor in causing a deformity of the septum. The most deformed septa I have ever seen were in

individuals belonging to this class. Three cases I recall where the individuals escaped only with their reason. Two had the peculiar facial expression of those affected with pharyngeal adenoids, but they were in no way improved either as to facial expression or as to mental condition by the removal of septal spines, crests and enlarged turbinates which furnished free breathing room through the nostrils, thus proving rather conclusively to my mind that the disparity in development in these cases was the cause of the nasal stenosis, and that the latter condition had very little effect on the mental condition; as one might infer on first thought.

The deviation of the septum resulting from anomalies in development occurs during the time of the second dentition from the seventh to the fourteenth year; it may become more pronounced from then up to the eighteenth or twentieth year when ossification in the skull is completed. It rarely if ever occurs before the fifth and *never* after the twentieth year, unless from pressure or traumatic causes. It occurs during the years of greatest development of the brain, and consequently with the greatest expansion of the cranial and facial bones. Whether during this period the space between the ethmoid and the superior maxillary is abridged, or whether there is a greater development of the septum than the space admits, or whether both these factors come into play, I am not prepared to state. Up to the time of the second dentition there is a similarity in the facial appearance of European and American children, but at this time there commences a variance in the nasal shapes that does not occur in the children of unmixed races. The mixed races seem to be affected by other anomalies in development of the facial bones that occur principally during the same period, namely, the narrow and shortened jaws and the high arched palate, the latter more apparent than real, as the nearer approach of the alveolar processes makes the palatal arch seemingly higher. These anomalies all seem to be more clearly explained by the blending of different racial types than by evolutionary or devolutionary changes from a prognathous to an orthognathous type. The whole matter is one of theory, but the weight of the evidence is in favor of the former, because we know it has been and is occurring continually while the latter supposition is purely theoretical.

FIBRO-LIPOMA OF THE PHARYNX.

Read in the Section on Laryngology and Otology at the Forty-fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1894.

BY JOHN O. ROE, M.D.

ROCHESTER, N. Y.

REPORT OF CASE.

Benign tumors of the oro-pharynx, involving the posterior wall alone, are of comparatively infrequent occurrence. Judging from the cases reported, and from my own experience, lipomatous tumors located in this region are the rarest of all. The following exceedingly interesting case, that of a large fibro-lipoma of the pharynx came under my observation last January, and is quite worthy of record:

Mrs. R., 49 years of age, began nine months before I saw her to experience a sensation of roughness and fullness in her throat, attended with difficulty in swallowing, and associated with pain extending to both ears. While remaining quiet she experienced no special discomfort in her throat,

but on attempting to swallow, the sensation of constriction about the throat and the pain in her ears would be frequently quite severe. This difficulty in swallowing began with the taking of solids, particularly in large pieces, and gradually increased until the time she came under my observation, when she could swallow liquids only and these only in small quantities. Owing to this great difficulty in swallowing she had become emaciated, and was rapidly losing flesh and strength. An examination of her throat revealed a large swelling projecting forward from the posterior pharyngeal wall, nearly filling the pharynx. It extended vertically from a point opposite the base of the uvula to a point opposite the arytenoid cartilages, and laterally from one posterior pillar to the other. This enlargement was somewhat ovoid in shape, the larger portion being above, and covered with mucous membrane, indicating the existence of a growth located behind the pharyngeal wall. The mucous membrane covering the swelling was somewhat pale from the pressure of the growth beneath, but otherwise presenting no unusual appearance; and there was no evidence of previous ulceration or disease of any nature.

On palpation, this swelling had a soft doughy feeling, similar to that of an abscess, but the history and appearance gave no suspicion that this swelling was of that character. There was no history of a specific disease, and the patient had met with no injury to the pharynx of which she was aware. Thinking, perhaps, the swelling in her throat might be a collection of enlarged post-pharyngeal lymphatics, due to some unknown specific trouble, I placed her on vigorous specific treatment for a time. This treatment, however, had no effect upon the swelling in her throat, therefore, without doubt, the swelling was not of a specific nature. The growth to all appearance was a lipoma, and I accordingly advised its removal, which was done the following day. Local anesthesia with cocain injected and applied to the surface was quite sufficient to relieve the pain. An incision about an inch and a half long was made along the median line down to the tumor, which lay encysted just beneath the submucous connective tissue. I then endeavored with a thin curved elevator to separate the tissues from the growth and thereby to enucleate it. This I succeeded but partly in doing and, owing to the fact that the thin portion of the anterior wall of the growth became ruptured, a portion of the contents escaped. This was preserved for further examination and found to be composed of fat. In conjunction with this substance other tissue of a firm character was found, which was afterward shown on examination to be fibrous connective tissue.

It was with some difficulty that the growth was separated from the surrounding connective tissue, and along the posterior surface it was attached and firmly adherent to the pre-vertebral fibrous tissue. The attachment of the growth extended throughout the posterior surface from a point opposite the base of the uvula to a point opposite the arytenoid cartilages, being the area that the growth occupied externally as indicated during the first examination. It was with considerable difficulty that this attachment was removed from the vertebrae, requiring careful dissection. The removal of the growth was attended with very little hemorrhage, no vessels requiring ligation, and capillary oozing soon subsided.

The whole cavity, after being thoroughly cleansed with a solution of bichlorid of mercury (1 to 5000) was completely packed with iodoform gauze, not only to render the parts thoroughly aseptic, but also to prevent food from entering the sac. Notwithstanding the fact that the sac was as completely filled with the iodoform gauze as it had previously been with the growth, the patient could swallow much more easily than before the operation. She was placed upon sterilized milk diet which was maintained until the parts had healed.

The cavity left by the removal of the growth was allowed to fill with granulation, requiring about two weeks. At one spot there was a portion of the attachment of the growth to the posterior wall that had not been completely removed; this was destroyed by the galvano-cautery. At the end of three weeks the surface was completely healed, leaving only a slight scar along the median line, and since that time there has been no evidence of any return of the growth.

This growth was evidently a combination of a lipoma-molle and a fibro-lipoma, in which the fatty portion had become liquified by the heat of the body and by the motion and pressure to which it was subjected. A case similar to this one, in nearly all par-

ticulars, is reported by Taylor¹. In Taylor's case, the tumor was mistaken for a post-pharyngeal abscess and incised. It passed down so far behind and projected so far on each side of the larynx as to cause dysphagia and dyspnea from pressure on the larynx. Tracheotomy gave no relief. In the case I have described the patient suffered from dyspnea, although not from pressure upon the larynx but from partial obstruction of the larynx, and also of the pharynx by the growth interfering with the ingress of air.

DIPHThERITIC CRICOID PERICHONDRITIS AND NECROSIS.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY PROFESSOR RAMON DE LA SOTA Y LASTRA, M.D.
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The idiopathic inflammation of the laryngeal cartilages is considered a rare affection by the greater part of the authors; who instead affirm that the laryngeal perichondritis and chondritis, as manifestations of certain constitutional illnesses, pocken, typhoid fever, syphilis, lupus, cancer, tuberculosis and mercurial intoxication, are sicknesses which are observed frequently. I think that the idiopathic perichondritis appears many or more times than the symptomatic, and if we do not take notice of it with more attention, it is because it terminates generally by resolution, and passes without being noticed, and we believe it to be an inflammation limited to the mucous membrane, and to the immediately sub-mucous tissue, which penetrates into the same cartilage. For which it is called intense inflammation of the arytenoid mucous membrane, that which not only invades the immediately submucous tissue, but that which reaches the crico-arytenoid articulation, beginning in many cases the phlogosis by the same articular surfaces; after that it goes on to attack the mucous membrane, this being the consecutive inflammation, and the arthritis the primitive one.

Among the causes of the consecutive perichondritis only two authors notice the diphtheria, Gottstein and Bosworth; the first saying, speaking from the etiology of the perichondritis, that this "can appear as joined to an ulcerative process already existent of a diphtheritic character; but without stating if his affirmation is purely rational or deducted from the experience; and the second cites the diphtheria as a cause of the inflammation of the laryngeal cartilages, because one of the 33 cases of perichondritis observed by him was produced by the diphtheria. Volume II. of the *Journal of Laryngology*, pages 366 and 367 contains an extract of a case published by Jacoborvitsch, from St. Petersburg, in the *Archives für Kinderheilk.*, Vol. 10, No. 1: "It was a child a year and three months old, which suffered the scarlatine. The diphtheria of the throat appeared several weeks after, and the diphtheritic membranes persisted on the tonsils and upon the pharyngeal vault during two months. There was also increasing stenotic respiration. Tracheotomy was performed, and the child died. In the necropsy was discovered perichondritis of the cricoid. The pharyngeal mucous membrane was covered with pus and membranes."

The *Internationales Centralblatt für Laryngologie*, published at Berlin from 1889 till 1890, page 189, copies from the *British Medical Journal*, Sept. 22, 1888, a case of the necrotic perichondritis observed in a pig by Proctor S. Hutchinson, of London: "The animal suffered from symptoms, which resembled those of the croup. It was not founded on motives to diagnose the acute illness. The animal died, and necropsy was performed. It was found with an inflammation, which was extended around the cricoid cartilage with partial necrosis of the same. A very great part of this cartilage fell down, and only remained a little part of the lower and anterior portion. The suppuration was insignificant. The necrosed piece was buried in a tissue of soft granulations. At last existed a general edema of the larynx, which explained the dyspnea."

This is all that I could find in the medical literature, which says anything with regard to the appearance of laryngeal perichondritis produced by the diphtheria; not even Knight, (who, in the eighth annual meeting of the American Laryngological Association, held at Philadelphia in May, 1886, with motive of a case of perichondritis, studied the causes of this affection in a splendid work) mentions diphtheria.

I have recently had occasion of observing the fatal consequences of this complication of diphtheria (which I think is not very rare) and by it have been many deaths attributed to other different causes. But before making more reflections, I will refer to the history of an interesting case for more than one reason:

February 4, 1894, I was called in consultation by the well-known physician, Reyero, on a child of 23 months, whom he found with all the symptoms of diphtheritic croup, and he recommended me to take the necessary instruments in case of necessity of performing the intubation, as he supposed.

At 8 o'clock in the evening we assembled at the house of the little invalid, who six or eight days before had shown symptoms of the bronchial catarrh, according to the statement of the parents; who had not been alarmed and had not called in the physician until that same afternoon, because they did not think it was fever, and notwithstanding that he did not like to eat, because he felt a pain in swallowing, coughed frequently, was hoarse and was unable to get up, but breathed well, they had confined themselves to have him protected from the cold, poulticed in the neck, and giving him some warm milk. They gave him also two emetics of ipecacuanha, one every second day: the latter one that same day; and notwithstanding the two operated well, as the illness not only remained, but increased until the difficulty of breathing inspired the parents with some dread, they resolved to call the physician.

The state in which Dr. Reyero found the little invalid five hours before the consultation, was a little more or less the same in which we found him when we joined for the consultation, and believing the child to be in a very grave condition, Dr. Reyero had the consultation immediately. I noticed that it was a larger child than its age seemed to warrant, and seemingly vigorous. He slept in his mother's arms, with difficulty breathing noisily in the inspiration and in the expiration; the forehead was covered with a cold and viscous sweat, a livid line existed around the eyes and the mouth; the cheeks were very high

¹ Lancet, London, 1876, Vol. II, p. 685.

colored, but the ears, the lower part of the face and the nose were pale; the wings of these latter moved when he breathed; the supra and infra-clavicular, and supra-external fossæ, and the epigastrium fell down profoundly during the inspiration; the scapular, sterno-cleido-mastoides, pectoral and abdominal muscles concurred with their contractions to introduce the greatest possible quantity of air in the lungs. The respiration was shallow and hasty (38 every minute); the pulse was feeble and quick (112 every minute); the skin of the extremities was cold; the nails were blue, and the axillar temperature arrived to 38.9 degrees. Examining the mouth, appeared a white and large false membrane, which covered the soft palate, the uvula, the two pillars and the two tonsils. The rest of the mucous membrane of the palate and the pharynx was very red and friable, and to the least light friction bled. From the excoriated nose flowed a bloody ichor, but the false membranes were not seen there. At auscultation we noted a noise of large bubbles as much in the anterior part as in the posterior part of the chest. Our diagnosis was pharyngeal and laryngeal diphtheria in the asphyxia period, and complicated with intense and extensive bronchitis.

We made a very dangerous prognostic, not only by the advanced and extensive suffering, but because the gripe was existing in Seville at that time. We feared that the bronchial catarrh would assume an infective character, if by chance it had not yet assumed it. Notwithstanding, we agreed that it was necessary to perform the intubation immediately, in order to free the child from the imminent asphyxia; to separate the false membrane with a ball of very firm sterilized cotton; to irrigate the throat and the nose with a solution of carbolic acid (1 to 100); to touch the sores of the diphtheritic plaques with another ball of sterilized cotton moistened in a solution of the absolute phenol in the sulpho-vicinat of soda (20 to 100); these three latter were to be done every hour. The following mixture:

R. Hydrargyri bichlorid .01 gram.
Tinct. ferri chloridi, 8 cc.,
Potassi chloratis, 4 gram.
Glycer., 60 cc.,
Aqua, 120 cc.,

was given, a teaspoonful every hour, and we advised that nourishment should be often taken, taking care to place the invalid with his head downwards, whenever he took any fluid. Moreover the bed was surrounded with sheets, making like a tent, and burning within the sheet two grams of calomelanos every four hours.

All was performed as we ordered. The intubation was made very easily and promptly, putting the tube, No. 2, of the scale of O'Dwyer, corresponding to the two years which the child had. But at the first fit of coughing after having placed the tube, this was expelled with force and to a great distance; which showed me the necessity of placing another and larger tube, and without difficulty I put that of the No. 3, and the little invalid remained breathing, coughing and discharging mucosities by the tube with great facility, and without showing any grievous symptoms.

The first night he was very agitated, the tracheal râle was heard outside the room, and the temperature was raised to 39.8 degrees. The succeeding days at 9 o'clock in the morning the fever went down suffi-

ciently, for it descended to 38 degrees, but it rose again during the night, the child did not wish to eat, it was sorrowful and did not speak. Notwithstanding, the respiration was performed easily, and the false membranes were every time reproduced with less vigor.

On the sixth day I determined to take the tube away, that I had hesitated to take away before, watching the bulk of the introduced instrument. The child passed the day better than the anterior days; he had sat down at table with his parents and had wished to eat what he saw, though he suffered much in swallowing it; the diphtheritic sores of the throat had totally disappeared, but the respiration (a condition that should not be forgotten, by what happened after) was noisy, notwithstanding that it was performed easily, as the tracheal rattle and the axillar temperature was raised to 38.7 degrees. The extraction of the tube was performed quickly and well, but in the moment that it was taken away from the larynx, and when I believed that by its friction against the posterior laryngeal wall, the violent fits of cough commenced which expelled the materials lodged in the trachea, I observed with great disgust that they were carried down by the current of inspired air, and afterward the child began to suffer the peculiar paroxysm, precursor to the asphyxia. I expected that this dyspnea would disappear by degrees, as I have had occasion to observe it in other operated persons, and examined the tube, which was completely obstructed, and saw a piece of the macerated false membrane formed a cap or a capsule in the inferior extremity of the instrument. I introduced the obturator of the tube and there came out a dense mass in shape of a cylinder, a veritable mold of the lumen of the tube, composed of detritus of false membrane, by semi-coagulated mucus and probably by some food. I called my learned colleague's attention to all, and he asked me from what time this material had filled the tube. I could not tell him; by the consistency of the plug, which did not break when it fell to the floor, I ventured to say that the tube had been obstructed from twenty-four to forty-eight hours.

When I was occupied in these examinations the state of the child grew rapidly worse. I observed it by the noise which the air made in passing the glottis, and my friend Reyero advised me of it, at first with tranquillity and the second time with exigency, because the little fellow was suffocating. I was already trying to place a thread in the tube in order to repeat the intubation, but the moisture of the instrument and of my hands made it very difficult to slip the delicate thread of silk in the small hole of the tube. I could not do it. Reyero was alarmed, and with reason, because the face of the child was violet, and he told me again of the danger; and for that reason I left the silk, because there was not a moment to lose, and, placing my confidence in God, without silk and without gag, I performed the intubation, doing it with great facility and at the first attempt, and beginning immediately the artificial respiration; because the child could not get breath and all its skin was covered with a cold and viscous perspiration, and the muscles completely relaxed. We obtained in three or four minutes of the artificial respiration the natural one well restored. The child slept after the danger which he had run, and we were smiling after having been in such great anxiety.

We attributed what happened to the aggregation upon the wing of the trachea of layers of the false membranes and of a great quantity of semi-concrete muco-pus, and we decided to leave the tube for two days more, holding same medication, but stopping the painting with the solution of phenol, because the diphtheritic sores had disappeared.

Thirty-eight hours were passed without any accident, the temperature had been normal since the following day; the same in the morning and evening. The child wished to eat, but the deglutition was always painful, the respiration was accomplished without noise and suddenly at a fit of coughing the tube was expelled. I was called and went with the haste which was natural after what happened two days before, and when I arrived at the house of the invalid, which is very far from mine, I had the consolation of finding the child respiring, though with great pain. I was surprised that the tube was expelled so soon, because it was much larger than usually used in a child of that age. The dyspnea reappeared the moment the tube was extracted, and increased until nearly asphyxiated, although the lumen of the instrument was clean and we could not hear the tracheal rattle, but we could hear the whistle which the air made in the glottis, as much in the inspiration as in the expiration. I performed intubation for the third or fourth time, and all remained as if nothing had happened; but I was very displeased, because I thought that it was caused by a post-diphtheritic paralysis of the posterior crico-arytenoid muscles, and so I told Dr. Reyero, who coincided with me in the diagnosis and also in the prognosis; we then left the house sorrowfully thinking of the paralysis in such little muscles where perhaps it had never been before. Knowing how rebellious and long are these fits of paralysis, we did not dare to say how long we should have to leave the tube in the larynx, and the inconveniences that were present by the paralysis of the dilating muscles of the glottis. Notwithstanding, as that day the dyspnea had not been as early and as severe as two days before, I hoped that the tube inciting the part would determine the contraction of the postici muscles. In thinking of these things we arranged for a new consultation in two days, in order to take away the tube, besides he did not expel it as before, and resolving to carry one of the shortest tubes and of a great diameter to substitute for that placed, in case it were necessary.

On these two days nothing happened worthy of mention, and to the disgust of the parents I took away the tube; and the scene of the latter day was repeated. I then placed the third tube of the short ones, and left the child all right.

Two more days were passed with tranquillity; the only unpleasant phenomenon was the pain in the larynx sustained, in my opinion, by the long permanency of the tube in the larynx; and so great was my desire of taking away the instrument, that I extracted it in the hope of finishing my task that evening; but if there was a moment in which it seemed that the respiration was performed easily, that passed, and the peculiar respiratory whistle was repeated. With disgust I listened to it; but I did not wish to repeat the operation. Reyero looked at me and said: "I do not wish the child to remain like this; I have very much to do and can not lose the time. I beg you to repeat the intubation." He was right, and I obeyed.

The child resisted all our maneuvers; thus as soon as he saw the gag he closed the teeth, and there was no human force that could separate his jaws; we vexed and annoyed him every time that the gag was applied. On this occasion the maneuver was something more tedious than the anterior ones; and a tooth was knocked out; the little invalid shook the head in the moment of nausea, so notwithstanding our efforts to subdue him I was only able to place the gag in an imperfect manner. So I performed; but when I put my finger upon the head of the tube in order to withdraw the obturator, I observed that the larynx fell down until I could not touch it with my finger. I stopped in suspense. What had happened? Where had the tube fallen down? That tube of which the diameter was triple, that which corresponded to the age of the child? To the subglottic part? To the trachea? Impossible, because the shortest tube placed by Brothers in the larynx of the dead body of a child could not be made to go down to the trachea, far less could this large tube fall down so small a larynx and with so light an effort. Guided by this reasoning I took away the thread. Notwithstanding so nervous a person, as I, can not rest under the power of the imagination without suffering dreadfully, and for that reason I decided to take away the tube. I introduced the extractor and putting it well down I managed to seize the tube and take it away. I had nothing to dread, but it was necessary to repeat the operation, and as the child had the mouth open, and recollecting what I had done a few days before in very exacting circumstances, I wished to repeat the operation; that is, I wished to introduce the tube without putting in it the thread of silk; but the tube, large and short, was separated from the obturator, and before I could seize it, the tube fell down the esophagus lengthwise, and penetrated into the stomach. A similar contrariety bothered me very much, though I knew already that the tube would sooner or later be expelled by the ano, and in the same instant I seized another tube of the largest and shortest, put in it the silk, and placed it in the larynx. The tube was larger than that which had been slipped by the esophagus, and, notwithstanding, I felt it slip under my finger, just as the other one had done when it fell down, but yet I did not trouble myself, because I knew that it was upon the vocal cords; notwithstanding I was not able to explain what happened; for the paralysis of the abductor muscles was not sufficient reason for this rare phenomenon. That happened February 23, and we agreed that the parents should carry the little invalid to my home on the 26th, in order to begin the application of electricity to the paralyzed muscles.

By misfortune, I woke on the 25th with a great superciliary neuralgia, which obliged me to remain in bed. On the evening of this day the child expelled the latter tube, so extraordinary large for its age, and the father called me in order to help his son, who was suffocating. As I could not rise from the bed, so I besought my dear disciple and expert laryngologist, Gallegos, to go and do what he believed necessary for the child.

My friend went instantly, found the child in asphyxia, and introduced the tube which had been expelled two hours before. In introducing it he observed what I had observed already; that is, that the tube under the pressure of the finger slipped by

the larynx to a place where it could not be touched by the finger. That surprised him as it had surprised me; but he had not time to pre-occupy himself, because he had scarcely taken away the thread than a fit of the cough expelled the tube out of the larynx. This scene was repeated six times; on the third, after the issue of the tube was a moment of imminent asphyxia; a whitish body appeared between the teeth in the middle of thick and sanguineous mucosities, which Gallegos seized, believing that it was a tooth, as the anterior, separated. When he had it in his hand he saw that it was not a tooth, but a white opaline substance, from two millimeters of thickness by ten and seven of length and nine of breadth; irregular, concave on one of its surfaces, convex on the other; with two even and round borders, one superior and the other inferior, and with two dentated extremities. He considered what it might be. At first he thought it was a piece of epiglottis, but when he examined this with the finger, on making a new intubation, he observed that it was intact. He thought then if it might be a substance thrown from the stomach, but none of the food that the child had taken could contain anything of that size and form. Believing that it was gristle he wrapped it carefully in a paper and continued attending to the patient. Tired and weary because the tube was always thrown out by the cough which the extraction of the thread caused, he decided to leave it, reminding the mother not to loosen the thread at all during the night, so that the child could not pull it with his hands and extract the tube.

On the following morning Gallegos went to see the patient and found that he could take the thread without the tube being expelled, and he came to tell me all that had passed and to give me the tube which had fallen into the stomach, and that before twenty-four hours it had been expelled by the ano. Also gave me the strange body taken between the teeth on the preceding night. I staid in bed suffering from neuralgia; heard the relation of my friend, seized that which he gave me, and looked at it carefully. It was already dry, and was transparent and hard, rolled upon one of its surfaces, and had all the appearance of a large psoriasisic scale. "I do not know what it is," said I to him.

"Nor I either," he replied, "but I believe that it is a piece of gristle." "It does not appear to be so," I answered; "it resembles more a dried false membrane, or a piece of loosened and dried vocal cord." "You did not see it when it was fresh; then it was like a necrosed cartilage, and by its breadth I believed that it was the epiglottis, but then I have touched it with my finger, and observed that it was complete." "If it is cartilage, as you believe, it will be a piece of the cricoid gristle by its form; but leave it, for I can not speak. Please put it on my cabinet table." Observing the bad state in which I was Gallegos departed; and two hours after the parents of the child arrived at my consultation room with the little patient. He had expelled the tube; and I told them to take him to Gallegos, who performed the intubation, but three hours after another fit of coughing threw out the tube. The child remained without it all that afternoon and all the following night.

In the morning they called me, but as the neuralgia did not permit me to go, and knowing that the child was choking, that he could not swallow more than

fluids, and that his general state had grown much worse since I had last seen him, I advised them to perform tracheotomy; for it was seen that the paralysis of the vocal cords was so great that they wanted the necessary tension to retain the tube. I indicated this to the parents the day before, but they did not wish to have a bloody operation performed; yet at last, knowing that if the trachea was not cut their son would die, they asked of me the cannule of tracheotomy corresponding to the age of the child, and with it they went to call Reyer. Unfortunately, he could not go to the child until 12 o'clock; half an hour before this, died, asphyxiated, that fine child who during fifteen days had passed through so many vicissitudes.

As soon as I was relieved from the neuralgia, I begged of my dear friend, the illustrious Dr. Roquero, Professor of Histology in the School of Medicine of Seville, to make a microscopic examination of the body held by Gallegos. Roquero then immersed it in pure distilled water, and examined with the microscope a section, and saw that it was a hyaline cartilage, and that the piece would correspond to more than the posterior half of the cricoid cartilage. Effectually, after having soaked it in the water, the figure shown in the annexed photograph appeared clearly. The surfaces A and A correspond to the



articular facets upon which the arytenoid cartilages turn round; in the middle of the plate one can distinguish the projecting line that shows the union of the two halves of the seat of the ring, and in the sides you can see some rugosities indicative of the insertions of the posterior crico-arytenoid muscles. This anatomic piece I conserve in a solution of hydrate of chloral; for it is equivalent to an necropsy, because it explains the phenomena observed during life, and puts out of doubt the existence of diphtheritic laryngeal perichondritis and necrosis.

If these affections are not quoted as frequently as they ought to be, without doubt we must impute that to people not thinking about more than the inflammation of the mucous membrane and the submucous tissue; as if further than that there is some insurmountable barrier to the simple inflammatory or specific process. As there is no such barrier, it will be permitted to suppose that in many cases the diphtheritic process advances to the perichondrium, and into the same cartilage; and if we do not observe its greater frequency the expulsion of the necrosed pieces, as in the present case, it is due to death happening before there was time for the cartilage to be carious in all its thickness, or that either a large or small sequestre could come out. Neither is it risky

to suppose that there have been cases of expulsion of the cartilaginous pieces, but unknown or not seen by the assistant persons.

I have said that the piece taken from our patient is worth as much as an autopsy or more. It explains to me why the child was choked as soon as he expelled the tube. I imputed it the first time to the mucosities and detritus of the false membranes accumulated upon the spur of the trachea; the second time to a paralysis of the dilator muscles of the glottis of diphtheritic nature. This second time I was right about the paralysis, but I was wrong in its cause. The perichondritis must have appeared in those first eight days in which the child did not have the necessary medical attendance as proven by the intense dysphagia manifested by the little patient. In the moment of the first operation the cartilage must have been immersed in a bag of pus, formed under the perichondrium, the lateral parts of which were probably grown carious. During the first six days of the permanence of the tube, the perichondrium and cartilage stopped ulcerating and then the crico-arytenoid posterior muscles were lost in a great part of its extension. For this reason the vocal cords united as soon as the tube was taken away, and the air whistled in passing through, as much in the inspiration as in the expiration. For this reason the first tube, larger than was convenient for a child of that age was expelled in a fit of coughing, and the same happened with the second and third tube, and this fell down in the larynx, when it was pressed by the finger, because the larynx lacked resistance, the soft parts and the hard parts had lost the base of their support for it is well known that the cricoid cartilage is the fundamental cartilage of the larynx, and that all other parts of this organ rest upon it. When so considerable a part of the cricoid ring gives way as gave way in this case, all the posterior laryngeal wall is put out of its place, the soft tissues are flattened or are united with those of the anterior part of same organ, the arytenoid cartilages necessarily sink and fall in the laryngeal vestibule, and the thyroid cartilage remains without control, through failure of its inferior adhesions.

But the case also obliges us to think that it is possible that one of the ordinary tubes of O'Dwyer can descend in the trachea; for Doctor Brothers, after his experiments, which prove the impossibility of the tube falling down by its own weight in the trachea, tells us that what principally impedes this descent is the enlargement or prominence of the cricoid cartilage in the anterior part of the larynx. If that is so, then if a considerable part of the ring is separated, the retentive enlargement is wanting, and as the soft tissues are elastic, it is possible that the tube may penetrate to the tracheal conduit. If in this child this did not happen, it must be without doubt that when the sequestrum lost its relations with the anterior part of the ring, the diameter of the tube was too large. I, a decided partisan of the method of O'Dwyer, show this contrariety, which is neither little nor insignificant, because the fall of the tube in the trachea would oblige the operator to perform tracheotomy immediately in order to extract the strange body; which would place the physician who had already told the parents of the little patient that he knew a proceeding that would free the child from asphyxia without cutting, in a very delicate situation. Until now I never thought that I should

find myself in such a difficulty; for the future I shall have to dread it, although it may be rare, and I shall so tell the family.

But if this case has given me a motive for fear, at the same time it has given me another motive for confidence. All the authors, when writing about the serious accidents of intubation tell us about the obstruction of the tube by the false membranes or by other cause. In this child I found the tube completely obstructed when I took it away the first time, and notwithstanding the child breathed perfectly; and more, the dyspnea began as soon as I extracted the tube. How do you explain the phenomenon? I believe it very easy. Place two thin bands of caoutchouc of five millimeters in breadth by twenty in length in form of ribbons upon a tube, so that they are touched by its borders, but are not very tight. Between two bands is placed a little tube of O'Dwyer, and it will be seen that the ribbons remain separated two or three millimeters in front and behind the instrument. What more suffices for the respiration to be made with relative ease? A similar thing happens in the larynx. The vocal cords are relaxed as in the present case by the loss of resistance of its posterior insertions.

Finally, this history also teaches us that we must never try to extract a tube without having another prepared to introduce, if it were necessary, as happened the first time I took away the tube. If, then, I have the misfortune, which I had in my latter intubation, that the tube gets out from the obturator, and instead of falling into the larynx, it falls into the esophagus, the child would be asphyxiated with all certainty. I do not know if any one of those who have written upon intubation of the larynx have improved upon this precept; if none have previously indicated it, I now show it.

RETRO-PHARYNGEAL LYMPHADENITIS.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held in San Francisco, June 5-8, 1894.

BY W. E. CASSELBERRY, M.D.

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It is now well established that retro-pharyngeal abscess arises ordinarily not in caries of the cervical vertebrae, but in the inflammation of the lymphatic glands which are imbedded in the posterior pharyngeal wall. Of 204 cases analyzed, Bokai placed 187 in this class, in contra-distinction to only 7 cases, secondary to caries of the vertebrae. Children are especially prone to inflammations of the lymphatic system. Cervical lymphadenitis is common among them. Frequently it is tuberculous, but often it is not, and usually the acute variety whether suppurative or non-suppurative, results from infection by a previously existing tonsillitis. So also with retro-pharyngeal abscess; it is most reasonable to regard it as a secondary infection of the pharyngeal lymphatics from inflammation of exposed and associated muco-lymphoid glands, like the faucial and naso-pharyngeal tonsils. In rare instances the source of infection may be rhinitis communicated through the nasal lymph channels or, still more rarely, a suppurative otitis; but as previously mentioned, follicu-

lous and suppurative forms of tonsillitis, as well as those forms of tonsillitis and pharyngitis which are symptomatic of the exanthemata, may reasonably be regarded as the most frequent causes of retro-pharyngeal lymphadenitis.

Whatever the source of infection, the initial stage of retro-pharyngeal abscess is retro-pharyngeal lymphadenitis, and moreover the lymphadenitis may be of a non-suppurative type, or the disease become arrested in this stage, undergoing resolution without the formation of an abscess. This simple lymphadenitis has been but rarely observed in this country, but Bokai, in addition to 400 cases of abscess, mentions 112 cases of simple retro-pharyngeal lymphadenitis as having passed under his observation in the Pester Kinderspital.

I would report the following instructive case:

A female babe 4 months of age, was convalescing from acute follicular tonsillitis, probably of the variety which I have elsewhere described, under the name of infectious pseudo-membranous tonsillitis, which was prevalent at that time, and which in several other cases, under my observation, had occasioned pronounced cervical lymphadenitis. As the tonsillitis subsided dyspnea commenced and increased for two weeks, at which time I saw the case in consultation through the courtesy of Dr. E. J. Kuh. Suffocation was imminent, cyanosis marked, respiration irregularly stertorous and only possible when the child was held in a certain position. The voice was unimpaired and inspection of the fauces negative, but careful palpation disclosed a hard tumor which projected from the posterior pharyngeal wall in the median line, extending downward sufficiently to press upon the opening of the larynx. I made three punctures into this tumor but failed to evacuate pus, and being otherwise satisfied by its hardness to the touch and the absence of fluctuation that it was not an abscess but a case of simple lymphadenitis, tracheotomy was advised. The recovery which ensued from this operation in a child so young as 4 months, is to be largely attributed to the skillful manner in which Dr. L. L. McArthur opened the trachea without an unnecessarily large external wound, without delay and with antiseptic precautions. The tumor underwent gradual resolution without suppuration, or at least there was no perceptible discharge of pus in any quantity. At the end of two weeks the tracheotomy tube was withdrawn, and the child recovered.

The successful management of such a case would depend first on a correct diagnosis. Dyspnea is the most prominent symptom, the cause of which must be precisely determined. It is easy to exclude diphtheria by inspection of the fauces, and equally easy to exclude both spasmodic and membranous croup by the presence of an unimpaired voice; but I have seen identical symptoms of suffocation produced by a large collection of "adenoids" in the naso-pharynx, which by pushing the velum palati downward and forward, caused it to impinge on the dorsum linguæ and thus impede respiration. This condition can be excluded and the positive diagnosis of retro-pharyngeal lymphadenitis made, not by inspection, but by palpation. Examination deliberately made by the finger of each and every part of the pharynx and naso-pharynx will afford much more exact information in such cases than mere inspection of the fauces.

Having located the tumor in the posterior wall of the pharynx, the presence or absence of pus may be determined by a puncture or two or three punctures carefully made by a bistoury. The exact position of the tumor varies in different cases; it may be high or low, in the median line or to one side. "McClellan's Regional Anatomy" locates one retro-pharyngeal lymphatic gland opposite the second cervical vertebra, but it is likely that it may deviate from this position, and that others would be located by

close anatomic study. An inflammation commenced by infection of a lymphatic gland would be likely to involve, also, the surrounding connective tissue. When located low down in the laryngo-pharynx a comparatively small swelling may speedily occasion suffocative symptoms.

This paper includes within its scope the treatment only of retro-pharyngeal lymphadenitis, not that of abscess, and apart from general measures the only symptom of the former affection likely to demand interference is dyspnea. Having made preliminary punctures to exclude a possible collection of pus, the question of tracheotomy must be considered. Intubation is out of the question, for the same swelling which stops the glottis would stop the orifice of the tube.

Bokai¹ finds that tracheotomy is rarely necessary, resolution usually taking place in from five to seven days before suffocation becomes imminent. Nevertheless, Bokai² reports a case similar to the one herewith detailed in which he performed tracheotomy. It was a child 8 months old; the posterior wall of the pharynx showed diffuse hard swelling without fluctuation, and a deep incision into the mass had yielded no pus. Resolution occurred without suppuration, the tube was withdrawn at the end of three days and the child recovered.

Unlike diphtheritic croup, early age is no contra-indication to the operation of tracheotomy in retro-pharyngeal lymphadenitis, for herewith are recited two cases under 1 year of age, my own of 4 months and Bokai's of 8 months, in which recovery occurred. Good judgment would therefore indicate that whenever dyspnea has advanced to the verge of suffocation, or even to threatened exhaustion of the patient, tracheotomy should promptly be performed.

VALUE OF ANTROSCOPY (ENDOSCOPY OF THE ANTRUM OF HIGHMORE).

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY HENRY LEWIS WAGNER, M.D.

SAN FRANCISCO, CAL.

I am convinced that we all are not always successful in the treatment of empyema of the antrum of Highmore, and consequently we have been obliged to perform a second and more extensive operation. This has taught us the real nature of the disease, and how to thoroughly eliminate the existing trouble. All this may be avoided by a thorough ocular inspection of the maxillary sinus by the antroscope—the endoscope of the antrum.

Two years ago I demonstrated this in a crude state to the San Francisco County Medical Society. I do not need to explain the details of the principles of the endoscope, which are used for illuminating closed cavities, as you are all familiar with them. The endoscope for the antrum is intended to be used after perforating through the alveolar process or through the fossa canina. It can also be used with the proper curvature through an intranasal opening. The latter method I have abandoned during the last years.

The cases in which the antroscope has proven to me to be useful, were:

¹ Jahrbuch für Kinderheilkunde, Band xxxiii, Heft 3, p. 360. American Journal Medical Sciences, p. 120, July, 1892.

² Loc. cit.

1. To determine the presence of a drainage tube in the cavity, which was said to be missing.
2. Where a polypus near the hiatus semilunaris could be located, which had kept up a sero-purulent discharge.
3. Where by a series of bony septa the pus was retained.
4. To ascertain the differential diagnosis of angiodema, where suddenly a severe hemorrhage took place from the antral cavity.
5. To facilitate the thorough scraping of the necrosed bone by means of a bent curette—introducing first the curette and then the antroscope.

NEW INSTRUMENTS.

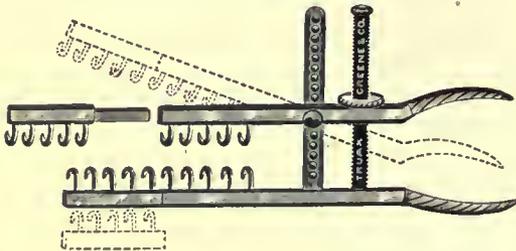
Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1894.

BY SETH SCOTT BISHOP, M.D.

PROFESSOR OF OTOLGY IN THE POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL, CHICAGO, ILL.

DOUBLE RETRACTORS.

The double retractors take the place of an assistant in keeping the soft tissues out of the way of the operator, and in controlling the hemorrhage during mastoid and other operations of like magnitude. The retractors consist of two shafts, each armed with a series of hooks that can be brought together and interlocked for insertion into the incision, when they can be separated and fixed at any desirable point up to two inches apart. After they have been drawn apart as far as may be required, the thumb screw on the fixation bar next to the hooks should be screwed down firmly into the bar, the handles should be pressed a little together until the tissues are well stretched as the distal ends of the retractors separate, then the thumb nut on the thread bar should be turned down against the movable handle.



If the instrument is properly adjusted the tissues can not slip out of its jaws and their pressure on the stretched lips of the wound reduces the hemorrhage to a minimum. In one operation these hooks proved more effective than five artery forceps.

The following arrangement renders these retractors equally useful in the smallest and the largest mastoid operations: The outer half of the shaft of



hooks can be slipped out of the inner half, leaving the retractors only an inch long. Replacing the adjustable series of hooks makes them two inches long, and by drawing these adjustable hooks outward one-half inch you can lengthen the hooks to two and one-half inches. This has the effect, when the instrument is in position in a large wound, of making an opening two inches to three and one-half

inches wide, by three or more inches long through which to work. However the opening can be made as small as one wishes, and the capacity of the instrument is far beyond what we usually require in operations on the skull, but I have had it made so as to be of service in other and more extensive operations, since its size in no way impairs its efficiency in mastoid cases.

When the adjustable parts of the hooks are removed for small operations the openings in the permanent hook-shafts, into which the adjustable hooks fit, may be securely sealed by a bit of beeswax to prevent the entrance of blood, etc. After being used, this wax will run out on the application of a little heat. A drop of oil should then be put in the same openings to prevent corrosion, or sticking of the adjustable shank.

A PERIOSTEUM SEPARATOR, RETRACTOR AND CURETTE.

This hoe-shaped device overcomes a serious objection to the misnamed periosteotomes we have been using. Indeed these instruments should not be *tomes* at all. They should not cut the membrane, but should lift it from the bone in continuity, so as to carefully preserve its integrity.



The old periosteotomes put the operator at a disadvantage by necessitating an unnatural play of his muscles. With a pushing motion one has not perfect control of the movements of the instrument and it is likely to slip and cut where it is not desirable to wound. In the use of this kind of a lifter the motion is one of drawing or pulling toward one's self so that the muscles brought into play are, together with the instrument, under easy control—on the same principle as the farmer's use of his hoe, after which it is patterned.

As the separator serves the purpose, not only of detaching the periosteum, but of retracting the loosened tissues, or of curetting necrosed bone; it may be said to constitute three instruments in one.

EAR ASPIRATOR.

This instrument is for the purpose of evacuating, or aspirating, the middle ear and adjacent cavities of pus. It consists of an improved air pump and adjustable glass air chamber that fits into the external auditory canal by means of a soft rubber covered tip.

A few gentle tractions of the piston will draw out the discharges from the attic and deeper recesses after the most thorough ordinary methods have proved futile. Not enough force should be employed to cause actual pain or much sanguineous effusion. Yet a slight show of hemorrhage is not disadvantageous, for the parts are stimulated and thoroughly washed of discharge.

The pump is serviceable in chronic cases of caries of the attic, aditus, and antrum in order to obtain complete evacuation and cleansing as the first step in every treatment.

These instruments were made for me by Messrs. Chas. Truax, Greene & Co., of Chicago.

Columbus Memorial Building.

THE CARE OF PREGNANT WOMEN.

Read before the Association of American Obstetricians and Gynecologists, 1894.

BY WILLIAM B. DEWEES, A.M., M.D.

SALINA, KAN.

It is a stirring conviction with many reputable, earnest and progressive obstetricians, that the time has come when we must disclose our power to the world by increasing the usefulness of our labors; and begin to use it for the prevention, as well as for the alleviation, of the sufferings of pregnant women, as has not yet been done, or else get out of the way. In such an event, deliverance will come to this class of suffering women from another source; but woe to those of us who are found at ease with the assumption of this responsibility. The responsibility is tremendous, but the obstetrician can not evade it. He may selfishly shirk it; but it is absolutely out of his province to shift it. That it is our most sacred duty to purpose awakening the profession by arousing one another, until each and every member is fully astir in the line of progression—the indifference of which is the greatest hindrance the medical profession has to contend with to-day—is the writer's hope and belief. The specialist just now is being put to the sharpest test ever known in his history. Whether we as obstetricians will endure it, and turn about to accept it as the greatest opportunity the centuries have brought us, depends upon our readiness to hear and heed the voice of Nature, so very clear and distinct to-day. These are matters of great importance to us, and this is a meet place and time to bring them to notice and to consider them. No one can read, listen, and observe with intelligence now, and not feel that we are living in one of the most marvelous and, for the true-hearted, progressive practitioners, one of the most responsible epochs the world has ever known. That the medical profession is not fully awake to the needs of the hour, as she should be is sadly true. Far be it from me to depreciate in the least degree, the noble work done and the glorious advances made by our profession for human physical betterment. She is unmatched by all other organizations combined in this respect. But, it must be remembered that she should be. It is just this that gives significance to the contrast between what she has done and should have done. She has need to be taught again her first duty: To preserve the human body sound, which begin the first principles of the oracles of God.

Let us recall the three great and noble objects of medical science, namely: 1, to preserve health; 2, to allay suffering; and, 3, to banish disease. The more immediate duties of the obstetrician are to preserve life, to mitigate pain, and to expel disease, amid the natural or accidental difficulties to which pregnant and parturient women are constantly exposed. The study of the diseases and difficulties encountered with a state of pregnancy and parturition, though highly interesting and having at all times attracted the greatest attention of physicians is, however, exceedingly difficult. This circumstance probably atones for the fact that our obstetrical literature still continues to be full of errors. By consulting the best practical writers, missionaries, and travelers, the revelation comes that it is among the higher classes in the more civilized countries—Europe and North America—that women suffer the greater in both pregnancy and parturition; but that the women of the peasantry and the savage are comparatively

exempt. We may therefore very naturally and wisely conclude that it is unnatural for civilized woman to suffer so universally as she does to-day; and that civilization in disobedience to the law of Nature, is the true cause of her present suffering during gestation and childbirth. Thus we may

"Find out the cause of this effect,
Or rather say the cause of this defect,
For this effect defective comes by cause."

It is ignorance, as well as carelessness and viciousness, that has brought about the existing abnormal condition of civilized women. Thus, through unwholesome civilization have come fixed habits of excesses; and if excesses must be indulged, evil consequences will follow and must be endured; for Nature's law would have to be changed before they could be either prevented or banished by any method of treatment. It follows, then, as a natural consequence that to prevent these sufferings will depend, not so much on treatment by application or administration of therapeutic agents, as on the successful education and training of these women, so that they will learn to know how to—and will actually—cultivate the necessary self-discipline requisite to enable them to prevent the continuous irritation from excesses in their modes and habits of life. If the writer's observations have been correct and unprejudiced, it seems that a revival of learning in obstetric science must needs be instituted among us, destined to find the true cause or causes of the unnatural and needless suffering of civilized women. The progress of obstetrics in the immediate future must be made through the knowledge that will be wrought out by the devotees of biology. Thus, we shall find our way, on positive ground back through the morphology of organs, tissues, cells and blood, to a clear comprehension of the origin of vital activity in protoplasm and the pabulum which sustains it. This is the only way open for us into the primitive arcana of Nature, if we would have the wisdom essential to intelligently inculcate that regimen which will successfully prevent the needless sufferings of pregnant and parturient women.

The future distinction of obstetric science can obtain only by an advanced study of human biology. When this truth is propounded, there opens before the thinking mind a vista so transcending all ordinary limitations of obstetrical knowledge, as requires such genius and expansion of the mental eye in order to embrace it in its simplicity as scarce yet obtains. It remains, then, for our guild, to endeavor by rigid scientific investigation through advanced biologic studies, to make patent the causes of the sufferings of pregnant and parturient women, and to determine exact measures for emasculating these causes, or for neutralizing their effects whenever they have eluded detection or escaped emasculation. Thus, by directing our studies chiefly in relation to etiology and diagnosis, and having learned to know the true cause it will become easy to intelligently establish prevention; while, with a correct diagnosis, treatment will become easy.

I verily believe that, the next coming great advance in this, our special branch of medical science, will be in our bringing home to the general practitioner the fact, that the diseases peculiar to women during pregnancy and parturition are very largely preventable. To make him feel his responsibility, both as to their production after the present

generally prevailing methods of practice, and also as to the possibilities of their prevention after improved methods. The family physician must be fully aroused to the conscious realization of the fact that it lies within his power very largely, to prevent many of the diseases among the women of the families intrusted to his care. When this obtains, his moral obligation will impel him to promptly do his full duty, by giving adequate instructions concerning the ill effects of improper posture, dress, food, drink, and erroneous habits of living, including the non-forbearance of indiscriminate, excessive and impure sensual indulgences. Then it will come to pass that the wholesome forbearance of coitus during the entire period of gestation, the puerperium, and three months thereafter, will be insisted upon; together with correct posturing and dressing, proper food and drink, and healthful habits of living. Aseptic accouchments will be faithfully and efficiently practiced; lacerations of the cervix and perineum will be more frequently prevented, and when they do unavoidably occur will be early repaired; rectal and vesical troubles will be corrected in due season; gonorrhœa and syphilis will be also more frequently prevented, and when encountered will be more vigorously treated and kept under surveillance until all discharge and sequelæ are arrested. And, what will be of far greater benefit to mankind, there will be given the requisite attention to the growing girls, with special care about the years of puberty, that more vigorous bodies and more normal reproductive organs be developed. A positive, clear and convincing protest will be made against the present unwholesome state of society which is now urging our girls on to a degree of emasculated physical corruption, by luxurious indolence, deleterious dress and sensual excess, and superbly fits them to live in communities by themselves—in women's hotels—whereby they become ruined for wifely companionship and sturdy maternity. When that day comes—as I verily believe it to be within the province of our intelligence to successfully inculcate—then, and not until then, may we hope to find that the prevalence of diseases among civilized women will cease to be a reproach to preventive medicine. Then will authors and teachers find it necessary to discontinue defining woman as, "an animal with a constipated bowel and a pain in her side."

But as yet, at present we are compelled to meet the situation as we find it. The condition of the suffering of the civilized women of the present generation, however grossly unnatural it has been cultivated, must needs have our most careful attention and require our wisest judgment, lest we fail to institute proper treatment for their relief. In the care of pregnant women much of great importance devolves upon the obstetrician, with regard to safely conducting the mother through the period of gestation, parturition, and the puerperium; the preservation of the life and healthful condition of the child; and his own reputation. The diseases of pregnancy unquestionably is a field only partially and imperfectly explored. When we take into consideration how much of accident might be avoided and how much real good done to this class of suffering women by proper care, it places us at a loss to account for the fact that obstetricians have hitherto neglected their duties, by signally manifesting a want of endeavor to promote the advance of obstetric science,

in a direction quite worthy of the profoundest investigation. It is a noteworthy fact that the conditions which beget the disorders of pregnancy are not thoroughly treated by any of the standard works upon obstetrics. We are so busy thinking, discussing, defending, inquiring, practicing and teaching, about the better modes of alleviating human suffering that we have no time and no leisure of mind for quiet contemplation, to allow the exercise of the intellect to feed upon Nature's truth, without which it is impossible to obtain a clear knowledge of the real causes and how to successfully prevent them. Communion with Nature was never more needful than now. Feverish activity rules all spheres of life. Medical effort is multiplied and systematized beyond all precedent. And all these things make calm fellowship with Nature hard to compass. We can conquer Nature only by obeying her laws, and in order to obey those laws we must first learn what they are.

For the convenience of our consideration, the paramount duties of the obstetrician in the study and care of pregnant women may be classified as follows:

1. To discover if the patient be actually pregnant.
2. To determine positively if the impregnation be uterine or normal, as contra-distinguished from tubal, abdominal, or abnormal pregnancy.
3. To carefully note the pregnant woman's history, including her age, primiparity or multiparity, environments, station in life, general condition of health, period of gestation; as well as her dress, food, drink, and habits of life. To make repeated examinations of the urine and ascertain the temperature, from the time pregnancy is established to the termination of gestation.
4. To make a physical examination for the purpose of accurately determining the diameters of the pelvic straits; the symmetry and size of the bony outlet; the integrity, condition, and position of the vagina, uterus, and other inter-pelvic viscera, and adjacent structures; the state of the abdominal muscles; the presence or absence of hernia, varicose veins, tumors, etc.; the shape, size and condition of the breasts and nipples; the condition of the heart, lungs, mind, stomach, bowels, etc.
5. To observe the state of the fetus, its strength and viability, as well as the implantation of the placenta.

These must all be included in the search for intelligent guidance, as to how the proper management of the pregnant woman should be conducted. With regard to the first, all experienced observers have found that psychologic phenomena often call for an intimate study and wise differentiation of every form of hallucination, delusion, illusion, as well as the delirium of cerebral hyperemia, or the frenzy of the maniac, from toxemia and eccentric irritabilities. And, that such abnormal conditions frequently exist unrecognized, and so continue until they eventually establish their peculiar fixed impress upon the mind and nervous system. Thus when the paranoiac woman simulated pregnancy, and even parturition, she deceived the better judgment of some of the most skilled obstetricians. Pseudocyesis and pseudotocia are recognized abnormal conditions, which so closely resemble the normal condition of pregnancy, and the beginning of parturition, as to demand our highest discriminative faculties in arriving at an intelligently correct diagnosis.

As to the second, it remains a simple self-evident

fact that it should always be positively determined whether the impregnation be uterine or extra-uterine. How to intelligently differentiate normal or uterine from abdominal pregnancy, time forbids to discuss fully in this connection; suffice to say that it may be made by careful palpation of the abdominal parietes, together with vaginal and rectal digital examination and proper posturing. Paracysis and interstitial or cornuate fetation are purposely omitted, as such accidents can scarce be diagnosed at a sufficiently early period of gestation to be of actual benefit. Abnormal implantation of the fetus constitutes a most important class of cases with which the accoucheur has to contend. Extra-uterine or tubal pregnancy is rarely suspected until after certain dangerous and distinct symptoms are manifested, chiefly because no opportunity is had to discover it. These symptoms are such as follow rupture of the cyst containing the embryo with intra-pelvic, or interperitoneal hemorrhage and shock; as sudden seizure of violent agonizing pain in the lower abdomen, fainting, pale, or anemic surface of the body, cold clammy skin, rapid and almost imperceptible pulse, sighing respiration, etc. Whenever extra-uterine fetation is discovered, either before or after rupture of the cyst, the question of treatment is a very grave one. But experience teaches us that this truly marvelous and murderous condition admits of only one line of action to be followed with any degree of ultimate safety to the life of the pregnant woman. Section must be done. No other line of treatment that has been advanced is so rational and certain in the ultimate saving of life as abdominal section. The perfected technique, as we have it to-day, makes it a safe procedure. We must, however, bear well in mind what experience also teaches us, namely: that when the placenta is found still in the tubal sac it is best to enucleate and remove all—the tubal sac and ovary; but that whenever the placenta is found partially or wholly out of the tubal sac and adherent to the peritoneum, bowel, etc., and still alive, the very best that can be done is to let it alone—to keep hands off. In these cases the ultimate safety of the patient lies in removal of the fetus, cleaning out the peritoneum of blood clots and all other *débris*, ligating the bleeding vessels, pack with iodoform gauze, and treat as an open wound; thus allowing the placenta to come away in due course of time by suppuration. We can thus guard against sepsis by drainage and cleanse out the cavity as fast as putrescence develops. My most venerable friend and classmate at the University of Pennsylvania, Dr. Joseph Price, than whose experience in these cases there is none more extended and successful, and consequently he deserves to be accepted as reliable authority, says: "All other lines of treatment that have been advocated fall into insignificance with this manner of managing these cases." He also claims this is a summer disease or accident, being in his experience almost always found only during the summer months; when May comes he looks for extra-uterine pregnancy cases.

The third brings us thoughtfully to consider the influences of those conditions which have been hitherto so grossly neglected, but which demand a decided and determined prophylaxis. The unprecedentedly rapid progress of civilization in disobedience to the law of Nature, as evidenced by the accumulation of wealth on one hand and extreme poverty on the other; the forcing or cramming system of intellectual edu-

cation with lack of requisite physical training; the custom of unwholesome food and drink; deteriorating fashions of dress and habit of society; unbridled sensual indulgences; and the woful endeavor to equalize the duties of women with those of men, have within the last generation very much deteriorated the child-bearing capacity of civilized women. True, the standard of female beauty is increasing, and decided intellectual growth manifested by women in all departments of science and art; but, in the same ratio do we find the remote dangers as well as the immediate accidents of gestation and child-birth have increased. Hence, we find that flaccidity of the abdominal, spinal and pelvic supports; chronicity of the shattered exotic nervous systems; abnormal state of the ovaries; subinvolution of the uterus, etc., have marvelously increased in later years, notwithstanding the much vaunted so-called hygienic advances in improved habits of living and reform in dress. These unnatural conditions are most prevalent among the residents of our cities, and increase from bad to worse as we go from the smaller to the larger and more crowded marts in civilization. They are as prolific sources of chloro-anemias, trophic-nerve paresis, hydremias, hyperemias, and prostrations during pregnancy among the women of wealth, ultra-refinement and excessive culture, as are those women who are subjected to the privations and hardships of extreme poverty. The remarkable fact in history being that there has been a proportionate increase of these conditions among the women of these two extremes of life, whereas the reverse holds good with women who belong to a middle class and are comparatively free from the unnatural behests of modern civilized society, or of irremediable poverty. The pregnant woman whose parentage, as well as herself, has been untrammelled with the deleterious impress of either of these two extremes in life, will terminate her gestation and parturition with much less suffering, and more healthful to herself and her offspring, than will her more unfortunate sister who comes from a stock reared in the excesses of indolence, luxury or poverty. The pregnancies of too early, as well as of too late, marriages are alike to be apprehended as fraught with unnatural conditions. The girl who enters the matrimonial state at the nubile period, from 18 to 20 years of age, will approach the marriage couch with a much better prospect of wholesome fruition, healthy to herself and offspring, than will she who enters the nuptial relationship earlier, under the turbulence of puberty, immature physical development, and illy formulated morale, amid the storm-waves of exalted nerve tensions superinduced by over-taxed educational training, and undue stress of unwholesome fashion and society; or, than she who marries late, say after 28 years of age, who still retains all the productive elements but which have been debilitated by repeated disappointments, now leave her with the elasticity and resiliency of youth—the regulating factors in all growths—defective, and the newly stimulated energies of a life somewhat wasted are revived in a physical organism unfitted for the reproductive process. The ovaries and uterus may properly perform their respective normal functions from puberty to the menopause, but it must be remembered that an opportune impregnation is requisite to preserve woman, if not rosy and plump, at least elastic and buoyant; that her maternity may be exempt from pelvic indolence, so typically manifested

by the flattened chest, the wrinkled face, and some fixed cultivated hobby—to save the rosy-cheeked maiden of 20 from shriveling into the parchment-skinned spinster of 40, by timely desuetude of celibacy. The primiparity or multiparity of the patient also demands its quota of consideration in the etiology of the diseases of pregnancy. The influences of heritage, personal habits, station in life and environments, usually make up the requisite field for the consideration in the primipara; whereas, in the multipara we find it essential to also look well after such conditions as the subinvolution of the uterus, lacerations of the cervix or perineum, tumors, and defective pelvic, abdominal and spinal support, as they often lead to abortion or to direct dangers during parturition.

The thoughtful obstetrician will, with inexorable discipline, advise his patient as to the requisite *regime*. The consciousness of his full duty will impel him to insist upon:

1. Absolute, regular hours and wholesome environment.

2. Plain but nutritious and wholesome food and drink, being principally composed of fresh lean meats, fresh fruits, pure milk, and distilled water.

3. A proper amount of exercise, by walking or light labor on foot and maintaining the correct erect posture. Whenever infirmity forbids such exercise, recourse should be had to massage, and as much time passed in the open air as is advisable under such unfortunate circumstances. Rest in the recumbent posture after meals and fatiguing efforts, with not less than ten hours sleep out of every twenty-four.

4. An open condition of the bowels and skin, which is to be chiefly maintained by proper diet, exercise and bathing, the wearing of flannels, warm low-heeled shoes and loose garments, and, in rare cases, the proper use of laxatives, and hot water enemas.

It, however, not unfrequently falls to our lot to have placed under our care pregnant women who belong to the poorer and less favored class, exposed to too much labor, privation of proper food, dress, and shelter; with whom we find ourselves confronted with the question for bettering their diet, dress and habitation, which assumes such proportions that demand our assistance, not only as medical men, but also, as philanthropists. Fortunately the advantages which the many charities afford enable us to give this class much benefit in every way, save when mental anguish and nostalgia become irremediable factors, in the production of depressing influences which bar the healthful action of the resources at our command. With regard to repeated examinations of the urine and noting the temperature, it suffices to say that as is the urine and temperature so is, very largely, the prognosis and treatment prior to parturition. Urinalysis and thermometry are simple in detail, yet how prolific of averting the culmination of conditions very hazardous to both mother and child. Conditions which otherwise are frequently discovered only by the appearance of anasarca of the inferior extremities, edema of the face or lungs, or a seizure of eclampsia, after which attention is given to these searching steps, but often too late to be of any value in devising a prophylaxis. This very naturally raises the question, Is there a prophylaxis for the albuminuria of parenchymatous nephritis during pregnancy and consequently the avoidance of eclampsia prior to or during parturition?

The experience of an earnest rational endeavor in a limited number of cases warrants the opinion that very much may be done in this direction. So, also, with regard to the prophylaxis of parturial sepsis, which is a problem of equally great magnitude. True, sporadic cases of so-called puerperal fever (parturial sepsis) as well as of eclampsia, etc., ensue in spite of all possible efforts, but it is the writer's firm conviction that these murderous complications can and will be prevented by timely precaution and by banishing every factor in their production. Preparatory hygienic regulations, antiseptis and quarantining will as surely save the mothers from these complications as absolute cleanliness at parturition will save the child from ophthalmia neonatorum.

In proof of this, it is needless to confine reference to personal experience in private practice, for in addition we find the maternities likewise furnish abundant evidence in support of this declaration. Here we may cite, as the most striking example, the indefatigable labors of our eminent Fellow, Dr. Joseph Price, in his connection with the Preston Retreat at Philadelphia, whereby both that institution and himself have become renowned, in establishing this fact beyond all doubt or cavil, that these complications can be prevented.

A word with regard to the term, puerperal fever, which is misleading and fails to express the condition it is intended to imply. It should therefore be expunged from our literature and be replaced by the proper term, *parturial sepsis*. Parturial sepsis is a surgical sepsis, arising from the conditions in which women are found during the extrusion of the uterine contents, similar to those during surgical procedures. The same classes of septic infection and septic poisoning occur in the non-pregnant state, during operations upon the pelvic viscera done without due regard to absolute cleanliness, and in hospitals where patients are crowded together with want of proper sanitation. Facts, as numerous as can be collected in any department of medicine, prove conclusively that the infection and contagion of sepsis, non-specific and variable as they are, can be conveyed by the nurse or attendant as well as by the accoucheur, and thus may likewise poison patient after patient until they also, as well as the accoucheur, either discontinue their labors or subject themselves to the most rigid discipline of absolute cleanliness and sanitary environment. When this prophylaxis obtains, then will parturial blood poisoning cease to be among the cases intrusted to their care, and they will find themselves rewarded with a mortality of *nil* from sepsis. It is very clear to the writer that the more carefully we study and practice obstetrics on sound surgical principles, the better success will we obtain. This, above all else, will secure a thorough preparation of the vagina, that the child may make its exit into the world through a clean channel, which will insure safety to both mother and child. And again, if the forceps or the hand should be required, if laceration of the cervix or perineum should occur, the patient will then have the healthful benefit of the same preparation as is given for surgical procedure. A word also with regard to finding ourselves summoned during the latter period of pregnancy, or at the approach of parturition, to attend one who is suffering from or threatened with eclampsia, and the case being a plethoric subject I should feel it as much my duty to bleed, as I should to clean out the endometrium

whenever parturial sepsis was found to be due to the retention of infected decomposing portions of the secundines. While, if the patient under like condition belonged to the more rare class of anemic cases, I should hope to happily correct the disorder by chloroformation, hot water, the hypodermatic use of morphin and atropin, veratrum viride, etc.

Under the fourth head of the subdivision of this subject, it may be remarked that pelvimetry is an equally essential requisite with urinalysis and thermometry. Deviations from the normal symmetrical pelvis, the diameters of the pelvic straits and the inclination of the bony excavation, exercise marked influences in proportion to the degree that they exist. In an abnormally broad capacious pelvis, with obliquity lessened and supports relaxed, we find that in the earlier period of gestation the tendency is to misplacement of the gravid uterus, either forward or backward and downward, from gravitation in consequence of increased weight. These abnormal uterine positions are usually manifested early by bladder or rectal difficulties with bearing down or pressure in the pelvis, and a dragging sensation from the lumbo-sacral region, etc. The functions of the intra-pelvic nerves, blood vessels and lymphatics being interfered with, we find in a proportionate degree that there is produced a stasis in the venous, vaginal, uterine and rectal plexuses, and consequent dilation of both these vessels and the lymphatics. Thus we have produced a hyperemic state of the entire pelvic circulation resulting in edema primarily, followed by ecchymosa of the peri-vascular, peri-lymphatic, and other cellular tissues, to be succeeded later by varix of the vulval, vaginal, uterine and hemorrhoidal venus plexuses, and consequent trophic nerve changes. It is a noteworthy fact that in these cases there is almost invariably found a want of the correct erect posture. The woman, herself, unconsciously increases the aforesaid difficulties by assuming a more or less stooping posture, in her endeavor to make herself comfortable from the dragging sensation below. Thus we find the abdominal and spinal muscles relaxed, the lumbo-sacral spine receding behind its normal axis-perpendicular with ear, shoulder, hip and ankle—the weight of the superior trunk gravitating back of this normal axis and falling perpendicularly behind the heads of the femurs; whereby the pelvis is swung upon the femur heads from an oblique to a more or less transverse position, while the superincumbent weight of the abdominal and thoracic viscera, instead of being directed forward, by the normally advancing lumbo-sacral spine and supported upon the pubes and lower portion of the abdominal muscles, now falls directly within the basin of the pelvis, exerting its injurious effects upon the contents thereof. The real causes of these conditions being thus clearly revealed, the treatment becomes very simple. This consists in first reëstablishing and maintaining the correct erect posture, thereby securing the normal obliquity of the pelvis by advancing the lumbo-sacral spine in its normal axis of the body. The superincumbent weight of the abdominal and thoracic viscera is then again directed to normally gravitate upon the pubes and lower border of the abdominal muscles, and at the same time there is afforded the normal shelter to the pelvic contents below and behind the promontory of the sacrum. Experience has established the fact that the correct erect posture in these cases is

secured and maintained the more effectually by virtue of proper external support. The external support which fulfills this purpose the better is one fully detailed by the writer in a paper read before the International Congress of Gynecology and Obstetrics, at Brussels, Belgium, September, 1892.¹

The normal equipoise of the superior trunk upon the lumbo-sacral spinal axis having been thus restored, whereby the evil influences from the weight above as a prime causative factor in intra-pelvic disturbances are happily overcome, there remains but attention to be given to the insignificant weight of the misplaced pregnant womb itself. This is usually easily corrected, when free from adhesions, by proper posturing, and afterward maintained by proper internal support with some pessary suitably fitted to the case.

When, on the other hand, the pelvis is abnormally distorted or contracted, the question of how best to conduct the gravidity has been even a more unending source of discussion than the preceding condition. Here pelvimetry furnishes us the chief guidance. But before we progress further, let us first break loose from the traditional shackles of our predecessors and their authority, which have too long retarded freedom of thought to such a degree that he who dared to doubt met but derision. I refer chiefly to the murderous practice of inducing premature delivery and embryulcia in this condition. In the present light of science these procedures have no place in the obstetric art in connection with a viable fetus. They simply deserve to be mentioned that they may be the more effectually relegated to the past. This leaves us to choose principally between but two procedures whenever we find the pelvis so distorted or contracted that it precludes all probability to deliver the living child, namely, symphyseotomy and Cæsarean section. Without specifically considering all the points of this very serious condition—which fortunately for us, is, comparatively speaking, very rarely encountered in the native born American women—I would unhesitatingly advise against the termination of gestation, looking more hopefully to ultimately saving the life of both mother and child by resorting to one of the aforesaid operations. It is to be remembered, however, that it is the duty of every intelligent obstetrician to become thoroughly familiarized with the indications as well as the technique of both these operations, neither of which are to be lightly undertaken by any one who does not possess the requisite skill, both in the obstetric art and abdominal surgery.

With regard to the proper selection of these two operations, I can do no better than quote my friend, Dr. Barton Cooke Hirst, of Philadelphia, who is an acknowledged authority on the obstetric advances, in his address before the Washington Obstetrical and Gynecological Society, Nov. 17, 1893, and published in the *Medical News of Philadelphia*, Dec. 2, 1893: "It is obvious, therefore, that symphyseotomy can be preferred to Cæsarean section on the one ground alone—that it is less dangerous to the mother. A careful study of the results of symphyseotomy and of Cæsarean section will show that the latter is, at the very least, twice as dangerous to the mother as the former. The mortality of the infants is not quite so great in deliveries by Cæsarean section. Moreover, by Cæsarean section the child is sure to be delivered easily,

1. This support is manufactured by the Natural-Body Brace Company, Salina, Kan.

no matter what the size and shape of the pelvic canal may be, and there is no necessity for that nice calculation in pelvimetry that is usually demanded before a contemplated symphyseotomy, a calculation in which even the best of us may err. With my own experience of three perfectly uncomplicated recoveries from symphyseotomy, I feel disposed to regard this operation with more favor than version and extraction in a markedly contracted pelvis. The opposite error of opening the symphysis when the pelvis is too small to permit of delivery by this means is more difficult to escape. It will only occur in a pelvis with a conjugate of sixty-seven millimeters, or under, a degree of contraction not often seen among us; and could we always be sure of the accuracy of our pelvic measurements, the mistake would pretty surely be avoided. I can imagine no more embarrassing predicament in obstetrics than a failure to extract the head after opening the symphysis. I should feel reluctant to operate again at the lowest limit for symphyseotomy unless I had the opportunity first to induce labor and artificially dilate the cervix some two or three weeks before term. In this case I should not hesitate to operate with a conjugate as low as sixty-five millimeters, and I believe delivery might be possible with a conjugate of only sixty millimeters. We may therefore be guided by the rule that at term, symphyseotomy is available only in cases where the conjugate measures over sixty-seven millimeters, while if the conjugate is found to be sixty-seven millimeters or under, the only recourse to be had is Cæsarean section.

The destruction of the embryo is, however, not only warranted, but becomes a requisite under certain circumstances or conditions; such as the presence of large fibroids in the body of the uterus, or large tumors involving both the ovary and uterus, also cancers of the uterus, and in certain cases, of placenta previa. Placenta previa is another abnormal condition deserving attention. It properly belongs to that class of appalling accidents in the lying-in room, as eclampsia, post-partum hemorrhage, rupture of the womb in uterine pregnancy or of the cyst in tubal pregnancy, etc., which allow but time for action. Experience teaches that the proper use of forceps in these cases is to be preferred to the hand. The chief reason being that a narrow-bladed forceps can be introduced much earlier than the hand—requiring a dilation of only about one inch as compared with two and three-quarter inches for the hand—and, by grasping the head and bringing it down, tampon the placenta at once; whence time may be given sufficient to obtain full dilation and delivery with greatest possible safety to both mother and child. In these cases we may very properly follow the one line of action. As soon as the diagnosis of placenta previa is established our action must be prompt in evacuating the uterine contents. Hemorrhage is the danger signal. When this signal is given early, say prior to the sixth month, and the diagnosis established, we should proceed without any regard for the life of the child. When, however, this signal is given later, we should proceed as promptly, but with all possible endeavor to save the life of both mother and child. Whenever hemorrhage takes place in these cases it is Nature's signal to us that there is great danger ahead; that the condition is so serious as to endanger, if not to take the life of the mother at any moment. We can not

accept the situation only as serious, and must act promptly and effectually. The proper antiseptic precautions being observed with special reference to the vagina and the accoucher's hand, the patient being placed under anesthesia, introducing first the index finger into the cervix, dilating gradually until two fingers are successfully introduced, and, when sufficiently dilated to admit of the forceps, pass the fingers through the body of the placenta, rupturing the membranes and place the forceps on the head, bringing it down and tampon the placenta at once. When, as sometimes happens, the dilation is greater and the presentation abnormal or less favorable the accoucher had better resort to the passing of his hand and turning by Braxton-Hicks method and drawing the child into the cervix, and thus arresting the hemorrhage. The hemorrhage once checked, the subsequent delivery will be fully under control.

I have in this paper but sketched some of the salient and mooted points of the prophylaxis of the complications and needless sufferings of pregnancy, with no attempt at thoroughly elucidating or elaborating any one of them. Having no pet theory to promulgate and sustain at all hazards, no long list of cases and statistics with quotation and abstract from an exhaustive roll of writers has been made out. And, while universal conviction may not be with me on premises somewhat narrowly drawn, still I hope the attention of the Association may be drawn to their thorough consideration, that free discussion may evolve all the facts of this interesting subject and, finally, to find with many of you these facts received with favor and not only to maintain an excellent reputation, but also to increase in favor on closer acquaintance.

TRACHOMA OR GRANULAR LIDS.

BY JAMES A. LYDSTON, M.D., Ph.G.

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Trachoma or granular lids (not granulated lids), ophthalmia militaris, ophthalmia Egyptiaca, trachoma verum, trachoma Arlti (Arlt), trachoma folliculare (Horner), trachoma mixtum (Stellwag), as it is variously styled has received much attention at the hands of ophthalmologists, and the literature upon the subject is so copious that it is almost an act of supererogation to attempt to present anything new and interesting upon the topic; but the dreadful ravages of the affection, and the fact that we are still far from a unity of views in regard to the disease, renders an attempt in this direction at least excusable. Not long since an article appeared in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION from the pen of an eminent professor of ophthalmology in which the expression "granulated lids" was used, and while appreciating that by reason of the peculiar anatomic arrangement of the lids, granular and hypertrophic masses are distributed over the conjunctiva tarsi and transitional folds, yet we must insist that such a term should be reserved for the laity as we are not familiar with anything like granulated lids, although such a term can be rightfully applied to sugar.

Before discussing the various forms of trachoma or granular lids, we will note a few historical data with respect to this affection. Relatively speaking, we may assert that it has only been within the last

century that trachoma has demanded much consideration at the hands of specialists, as it was only at the beginning of this century that the disease asserted itself as an epidemic among the European soldiers, hence the term *ophthalmia militaris*. Many concluded, by reason of its first appearance among the soldiery, that it was a product of importation from Egypt, hence *ophthalmia Egyptiaca*, and the disease was laid at the door of Napoleon I. upon his return from Egypt to Europe, it being presupposed that the disease was formerly confined to Egypt. But it subsequently transpired that it had been known in Europe since antiquity, and even to Celsus is accorded the honor of having described the condition, mentioning the characteristic roughness of the lids and the accompanying purulent discharge; and we find to-day a tendency to revert to the old-time methods of treatment by inducing a certain amount of inflammatory reaction which the ancients accomplished by means of friction with fig leaves and by specially devised instruments. So we must conclude from the foregoing that trachoma has existed from the most remote periods, and that the trachoma of to-day is nothing more nor less than modified acute trachoma of olden days, which was characterized by profuse purulency, and that the specific virus upon which its ultimate origin depends has become modified so that it is to-day less virulent in its effects when transferred from one eye to another.

Character.—Trachoma is a chronic, specific, infectious inflammatory affection of the conjunctiva accompanied by distinct purulency, and the name trachoma is derived from the Greek, signifying rough.

Symptoms.—Individuals suffering with trachoma complain of watering of the eyes, agglutination of the lids, sensitiveness to light, pain and disturbance of sight, which are sometimes though not constant sources of annoyance. The eyes are less widely opened as a result of swelling and sensitiveness to light, and upon eversion of the lids we notice that the tarsal conjunctiva as well as that of the transitional fold is reddened and swollen, while at the same time there is a variable degree of roughness caused by hypertrophy which is of two characters in accordance with the different anatomic characters of the affected conjunctiva. The first form of hypertrophy is the appearance of the papillæ so styled, which are elevated patches here and there, newly formed over the conjunctival surface, which accordingly looks velvety, or the papillæ may become so large as to impart a coarse granular, nodular, or even a raspberry-like aspect to the conjunctiva. Thickening of the conjunctiva is absent at this period, consequently the underlying meibomian glands glisten through the conjunctiva. This form of hypertrophy is limited to the conjunctiva tarsi and is styled papillary hypertrophy. This form of hypertrophy is peculiarly prone to attack the upper lids. Trachoma granules are characteristic of the second type of conjunctival hypertrophy. They are seen as grayish or yellowish-gray, roundish translucent gelatiniform bodies, and have been styled from their appearance the sago or frog-spawn excrescences, found chiefly in the transitional folds in such great abundance that when the lower lid is exposed to view the transitional fold projects as a thickened and rigid prominence. The trachomatous granules are sometimes disposed in rows like a string of beads;

while the trachoma granules are likewise shown to exist in the conjunctiva tarsi, they are less prominent and less clearly defined, owing to the close adherence of the conjunctiva to the tarsus in this situation, consequently we discern them, when the hypertrophic papillæ do not obscure them, as minute bright yellowish points, embedded deep down in the deeper structures. The microscope reveals that other parts of the conjunctiva of the eyeball, such as the semilunar fold, conjunctiva bulbi, etc., are not wholly exempt from the trachoma granules. This constitutes the so-called granular type of trachoma, so that we may justly classify trachoma into two classes: 1, papillary trachoma; and 2, granular trachoma; but the distinction can not be so clearly and emphatically made as to enable us to say that this is a case of papillary trachoma, that a case of granular trachoma, inasmuch as frequently in the same case we find the two processes associated, and while such a classification would be quite scientific, yet such is not from a clinical standpoint of any particular importance as the treatment is essentially the same in either case.

Among the results of trachoma are pannus, lid distortion asserting itself under the form of entropion (the turning of the lid inward toward the eyeball), and ectropion the turning outward of the lid from the eyeball), symblepharon posterius and anterior, xerosis conjunctivæ, in which we have dry degenerated patches devoid of secretion here and there, and corneal opacities caused by cicatricial deposit following ulceration, trichiasis (abnormal disposition of the eyelashes). Madarosis and tylosis, baldness and thickening of the lid borders respectively are all disagreeable sequelæ of neglected and maltreated trachoma, and will receive mention under their proper heading during the discussion of the treatment.

Causation.—We are, in the light of modern views relative to trachoma, able to say that the primal origin of the disease is discharge from a chronic blennorrhæa, which being transferred through the medium of the fingers, soiled linen, contaminated wash basins, etc., to the healthy conjunctival sac finds favorable soil for its development; after a variable incubative period a form of granular conjunctivitis or trachoma shows itself which depends for its severity, so far as its inflammatory tendencies are concerned, upon the character of the case from which it took its departure, as well as upon the character of the soil upon which it thus propagates. It is to Piringer that the credit is due of thus irrefutably deciding the origin as well as the subsequent features of the disease. He was able by inoculating eyes already blind, to determine that the disease is essentially dependent, notwithstanding all its variable characteristics, upon one infectious element, which by reason of the different anatomic conditions of the developing soil will assert itself sometimes in one form, sometimes under another; so that it leads us to conclude that possibly we shall finally view the variable types of granular conjunctivitis or trachoma, as well as other simpler types of conjunctival inflammation, as peculiar forms of inflammation or irritation consequent upon the special type of irritant.

With respect to the career of the affection, the hypertrophic elements and the associated discharge increase to a variable degree in different cases and then finally fade away, while cicatricial deposits replace

the hypertrophied areas, and consequently the conjunctival destruction and subsequent cicatricial contraction are directly dependent upon the number and size of the hypertrophic elements and the abundant secretion. So that with respect to the question of treatment two primal indications confront us, namely, reduce the size and number of the hypertrophic papillæ and check the secretion. And fortunately, while we are confronting one indication we are combating the other. Heretofore silver nitrate and copper sulphate have been largely utilized, both to reduce the enlarged papillæ and to diminish the discharge and favor the disappearance of the granulations, and these remedies are still employed and are regarded by many as all sufficient. The rule governing the use of silver nitrate and copper sulphate respectively is to apply silver nitrate when the secretion is profuse and irritative manifestations marked; while copper sulphate finds fitting application in cases of diminished secretion, and little or no irritation. Mercury bichlorid in concentrated solution, 1 to 500, was first applied after the so-called grattage in the clinic of Abadie, and by many is highly esteemed in the management of obstinate cases of trachoma. We must conclude, however, that all treatment should be directed towards assuring abject cleanliness, whether this be accomplished by simple ablution, or by means of antiseptic precautions. While the method of exciting an inflammatory reaction, either by means of medicaments, or by the more active method of jequirity infusion, as advocated by De Wecker (justly superseding the old-time method of inoculation with blennorrhœal pus) the methods of peritomy or syndectomy, or incising the conjunctiva around the cornea, scraping or scarifying the conjunctiva as advised by Grüening, are useful in certain cases. It has been my experience to find that these heroic measures have all been carried to extremes, to such an extent indeed that one of the most important indications in the treatment of trachoma or granular lids has been overlooked, namely, that the inflamed parts should be subjected to a period of rest, and any measure which fails to encompass this end utterly fails of its object. To institute this purpose, and at the same time to meet the other indications of resorption of the hypertrophic papillæ and granular masses combined with a proper degree of antiseptics, I was induced to apply insufflations of papoid (*carica papaya*), the new digestive ferment combined with boric acid, and found that not only did it act efficiently upon the thickened masses, but even in those cases seen in the later stages of trachoma where trachomatous pannus had supervened, I found that the pannus was appreciably thinned, and the inflammatory reaction diminished. I believe the honor of having first instituted this type of treatment belongs to me, and certainly it has proved in my hands a most efficacious method. I agree with Fuchs in his conclusions, after trying all of the methods, both irritative and conservative in their tendencies, that all harsh surgical methods should be eschewed in trachoma during its early and transitional stages, and should be reserved for the correction of the numerous disastrous sequelæ, such as pannus, entropion and ectropion, distichiasis and trichiasis, lachrymal obstruction, madarosis, tylosis, corneal opacities, etc., which have all been heretofore noted as results of the typical siege of trachoma or granular lids.

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PROFESSOR KOCHER ON MODERN PROJECTILES IN WARFARE.

BY CHARLES G. CANNADAY.

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"In the time of peace," it has been said, "prepare for war." This necessary evil must sooner or later come to all countries, judging from the past; its evil consequences are sufficient when happy homes are robbed of fathers, husbands and sons, but when the projectiles are of such a nature as to produce great destruction of tissue, owing to shape and velocity, it becomes all true philanthropists to assist the Red Cross, which will figure so conspicuously in future Italian wars, to bring about such a change in projectiles as will cause the least destruction of tissue compatible with "disabling the enemy and causing him to retire from the field." During the riot in this city in 1893, I had the opportunity of seeing the great amount of mutilation and serious wounds produced by the modern firearms in the hands of our military company—those not instantly killed are so mutilated by large projectiles that permanent disability for manual labor is the rule, while the chances for infection from the wounds are very much increased. It becomes all civilized nations, from a humanitarian point of view, to repudiate the idea expressed by Shakespeare in "Henry IV.," that "the arms are fair when the intent for bearing them is just," and so construct all projectiles as to disable with a minimum amount of mutilation—rendering survivors more useful and comfortable. With this end in view I have submitted an abbreviated report of a lecture to which I listened at one of the general meetings of the International Medical Congress in Rome, Italy, in April of this year, delivered by Kocher, of Berne, Switzerland, than whom no one is more competent to speak, as his researches in this line have been very exhaustive, and his investigations respected and indorsed by the civilized world.

This subject may embrace all of us in its scope, and the military and naval officers and authorities should seriously consider this lecture on the subject of "the improvement of projectiles from a humanitarian point of view." Kocher said:

"The reason why ancient Rome, whose hospitality we are now enjoying, acquired the immortal glory which it maintained through the classic ages till our own times, is to be found in the warlike character of its first inhabitants, in the *Virtus Civis Romani*. Notwithstanding the great progress which has taken place in the field of intellectual activity, it is still the case that those nations become arbiters of the world who are always ready to sacrifice their life and all they possess for liberty, truth and justice.

"Military service is a duty which extends to all the citizens and therefore all take an interest in the necessary and inevitable consequences of war. Women and sanitary associations vie with each other to diminish the sufferings of the victims, as also the Red Cross, whose representatives showed us two years ago in this same city the splendid results obtained by them.

"But all this is of no use (I speak simply from a surgical point of view) if modern firearms bring such devastation in the contending armies, while they should only put *hors de combat*—if they mutilate instead of simply wounding. Twenty-five years have

not passed since it was universally recognized that perfected firearms cause enormous damage in the human body. This general opinion is confirmed by the recent communications of Démosthène, Chauvel, Nimier, Bogdanik, Sklissowsky, Morosow and Trauber, by the observation of Kabars and finally by the interesting experiments executed by order of the Prussian Minister of War, by Dr. Schjerming, all of which show the terrible effects of modern bullets. After this must we await further improvements or must we resignedly accept the conclusions of Surgeon-General Dr. Von Coler and of Dr. Schjerming, namely, that with the new rifle life must absolutely be lost?

"The object of war between civilized nations is not, as among savage people, to kill the greatest number of combatants, but to disable the enemy and to oblige him to abandon the field. Nevertheless there are many unexpected deaths caused by injuries to vital organs. But the modern guns surpass greatly this scope, because they tear or destroy the tissues of the body, exposing the victim to the risk of losing his life even through non-vital injuries, and either oppose or prevent entirely the reestablishment of the normal functions. Guns have become real explodent firearms, which are prohibited by international agreement.

"In order to eliminate the damages produced by these arms it is necessary to know the effect of the explosive projectiles, but unfortunately on this matter the opinions of the many authors are too different.

"I will demonstrate, considered by twenty-five years of experience, in what really consists the explosion and by what it is caused; this will be the subject of my lecture. The action of the bullet is different as the object which it strikes varies. We shall therefore distinguish three separate categories in the human body: Elastic tissues, tissues rich in liquid substances, and rigid tissues.

"In elastic tissues the bullet does not explode, at least not immediately, even if fired out of the most modern rifle. Large lacerations of the skin are due to deeper explosions, such as those which take place in the vicinity of the bone, and without these external lacerations are not to be found. In some elastic tissues we can only observe the point of entrance and exit of a bullet whose initial velocity is of 600 to 750 meters; we can not trace any hole at all as the tissues after having been forced aside, resume their former position.

"The effect of an explosion may be observed with far greater facility in tissues which contain an abundance of liquid substances, and is naturally more terrible in those tissues which more abound in them. Brisch was the first who had recourse to hydrostatic pressure in order to demonstrate the effect of an explosion in the cranium; Garfeuil, Heppner and Küster applied the same principle to epilepsy, and I have been able to show by means of numerous experiments the general importance of liquids in the tissues. The action of hydrostatic pressure may be demonstrated on tin boxes containing substances more or less rich in water. The effect of the explosion differs greatly if the box contains fresh horse flesh instead of dry, damp cotton or sawdust instead of dry.

"Here are some elastic laminae that present a very small hole when the velocity of the bullet is small, while enormous rents are made by it when the

velocity is at its maximum. These violent effects are caused both by leaden and by steel bullets; it is therefore impossible that they should be produced by the deformation of the bullet, as it is proved that steel does not undergo any alteration of shape. In any case it is important to observe how the explosion is influenced by the different degrees of deformation if the area which is struck becomes larger.

"Demonstration of the effects of exploding bullets on recent epiphyses, on the glandular and visceral organs and on the muscles. The degree of intensity of the explosion gradually augments with the increase of velocity, while we can only talk of hydraulic pressure in the case of maximum velocity and on parts like the cranium.

"The effect is seen in its full intensity only if the distance is great enough; but also in open tin boxes, where the water is not hermetically closed as in a hydraulic pump a laceration takes place. It is therefore better to abandon the name of hydraulic or hydrostatic pressure and to use that of hydrodynamic laceration.

"The speaker afterwards shows the effect of explosions on flexible substances, such as soap or glass, in which we may with certainty establish, by means of comparative measures of weight and volume, whether we have to deal with a simple shock or with a missile that produces at its maximum velocity the maximum degree of dilatation.

"Also here we find an augmentation in the explosive effect even though there be no rotation or deformation and we must recognize that the intensity of the explosion does not depend from these factors.

"The real nature of an explosion can only be understood if its effects are studied on a solid body. To this end we can fire a bullet at a slab of stone, and we will ascertain that the shock transmits itself with great violence a great distance. The difference between a simple crack and a real laceration may very well be distinguished in a glass slab if the velocity of the missile is not at its maximum, in which case a number of cracks are produced instead of a neat small hole. The best manner of observing the perfect analogy of the effect of the dry explosion with those of hydrodynamic pressure on a tin box is to fill this box with small shot or pieces of stone.

"Numerous illustrations demonstrate the analogy of explosion in dry and fresh bones; which is then the essence of the explosion? Kocher has been able to demonstrate by determining the velocity of the bullet directed to different objects and also on the human body, that for maximum velocities a greater amount of active energy is lost than for the small ones. This augmentation in the loss of active energy is caused by the velocity being too great to pierce the target and by remaining longer imbedded in it produces an unequal shock. By means of measures it is possible to ascertain that the loss of velocity and active energy is greater in bullets of heavy caliber; and consequently the lacerations will be greater.

"Conclusions to improve the projectiles from an humanitarian point of view:

"1. The cause of the laceration can not be avoided because it depends from the augmentation of velocity.

"2. It is necessary then to modify the importance of the laceration which happens.

"3. By diminishing the area struck:

"a, reducing the caliber of the projectile to five to six centimeters;

"b, preventing the deformation by giving it more compactness especially in the point;

"c, by making the anterior extremity sharper so as to increase its strength of penetration;

"d, by augmenting the rotation so as to prevent the oblique penetration.

"Ulterior experiences will demonstrate if to solve the problem from an humanitarian point of view it will be necessary to use again very small copper projectiles or projectiles with steel coating and point. *The results already obtained* by the introduction of the steel coating advise us to follow on the same track: 1, even after the worse results there are no more muscle and lung lacerations; 2, the fracture of bones, is totally limited in extension and intensity, so short the hole of exit is, according to the experience of Coller and Schjerming, reduced for 200 meters distance from 2 to 3 centimeters while before it varied from 7 to 13. One of the greatest improvements from a medical point of view is the reduction of the hole, as the healing of the wound is then materially facilitated and dangerous complications are rendered less frequent. But the extraction of large fragments of bone, and injuries to vital organs such as the heart, the brain and the lungs will always make numerous victims, and also in the next war hundreds of soldiers will end their life on the field of battle.

"But the great mass of our youth who courageously march into the grim jaws of war will be protected by a new Pallas, armed with the shield on which shines the Red Cross."

SOCIETY PROCEEDINGS.

The Canadian Medical Association.

The annual meeting of the Dominion Medical Association was convened in St. John, N. B., August 22 and 23, 1894. The meeting was well attended by medical men from nearly every province, the larger number coming from the Maritime Provinces. The Association had not met in St. John before for twenty years. Fraternal delegates were introduced: Dr. J. M. Jonah, of the Maine Medical Association; Dr. Bulkley, of the AMERICAN MEDICAL ASSOCIATION.

The chair was occupied in an able manner by DR. T. S. HARRISON, of Selkirk.

The subject of

THE TREATMENT OF EPILEPSY

was first taken up, the paper being presented by Dr. Hattie, of Halifax. He gave a description of the various changes that have been said to take place in the cerebral cells during fits of different kinds, and pointed out that the causation might be due to the influence of some irritant acting upon the cerebral cells, which put them in a state of excitability, or which, by being produced in the encephalon, and not eliminated quickly enough, by a nerve explosion was gotten rid of—that the convulsions were due to an abnormal functioning of the cells in some part of the nerve centers, the location determining the character of the seizure. This poison might be generated in the system. If this were the case, the rational treatment would be the eliminative and antiseptic one. This he had tried, by giving in addition to the bromid of potassium, beta naphthol. The results were very gratifying, the number of fits per patient having been materially reduced.

DR. MUIR then gave the history of

A CASE OF TUBERCULOSIS OF THE ARM, BETWEEN THE ELBOW AND THE WRIST,

which had been in existence for some fourteen years, with all the typical symptoms (the tubercle bacillus being present), which, after being scraped, was infected with erysipelas. Subsequently complete cure took place.

DR. SHEPHERD reported a case of cancer cured in this way.

DR. CAMERON said he had tried to inoculate some cases of malignant growths with the germ of erysipelas, but had failed to get it to work, probably because the sarcomatous and carcinomatous germs overcame the invaders.

SIR JAMES GRANT said that he had seen whooping cough very materially relieved in children who had been vaccinated. He had tried vaccination in certain cases of psoriasis he had had, with extremely gratifying results. He believed there was much room for study along this line.

The President of the Association, DR. HARRISON, took as the subject of his address his experience in medical matters during the last half-century. That long ago he settled in the early wilds of Ontario, near Lake Erie. Those were the days of ague, bilious remittent fever, murrain in cattle, and other diseases which now, since the country is cleared up, have become almost extinct. He gave a graphic clinical history of these various diseases and the different forms of treatment employed, both before the doctor arrived in the settlement and after, by those who sought to charm the disease away and those who sought to treat it according to the tenets of Thompson. Whisky, in those days, was considered by the people to be the sovereign remedy. Some doctors bled, blistered and salivated. The President told of difficult experiences he had had alone far removed from medical help in various kinds of operations, major and minor. The latter part of the paper was an advocacy of the establishment of uniform examinations for all who wished to practice in the Dominion, and that the standard should be that of the highest provincial standard. The President was accorded a hearty vote of thanks for his address, and a committee was appointed to consider the matter of reciprocity discussed in his address.

The subject of

APPENDICITIS

was discussed by DR. BELL, of Montreal. He reported forty-eight cases; forty of them operated on with recovery; five not operated on; and only three deaths altogether. He classified his cases into the gangrenous, the perforative, and those bound in with adhesions. These cases should be watched, he maintained, by a surgeon from the first, as little could be done for its relief medicinally. He advocated surgical interference in nearly all cases.

DR. HINGSTON thought the operation was performed unnecessarily. No young man should attempt to enter the abdominal cavity without first consulting one or two others. He had prevented the operation twenty-five or thirty times, and only regretted this step in one case. He was strongly in favor of conservatism.

DA. GRANT, Ottawa, spoke of two cases he had had which appeared to be fit ones for operation, but one was in a gouty subject, the other in a rheumatic. He did not operate and they recovered. It was very difficult to know what to do in these cases. He did not believe appendicitis was due to the presence of foreign bodies in the organ.

DR. SHEPHERD pointed out that the surgeons got the worst cases; so it was difficult to say just what the number of cases was which were operated upon as compared with those that were wholly treated medicinally. His idea was to operate after the acute attack had subsided in the interval. He attributed the tender point of McBurney, not to the appendix, but to the inflamed condition of the mesenteric glands;

for the appendix might be found on the right side in the pelvis, or up under the liver.

DR. STRANGE was in favor of non-interference until there was the presence of a tumor and pus. He had refrained from operating during the acute stage and had not regretted it.

MR. CAMERON, of Toronto, said he followed Mr. Treves in this matter; to wait until the pus formed, open and drain. He considered it unfortunate that the experience of a hospital surgeon of skill, should determine the matter one way or the other. In a possible forty-eight cases he had had in which he had followed out the above treatment, he had had, probably, Dr. Bell's figures reversed. The interval he believed to be the time to operate.

In replying to the discussion on his paper, Dr. Bell made a strong plea in favor of his statement, "one should always operate." It was generally agreed that no one knows when to operate. If the patient were left at any moment, perforation might take place. However, in the forty cases he had operated on, thirty were perforated, and abscess was present at the time of operation. In three the appendix was wholly gangrenous. And in such, he said, one could not wait for the tumor formation or the abscess, because there was none. In two the appendix was bound down; in three the appendix was not perforated, but gave rise to urgent symptoms, yet there was no abscess found. He used to follow the waiting treatment, but found it unsatisfactory. The mortality was much greater than that of his eleven months of the new plan. The greatest mortality statistics for the operation only amounted to from 2 to 3 per cent. The operation, as a rule, was not difficult. He considered the plan of waiting for pus not the best surgery. The very mild cases where the symptoms passed off in say twelve hours, he would not interfere with. They were probably only cases of cecitis.

DR. MORRISON, of St. John, read a paper entitled

EYE-STRAIN HEADACHES.

It had been alleged that 90 per cent. of all headaches was due to eye-strain. This he believed to be true. Many of such were attributed to other causes, as biliousness, "womb trouble," nervousness, masturbation, over-work, etc., when the real cause was overlooked—an over-worked condition of the muscle of accommodation—ciliary muscle. This condition of the delicate muscle was brought about by attempts to correct varying degrees of astigmatism. No cornea hardly had perfect curvature in every direction; and it was these slight degrees of curvature, often overlooked even by the specialist, that lay back of these headaches. The use of cylindrical glasses, with low dioptric power, always relieved the muscle, and consequently the headaches. Constitutional treatment was also advocated, and the avoidance of those conditions of life that tended to increase the trouble.

The subject of

DISEASES OF THE OVARIES AND TUBES

was by DR. SMITH, of Montreal. In gonorrhoeal salpingitis, the clinical history of which he went into, the only safe treatment was extirpation. This was also the course to pursue in the tubercular form, if the general constitution were not too much infected with the poison. He advised medicinal treatment for the functional disorders of the appendages. The paper was illustrated by a number of interesting cases, and the presentation of tubes and ovaries that he had removed.

THE USE AND ABUSE OF THE VARIOUS CAUTERY AGENTS IN THE TREATMENT OF NASAL AFFECTIONS

was treated by DR. E. A. KIRKPATRICK, of Halifax. He referred first to the delicacy and importance of the nasal mucous membrane, and said that too often it was the subject of

too harsh treatment. Caustics were used, perhaps, more in hypertrophic rhinitis than for anything else, and often too severely. Of the caustics he used chromic acid, trichloroacetic acid, and the electro-cautery were the principal. The chromic acid he used in anterior applications, the cautery for the posterior applications. By the injudicious use of caustics he had seen the mucous membrane destroyed. And in some cases he had seen very serious sequela follow in connection with the ear; such as loss of hearing and mastoid disease.

The address in medicine was delivered by DR. BAYARD, of St. John, N. B.; subject,

THE INFLUENCE OF THE MIND ON THE BODY.

This was, he claimed, a subject of growing importance in this rushing age. Most authorities were agreed that surgery and medicine were rapidly advancing. It was also agreed that nervous diseases were on the increase, particularly insanity and neurasthenia. This was largely due to the energy, competition, worry, compulsory education, sensational novels, newspapers, speculation and unrest, which characterized the last part of this century. Another cause was the migration from the country into the town, where the strife for existence was greater and sanitary surroundings bad. Relief from this condition of affairs was largely through the instrumentality of educational reform and the employment of preventive measures generally.

As an outcome of one of the points referred to in the address, at the suggestion of Dr. Hingston, Dr. Bayard moved, seconded by Dr. Hingston, "that the system of education generally pursued in the Dominion of Canada draws too largely upon the brain tissue of children and materially injures the mental and bodily health."

DRS. CAMERON, of Toronto and Powell, of Ottawa thought the terms of the resolution were too sweeping; that there was no specific statement as to what department of the school system was at fault, nor to what portion of the Dominion it more especially applied. Our young people, Dr. Cameron thought, were not suffering, the older people neither, from too much education. The educational system had been the subject of the best thought of our best men, and he considered the motion too condemnatory. A resolution was then passed that the matter be referred to a committee, consisting of Dr. Powell, Dr. Hingston, Dr. Graham and Bayard.

DOMINION REGISTRATION.

The committee appointed to report on the President's address, reported on the matter of inter-provincial registration. It was adopted.

DR. DANIEL moved, seconded by Dr. Powell, "that a committee be appointed in which each of the Provinces shall be represented, to draw up a form of medical act, which, after being adopted by this Association, shall be presented to each Provincial Legislature to be by them passed into law; and that the committee that brought in the report be asked to name such committee."

DR. BULLER moved, seconded by Dr. Laphorn Smith, that a committee be appointed, with power to add to their number, to consider the best means of obtaining a uniform standard of medical education for the Dominion of Canada; and that said committee report at the next meeting of the Association. This carried.

The discussion over the above question was long and animated, and taken part in by several of the men from the different provinces represented at the Association.

DR. J. E. GRAHAM presented a paper on

SOME FORMS OF FUNCTIONAL DERANGEMENTS OF THE LIVER.

The paper dwelt on the great importance of maintaining the integrity of the hepatic cell. It acted as a guard against

the invasion of certain forms of poisons into the general circulation, such as arsenic and phosphorous among the mineral kingdom; the poison of decaying meats and old cheese, in the organic; absorption of poisons generated in a distended stomach; the specific toxins of typhoid and such diseases; and the absorption of poisons from the intestinal tract, say when constipation was present. These various poisons tended to hurt the cell, and passing into the general circulation, had their effect on the nervous and other systems of the body. In the ordinary cases of biliousness the symptoms were caused in this way. The glucogenic and urea producing functions of the liver were also discussed and the results pointed out, of their abeyance, through the damage done to the hepatic cell. As to treatment, Dr. Graham pointed out the absolute necessity of finding out the exact cause of the disturbance before rational treatment could be employed. He recommended restriction and regulation of the diet, suitable exercise to assist the circulation, proper attention to bathing, drinking of mineral water to assist metabolism, where the urea was deficient; the necessity of free purgation, and lastly, the various specific remedies recommended for this condition.

DR. HINGSTON reported

FOUR CASES OF OPERATIONS ON THE BRAIN.

The first two were for epilepsy. The first without the results hoped for. The second was operated on for cephalalgic pain, located in one spot. It had been incessant and severe for a year. The Doctor trephined and found a hydatid pressing on the brain, pediculated, which he removed. The patient made a good recovery. The next case was that of a young man, whom the Doctor presented, who had suffered for twenty years, as the result of a fall and injury to the right side of the brain. He was the subject of paralysis of the left arm, which was drawn up and flexed, the fingers also being flexed in their terminal phalanges and extended in the first. The orbicularis and zygomatic muscles and the others on the left side were spasmodic and overdeveloped, the pupil was contracted, the vision and hearing on that side impaired. On operating, a thickened portion of bone was found impinging on the brain tissue, surrounded by a cartilaginous material which nature had thrown about it. There was no bleeding upon its withdrawal. The expression of the face at once became relaxed, and the patient seemed almost complete in his facial appearance. The arm had improved. Dr. Hingston recommended the use of a large trephine, two inches in diameter, for these operations.

DR. SHEPHERD, of Montreal, gave the history of a case of removal of the entire upper limb for a chondro-sarcoma involving the shoulder-joint; also of the removal of a large enchondroma of the pelvis. The first operation had not been done often, his being the first that been done in Canada. Drs. Hingston, Cameron, and Steeves discussed the paper.

DR. BULLER read a paper on "The Present Status of Asthenopia."

DR. INCHES, of St. John, N. B., read a paper entitled

THE PREVENTION OF TUBERCULOSIS,

in which he advocated the necessity of increased activity on the part of the profession, the public and the government in dealing with this dangerous disease. The patients themselves needed much instruction in regard to the destruction of the sputa, so as to lessen the danger of infecting others in the house. Even in well kept consumptive hospitals there was a little danger. He dealt with the difficulties connected with notification and registration and isolation. He had found it very difficult, even among his wealthy patients, to secure isolation and fresh air; and it was infinitely more difficult to secure such among the poorer classes. Special sanatoria, he maintained, should be provided, and in every instance where the patient was not properly looked after at home, he should be sent to such places. Until such a time, for there are very few as yet, those cases should be reported when preventive measures were not carried out thoroughly at home as recommended by the patient's physician.

DR. L. DUNCAN BULKLEY, of New York, gave a paper on

THE TREATMENT OF SKIN DISEASES.

More success would come to the general practitioner in the treatment of the skin if more attention was paid to each individual case. He advised careful inquiry into every detail of the patient's system and habits. The history of the eruption; careful inquiry as to former eruptions; family tendencies as to presence of asthma, rheumatism, etc., all should be made a note of. If medical men knew eczema,

acne, syphilis well, they would be able to treat the great majority of their cases satisfactorily. As to eczema, too much was often done; it was over-treated often. More and more he had grown to know that much depended on constitutional treatment in all these skin affections. The correction of some fault in diet or habit in life was sufficient to effect relief. The Doctor pointed out some of the principal points in the management of acne, syphilis, psoriasis and urticaria.

THURSDAY EVENING.

The report of the committee appointed at the last Association to consider the matter of the establishment of a pharmacopœia was received and adopted. On motion of Dr. Starr, seconded by Dr. Macdonald, it was moved, "That the same committee be requested to correspond with the different medical and pharmaceutical associations with regard to the advisability of publishing a pharmacopœia, taking the British Pharmacopœia as a standard." Carried.

THE PREVENTION OF CONSUMPTION,

was the subject of a paper by DR. J. F. MACDONALD, Nova Scotia. He advocated the bringing the matter of the contagiousness of the disease before the people by means of the secular press; by the establishment of philanthropic societies for the discussion of the matter, and the adoption of practical measures for the treatment of the cases. He advised the system of registration; a careful system of disinfection; government inspection of infected places; the establishment of sanatoria, and the enactment of laws to prevent the infected from spreading the infection.

DR. H. D. HAMILTON read a paper on "The Adhesions of the Soft Palate and Their Treatment."

DR. J. T. STREEVES, of St. John's Lunatic Hospital, read a paper entitled "A Medico-Legal Romance." It was discussed by Drs. Muir, Macdonald, Morrison, Christie, Hattie and Travers.

DR. FENWICK then presented a paper on "Hysteropexy."

The Association then adjourned to meet next year in Kingston, Ontario.—*Dominion Medical Monthly.*

NECROLOGY.

HERBERT GOUDE, M.D., who for fifteen years had been resident medical officer at the Highgate Smallpox Hospital, has recently died in London, in his forty-eighth year. He was a man of unquestioned fitness for his position as a successor of Dr. Marson at the Highgate institution, and his loss is spoken of with universal regret. He was able to continue the observation and testimony of his predecessors there and, as recently as in May of last year, was enabled to write regarding the unbroken record of fifty-eight years, that no nurse or servant had contracted variola even in a modified form, with the single exception of a gardener who evaded vaccination; and this, too, despite the fact that nurses have actually and accidentally inoculated themselves with variolous matter. This he may well term the crucial test of vaccinal protection, and the unanswerable argument in favor of the operation. Dr. Goude was the author of a full history of his hospital, from the time of its foundation in 1746 at Battle Bridge, King's Cross, up to the present time. As the *Lancet* says: "He sought to enforce the great lesson of the value of vaccination that is still unlearned by thousands, and history will not fail to own its obligations to him and his fellow-laborers."

HANBURY SMITH, M.D., died at Brooklyn, N. Y., on September 12, aged 84 years. He was a native of Staffordshire, England, and a graduate in medicine at a London school, in 1831. He practiced for several years in Stockholm, Sweden. He came to this country in 1847, and resided in Ohio about ten years. In 1859 he took up his residence in New York city, and became a pioneer in the introduction and production of mineral waters for the use of the profession and the public. He is survived by one son, Mr. Bernard Smith at whose home he died as above stated.

HENRY HOFFMAN-DONNER, M.D., the eminent physician, humorous writer, and poet, died at Frankfort-on-the-Main, September 20, aged 83 years. His chief humorous work was "Struwelpeter," which ran through 150 editions and was translated into many languages.—Dr. Rush, of Macon City, Kansas, September 14.—R. P. Watson, M.D., September 24.

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SATURDAY, SEPTEMBER 29, 1894.

ON ARTIFICIAL TEETH.

A writer in *Les Nouveaux Remedies* for Sept. 8, 1894, says that "the teeth of the Americans are without doubt the worst in the world." "Also," says this most interesting person, "this eminently practical people have long since renounced the employment of the inferior products furnished by nature, for their substitute, artificial teeth." The writer then produces some statistics to show that some 8,000,000 false teeth have been sold in the last year. He also cites the statistics of M. MAX DE NANSOUTY, who has made a calculation to show the number of pounds of gold used in filling teeth in the United States. This amount, he asserts, is not less than 800 kilograms which represents about 2,500,000 francs. All this precious metal we are told, "is buried with the Yankees when they die," and on this assertion this MARTINUS SCRIBLERUS splutters, "supposing that this continues during some hundreds of years, the un pitying statistician estimates that in three centuries, the cemeteries of the United States will receive a value of 750,000,000 francs in fine gold, equal to the money value of the gold which actually circulates in the country. There is a new California in prospect for the gold seekers of the twentieth century!"

We did not need this sneering ebullition to let us know the great advance America has made in civilization and in the humanities. The French Government sent one of the best native dentists in Paris to attend the International Medical Congress of 1887 and to report on the dental schools and the state of dentistry in the United States. His report was printed in an elaborate volume entitled "*L'Art Dentaire des Etats Unis*." In that official report, which

is complimentary to the United States in the highest degree, the writer regrets that France is so far behind the United States in the dental art. The superiority of American dentists has been acknowledged by the world for more than two decades, and an American dentist (EVANS) in Paris received more decorations of honor than any professional man of his time, whether in his particular field or out of it.

Nor is this superiority the result of the vast number of cases of bad teeth, as our contemporary would have us believe. It is because the Americans have passed beyond the dentistry of the Middle Ages, and realize that sound teeth are conducive to longevity. The filling of teeth is neither new nor peculiar to Americans, and it is doubtless true that the ancients understood the care of the teeth much better than the modern French. The third ÆSCULAPIUS is usually given credit for being the first to extract teeth, but the Egyptians understood their preservation well, and GALEN introduced into the carious tooth a pellet of wax for the toothache, and as a permanent cure he first cleared the cavity with acid and then filled it with powdered pyrethrum with resin or wax as an outer covering. Indeed, the ancient Romans took great care of their teeth, according to PLINY, washing and rubbing them repeatedly, and as we learn from HORACE (Sat. I.) when they lost them they had them replaced with ivory teeth, and when loose they bound them with a thread of gold. Tripoli powder ("red soda") was much used as a dentifrice,¹ and the ancient surgeons, subsequent to CELSUS, punctured alveolar abscesses with the red hot iron. The putative father of French surgery, GUY DE CHAULIAC, (its real father was HENRI DE MONDEVILLE) made a serious plaint that the pulling of teeth had been abandoned to barbers and dentists, and he held that the operation was sufficiently important to be attended to by physicians, but even GUY recommended the filling of cavities with aromatics and resinous substances. SPRENGEL asserts that JOHN ARCVLANUS, the Veronese, (quoted by RHAZES) was the first to use gold leaf for filling teeth, but judging from the remarks of our contemporary, his recommendation fell on stony ground, when it fell in Gaul.

In the matter of the construction of artificial teeth, ivory was alone used, down to the time of ANTOINE NUCK, (he of the Canal) who insisted that the only proper ivory was from the tusk of the hippopotamus. DUBOIS DE CHANANT (1777) was probably one of the earliest to use porcelain teeth. But, like every solid advance in the other branches of medicine, it has been a slow progress, and the present advanced position has been reached by regular steps. The country of our contemporary has done little or nothing in the last century toward the advancement of this branch of surgery.

¹ One can scarcely resist a reference to Catullus' "Upon Egnatius" and "To the frequenters of a certain Tavern" wherein the dentifrice used by the Celtiberians is held up to ridicule.

THE BUDA-PESTH CONGRESS.

As the detailed reports of the Eighth International Congress of Hygiene and Demography are received it becomes apparent that its practical value will be reaped quite as fully by those who staid at home as by those who attended the sessions. It is complained that the division of the Congress into twenty-six Sections made it impracticable to secure a fairly representative attendance at any; from twelve to twenty delegates seems to have been the usual number who could get together on schedule time for any given Section, while some of the Sections were closed entirely, no one putting in an appearance.

Even at the general meeting, on the last day of the session, less than fifty persons, according to the *London Lancet*, assembled to pass upon a long series of resolutions, submitted orally in various languages, and dealing with matters in some cases highly technical, in others involving questions of international importance.

The *Lancet* adds that this "procedure drew forth some vigorous protests from DR. BILLINGS, DR. LOEW, of Vienna, and PROFESSOR CORFIELD, and it is to be expected that such influence and authority as the resolutions may have, will be derived solely from their adoption by the various Sections."

 THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

This Association held its seventh annual meeting at the College of Physicians in Toronto, Canada, September 19, 20, 21, under the presidency of DR. GEORGE H. ROUÉ. This session was well attended by its members and visiting physicians from Canada and the United States, and proved to be the most interesting and enthusiastic convention in the history of the Association.

The papers presented were of an exceptionally advanced grade from a scientific point of view, while the discussions were animated and full in detail. Eighteen names were added to its list of members and DR. CARSTENS, of Detroit, elected the new President. The profession of Toronto left nothing wanting in caring for the welfare of those in attendance.

The yacht ride on the lake followed by luncheon at the Yacht Club was invigorating to the fatigue of long travel and attendance at the sessions. The annual dinner was given at the Athletic Club with His Excellency, the Lieutenant-Governor of Canada as the honored guest.

 THE AMERICAN MEDICAL ASSOCIATION.

A medical gentleman on whom a JOURNAL representative called, said that he did not care to belong to the ASSOCIATION, "because," said he, "the organization is simply a mutual admiration society." Ex-

actly so, and if our fugacious friend wishes to be thoroughly admired, he, too, should join the ASSOCIATION, and assist in the noble work of making it the greatest medical organization the world has yet known. The members of the ASSOCIATION may have their little disagreements on the floor of the convention, but they do sincerely admire each other, for they are all engaged in trying to do their best to advance the interests of the profession. Cranks and pessimists exist in every calling and profession. The AMERICAN MEDICAL ASSOCIATION possibly has its share of them, but the great heart of the organization pulsates with affection toward all Fellows of the ASSOCIATION, and kindness toward all mankind.

Let all true physicians lose no time in coming into the ranks, as effective missionaries in the cause of medical science. Let them reflect what a great power our profession would be were its members only united, and where can they unite with more propriety than under the broad banner of the ASSOCIATION? Let them remember that in the Section work of the ASSOCIATION there is ample field for their highest and best efforts in the cause of scientific truth. The index to the Transactions shows the name of every professional leader American medicine has known, up to the last decade, except those who had passed from the field before its organization. The great work of American medicine in the fifties, in the war period, and the decade immediately following, is set forth in the annual volumes, and medical history would be the loser by their extinguishment. We doubt not that the glories of the past may be surpassed by an even more brilliant future, but valuable work ought not to be frittered away by founding new and exclusive societies. Let us all belong to our local, State and National organizations, as a patriotic principle of devotion to our chosen profession.

 THE JOURNAL.

The Fellows of the ASSOCIATION may congratulate themselves on the new and completely equipped office which they now possess. The new machinery comprises all that is necessary to have the JOURNAL and all reprint work done by its own force. The moving was effected without friction, and the JOURNAL *was issued last week at the usual hour*. Those of our contemporaries who know what it is to move a printing office with all its accessories will, we are sure, appreciate the statement. At an early day we will print an illustration showing the new press and composing room. One of the new presses will print 2,300 impressions an hour, and another 2,000. The rooms assigned the Editorial and Business Departments of the JOURNAL are comfortable and convenient.

Blank Applications for membership in the ASSOCIATION, at the JOURNAL office.

CORRESPONDENCE.

Was It a Case of Subacute Peritonitis?

GRAND ISLAND, NEB., Sept. 20, 1894.

To the Editor:—I wish to report the following peculiar case and to ask the opinions of some of the many members of the Association as to the etiology and origin of the trouble:

Mrs. D., aged 27, widow, almost three years; mother of three children, youngest 6 years and 8 months; aside from constipation of about eight years' standing, and an occasional sick headache, was considered healthy. Was taken with sharp colic pains in the stomach and upper abdomen on the morning of August 2. Saw her about 7 A.M. She located the onset of the pain in a small spot in the median line, just below the ensiform cartilage. She had eaten nothing hurtful. There was no tendency to vomiting, or diarrhea, and the temperature was normal. The pain was quickly subdued by a hypodermic of morphia one-fourth grain. Hot turpentine cloths were applied to abdomen; hot water given to drink, and I directed that as soon as she was easy she should take half an ounce of ol. ricini. Bowels moved freely between 4 and 5 P.M., which provoked some pain, and by 8 P.M. pain was so severe as to necessitate the repetition of the morphia.

August 3. She was fairly comfortable, and having made arrangements to move to another part of the city, just before she was taken sick, and as she seemed able, on the morning of the 4th of August, she was moved that day. I did not see her again for three days, and although she had not felt right she did not think it necessary to report to me. At this visit, 9 A.M., August 8, her temperature was normal and there had been no chill, but she had an uncomfortable feeling in the rectum quite low down.

I should state here that in October and November, 1893, she had had a small abscess, which pointed, and was opened in the right side of the perineum, three-quarters of an inch from the anus. A fistula resulted which opened into the rectum above the external sphincter. I laid it open, curetted and packed with gauze Dec. 25, 1893. There was non-union of the divided muscle, but she had fair control. Thinking her present condition might be due to a recurrence of the rectal trouble I examined the parts, and found a swollen and somewhat tender condition of the anterior rectal wall with a decided tumefaction just inferior to the cervix uteri.

I prescribed syr. ferri iodid in dram doses after each meal, hot rectal and vaginal douches and liquid nourishing diet. This relieved the condition in a few days, and with the exception of a return of pain quite severe on Sunday afternoon, August 12, she continued to improve; was up and around most of the day; her appetite, which had been poor for almost two weeks, became quite good,—to use her own words "she could not get enough to eat;" bowels moving normally sometimes twice a day. She continued to improve, and on Sunday, August 26, had taken a short pleasure ride. I saw her the next day, and as she was feeling so well I dismissed the case.

Everything seemed to be doing well until 6 P.M. of August 29, when, on arising from the supper table she was seized with a sharp cramp, like pain in the same region as her first attack. It was intermittent in character, and some were not as severe as others. Thinking it would cease after a time, she did not call me until 10 P.M. Upon careful inquiry and examination I was fully convinced that the seat of the pain was in the small intestines near the stomach, and that there was total absence of pain in the region of the cecum, umbilicus or hypogastrium. I gave morphia sul. one-fourth

grain, atropia one one-hundred-and-fiftieth grain, and while waiting the effect took the temperature in the mouth, axilla and vagina, and found it normal in each place. Pain ceased without further use of a sedative, and she remained easy until 8:30 of the morning of August 30, when the pain commenced to return, which was as easily relieved as before. For several days she had been eating liberally, of fruits and watermelon, but as she had assured me that her bowels had acted freely on the morning and afternoon of the day of the attack, I gave her no physic at all until Friday the 31st, when I gave IIg. chlorid mite 10 grains, sod. bicarb, 10 grains. There was as yet no rise of temperature, no chill, and no vomiting.

The rest of the clinical history I have copied from my notes taken as the case progressed.

August 31, 9 P.M. Pulse 90; temperature under tongue 101; some pain, but bearable; bowels not having moved. Repeated the dose of the mild chlorid. Gave morphia and atropia; directed that she commence at 6 A.M. and take sal. Rochelle in teaspoonful doses in half a glass of water every half hour until bowels moved, or until I should see her.

September 1, 9 A.M. Pulse 90; temperature 101; no movement of the bowels, rested good all night, and is not in pain now; has vomited twice since 7 o'clock large quantities of what appears to be feces; has some pain in the descending colon above the sigmoid; says it is not severe and is not aggravated by movements of the body. Abdomen distended but symmetrical and not tympanitic. Placed her in the knee-chest posture and gave per enema over two quarts of warm soap water, which is evacuated with difficulty; discharges freely for a few seconds, then stops suddenly. The water returns unstained. She can get out of bed unaided, and without increasing the pain; continued the Rochelle.

September 1, 9 P.M. Pulse and temperature normal; has had no sedative for twenty-four hours, and is not in pain. Bowels have not moved; gave two enemas of the soap water, and the second was followed by the evacuation of about one quart of liquid feces, normal in odor and appearance. Another enema immediately following this brought away a small cluster of grape seeds, skins, and some fecal matter. Stopped the enema for the night, gave morphia and atropia, and left her at 10 P.M. feeling fairly comfortable.

September 2, 9 A.M. Pulse 80; temperature 98 $\frac{1}{4}$. No pain, no action of the bowels, constant nausea but no feces vomited.

September 3, 8 A.M. Pulse 90 and weak; temperature 98 $\frac{1}{4}$. Said she had had a fairly good night; still vomits. Matters vomited are mixed with bile. Discontinued the soap water, and commenced with clear warm water with a view of using a glycerin enema; she can not expel more than one-half of the water injected.

September 3, 9 P.M. Gave an enema of about one quart when she felt an urgent desire to stool, and succeeded in evacuating about three quarts of clear water; gave glycerin 6 ounces, water 12 ounces per rectum; patient in the knee-chest posture. She could retain it but a few minutes, although she tried hard to do so. It was evacuated without result. Gave mild chlorid 10 grains, sod. bicarb. 10 grains and left her with a pulse of 90 and temperature 98 $\frac{1}{4}$.

September 4, 8 A.M. No action of bowels; a little vomiting but not fecal; no pain and the tenderness much lessened. She feels hungry and had taken a part of a glass of milk at 7 o'clock which she retained. Gave calomel in grain doses every hour; was called at 5 P.M. on account of pain in stomach and bowels. Think it due to the calomel. She thinks there had been quite a high fever from 2 to 4, at which time she vomited freely and felt some relief; at time of my visit, 5:45, the temperature was 100 and pulse 120. Morphia one-fourth grain, gave perfect relief in a few min-

utes. Ordered the salts in dram doses well diluted every hour. 9 P.M. She is free from pain and the temperature is normal.

September 5, 2 A.M. Was called on account of the return of pain. The usual dose of morphin soon relieved her. Then gave her per enema ol. petrolia, 16 ounces; had her stand upright to favor the oil rising as high as possible in the intestines; placed her in bed and had her lie upon the right side. She remained quiet about five hours; at the end of which time she had a slight movement of the bowels, but voided nothing but clear water. She took a small quantity of milk and one dose of the salts between 6 and 7, and had retained them. She looks rested and says she feels comfortable. Gave her per enema two quarts of clear warm water which brought away the oil but no feces. Repeated the petroleum and directed the salts to be continued as before.

September 5, 2 P.M. Upon consultation with two other physicians she was given gttss of ol. tiglii in capsule every two hours until she had taken four doses, or six drops in all. Then gave ol. olive in four ounce doses every four hours. She did not retain the first dose but did the next four, taking the last at 4 P.M. of the 6th.

September 6, 7:30 A.M. Pulse 120; temperature $101\frac{1}{4}$. Having decided at the consultation of yesterday to open the abdomen and examine the small gut, provided the indications were favorable, I visited her at 7 on the morning of the 6th, found her as above described, gave an enema of about one quart of warm water, which was immediately evacuated, and with it came about three quarts of water, brownish feces, with oil on the surface, the entire evacuation amounting to about one gallon, in which was a rope of mucus exudate, about one-half inch in diameter, and about fourteen inches long. She immediately exclaimed, "What a relief," and upon returning to bed, took long inspirations, and said she felt good. I immediately telephoned the physicians who came at once, and after they were informed as to the recent facts, and having examined the contents of the evacuation, concurred with me in the opinion that an operation would not benefit the case, as it was evident that the obstruction was due to a diseased condition of the small gut, and involving a considerable portion of it, and not due to mechanical obstruction. By this time, (half an hour after her return to bed), she was much exhausted; hands and feet cold and damp; external heat was applied; digitalis and hot milk punch administered internally, and strychnia hypodermically.

September 6, 1 P.M. Pulse 120 and very weak; temperature $102\frac{1}{4}$. Has muttering delirium; hands and feet getting warmer. At 8 P.M. Pulse 120; temperature $101\frac{1}{4}$; has vomited but little since morning; stomach and bowels full of liquid which emits a splashing sound when she turns or gets up. Voids urine normally and it is normal both in quantity and appearance. At 9:30 P.M. Had a small fecal movement, brownish in color and oil on the surface; although not much pain, I gave the usual dose of morphia and one thirty-third grain of sulphate of strychnia, and she rested good until 2 A.M. of the 7th.

September 7, 8:30 A.M. Pulse 105; temperature, 101; no further action of the bowels; gave a small enema of hot water, which was evacuated without result. She is clear in her mind, can get out of bed and walk without assistance. Gave a sponge bath and changed her clothes.

September 7, 12 M. Pulse 110; temperature 102; gave ol. olive 4 ounces and repeated this dose at 2 P.M. At 7 P.M., pulse 104; temperature $101\frac{3}{4}$; has not vomited since 12 M. At 8 P.M. gave per enema glycerin 6 ounces, water 12 ounces, which resulted in a movement of one quart of liquid feces. Two more movements followed in a short time but less in quantity than the first. She vomited at the same time of the first stool and it was much more feculent than the stool. At 3:35 P.M., pulse 120; temperature 102; delirium more profound.

September 8, 3 A.M. Much worse to all appearances; still recognizes acquaintances, but is much weaker and it is difficult to obtain an accurate count of the pulse. Temperature $102\frac{1}{4}$ in axilla. Bowels more distended; tongue has been clean and moist throughout the entire sickness, is now dry and it is with difficulty she can put it out.

September 8, 12 M. No material change. Temperature $102\frac{1}{4}$; has not vomited since the night previous; has taken and retained ol. ricini 1 ounce and ol. terebinth x gttss. Hot turpentine cloths applied to abdomen reddens the skin; 4 P.M., delirium more profound. At 7:30 P.M. Stupor deepening but will answer when her name is spoken; put out her tongue when asked, and drank a little water. She slowly sank and died from exhaustion at 9:30 P.M., September 8.

Postmortem.—Thirteen hours after death; body much emaciated and muscles shrunken. Abdomen uniformly distended. Upon opening the abdomen a fine, whistling noise was heard and seemed to come from the left side. Intestines much distended and red at the flexures. No fecal staining noticeable anywhere. Omentum adhered to the intestines and almost atrophied. No disturbance of the relations of the viscera. An attempt to push the intestines to one side caused a free pouring out of feces from the descending colon at a point just above the crest of the ilium. A gangrenous spot and a perforation was found in the gut at this point. A ragged gangrenous spot and perforation was found upon the anterior and external aspect of the cecum, a little above the ileo-cecal valve, which had the appearance of having been caused by pressure from without inwards, as the perforation in the mucous coat was not larger than a small pea, while the ulcerated opening through the other two coats was as large as a silver dime, and had a distinct and elevated margin. No other perforations were found. Small intestine distended throughout its entire length, full of feces and reddened at the flexures. Colon also distended and full of feces but not so red. Stomach also full of liquid, one-half of which was fecal matter. The liver enlarged and rather pale in color; the left lobe lying almost wholly to the left of the median line but in other respects it was normal. Spleen and kidneys normal. Uterus small, firm, and occupying a normal position. Bladder not being noticeable was not examined. The feces were of uniform consistency, ash-blue in color and free from foreign bodies or scybala, except a few very small fragments of grape seed, and they were floating free in the feces. No stricture or narrowing of the caliber of either the small or large intestines. Stomach and pylorus normal except they evidenced the signs of the recent inflammation.

And now come the questions: What was the matter? Where the origin and what the cause? Did the beginning of the fatal sickness date from August 2? If so, why that interval of apparent convalescence? If the second attack was a relapse what caused it, and why was there such a sudden and obstinate change in the function of the bowels? For ten days prior to the last seizure the bowels had been moving once or twice daily without the use of physic or laxatives, except she was perhaps eating more fruit than just prior to the first attack. There had been increased ingestion for the last ten days but not what could be called unnatural. Neither was the action of the bowels any approach to a diarrhea. What could have caused such intense pain in the pit of the stomach and so sudden in onset without a rise of temperature for over forty-eight hours? Then it was only 101, and may have been the result of the dose of mild chlorid given eight hours previous. At no time did it require more than a quarter of a grain of morphia combined with a hundred-and-fiftieth of atropia to relieve the pain, and keep her easy six, eight, and twelve hours, and on the fourth day (Saturday September 1) she had no sedative for over twenty-four hours. Several times the hypodermic was used more for its relaxing effect on the bowels than for the relief of pain. At all times she could lie with the limbs extended, could rise suddenly to the sitting or standing posture without increasing the pain, and often when asked to locate the pain would reply: "I have no particular pain," and only once, about the sixth day of the last attack, did she refer to pain in the region of the cecum, yet the postmortem revealed a gangrenous spot, a perforation at this point and a general peritonitis. At no time did the temperature rise above $102\frac{1}{4}$ when it was taken, and three different thermometers were used. Drs. W. B. Hoge and M. J. Gabam were the consulting physicians in the case, and were present at the postmortem—Dr. Hoge being the principal.

I have been somewhat tedious perhaps in going into the details and giving the clinical history daily and sometimes hourly, as the case progressed, but I can substantiate the accuracy and authenticity of the same, as I have given it, and my excuse for the length of this article is the peculiar features of the case, together with the utter inutility of the remedies, and different methods employed for freeing the intestinal tract.

J. LUE SUTHERLAND, M.D.

LETTER FROM COLORADO.

Mountain Fever—Practice of Medicine Act—
Health of Denver.

NEW CASTLE, COLO., Sept. 1, 1894.

To the Editor:—Possibly some of your many readers may be interested in a line from "the heart of the Rockies;" not that we have much disease here, for we have very little where good habits prevail. I have seen an occasional case of "mountain fever," a form of remittent, consequent upon exposure and the hot days and cool nights of July and August, altitude causing a lower type and temperature than is found in the low, damp regions where the disease is most common. Both observation and reason commend the careful use of the still fashionable agents that depress the heat-producing centers.

An enforced idleness consequent upon "labor troubles," "a strike" in a mining camp of 1,200, when the wages were so low they could not live, though they spent annually from seventy-five to an hundred thousand dollars for alcoholics, permitted me to camp out during August in the near by "big game country." Would that many over-worked, under-paid, anxious practitioners could come up here and renew their lives among these grand old mountains, with their pure air and sweet waters, and enjoy elk beef, venison and trout before the game has all gone to join the buffalo in the "happy hunting grounds."

If, however, they come to practice their profession they must remember that at present the State is under the dominion of cranks. Knowing that it had a good medical practice act, such as we have labored for in Kansas for a quarter of a century I took with me my old diploma case containing sundry papers. When in Denver I called upon the Secretary of the State Board of Medical Examiners and presented my diploma. As the law reads: "He shall present his diploma for verification, or furnish evidence of being a graduate of a legally chartered medical school of good standing, and the State Board of Medical Examiners shall issue a certificate to that effect," I was a little surprised at being informed that the diploma was of no account, because issued by a college that did not at that time require a three years graded course. "No," I said, "it did not, nor did any school in America for twenty-five years after that date, but it kept step with progress, and in those days there were 'medical schools of good standing,' and but for the earnest efforts of the old schools and their older graduates progress would never have been achieved."

"We have decided that no school was in good standing when it did not require a three years course." "Then you relegate all the older practitioners to the class of non-graduates?"

"We would refuse a certificate on the diploma of any applicant if the school did not require at the time it was granted a three years course." "Then I understand that qualification is not a question with you, but graduation under recent advances, due to those who must have graduated before the advance was possible." "You must come under the next clause of the law which reads: 'All persons who have made the practice of medicine and surgery their profession for ten years and can furnish satisfactory evidence thereof to the State Board of Medical Examiners shall receive from the Board a license to continue in practice in the State of Colorado.'" "Protesting against your construction of the law, I present this diploma, dated 1848, as evidence of ten years practice." "We do not accept it." "Well, here is evidence of continued and honored membership in the Ohio and Kansas State Medical Societies and in the AMERICAN MEDICAL ASSOCIATION for nearly half a century." "That is not the kind of evidence the Board requires." "Then here is a commis-

sion as Surgeon of the Seventeenth O.V. I., dated Oct. 1, 1861; here are several appointments on the Kansas State Board of Health, the law requiring graduation from a reputable medical college and ten years practice as a pre-requisite to appointment." "I am very sorry to inform you that we can not accept any of these, but want the affidavit of five persons that you have practiced medicine for ten years." "As any ignorant pretender who hawks his nostrums on the streets can get such affidavits, your decision defeats the purpose of the law, the protection of the people, and debases to his level every physician of twenty-five years practice, however honored or honorable."

While in Denver I was impressed with the grand possibilities of that beautiful city, but its health reports show they are not yet attained. If the city was supplied with an abundance of water, brought uncontaminated from the mountains, and a thoroughly flushed sewage system, reaching every cess-pit and carrying all sewage and surface water to a sewage farm, located miles away on the arid plains that surround the city, making it, with far less cost, outrival the famed farms of Berlin, Germany, and leave the city, with its altitude and pure mountain air, the healthiest in the world, practically free from all disease except such as comes from the too ardent worship of Bacchus and Venus, unless the bacteriologist, who makes tuberculosis contagious, should chance to be correct. Then, alas! this home for consumptives, with their transmitted diathesis will long have an unsatisfactory death rate. Very truly,

W. L. SCHENCK, M.D.

Syphilitic Marriages.

ST. PAUL, MINN., Sept. 20, 1894.

To the Editor:—For the purpose of securing reliable statistics on the subject of the marriage of syphilitics, I desire to enlist the assistance of those of your readers who have had experience which will be of value in determining the period when this disease ceases to be communicable and inheritable. I shall, therefore, esteem it a great favor on the part of any physician who will send me answers to the following questions; and due credit will be given in a future publication to those who desire to aid me in this work:

1. What is the latest period from the date of the initial lesion that you have known the disease to be communicated by a patient who has been from the first under your observation?

2. What is the latest period from the date of the initial lesion that you have known: a, a syphilitic man, or b, a syphilitic woman to become the parent of a syphilitic child?

3. Have you ever known syphilis to be either communicated or handed down at a later period than four years from the date of the initial lesion by an individual who has been constantly under your observation during that time?

In answering these questions I should like a brief but complete history of each case and an account of the treatment that has been pursued.

I hope by this means to obtain the experience of a large number of observers and to reach a fairly reliable conclusion as to the time when we may safely permit our syphilitic patients to marry. Yours very truly,

BURNSIDE FOSTER, M.D.

The Societies do Not Send Delegates.

BOSTON, Sept. 18, 1894.

To the Editor:—On page 433 of the JOURNAL for September 15 is a statement that every regular State Society, except those of New York and Massachusetts, sends delegates to the annual meetings. The fact is that both of these States do send delegates. Respectfully,
A MEMBER.

BOOK NOTICES.

Materia Medica, Pharmacy, Pharmacology and Therapeutics. By W. HALE WHITE, M.D., F.R.C.P., Physician to, and Lecturer on Materia Medica and Therapeutics at Guy's Hospital, London, etc., etc. Edited by REYNOLD W. WILCOX, M.A., M.D., LL.D., Professor of Clinical Medicine and Therapeutics at the New York Post-Graduate Medical School, etc., etc. Second American edition, thoroughly revised. Cl., pp. 661. Philadelphia: P. Blakiston, Son & Co. 1894. Chicago: E. H. Colegrove & Co. Price \$3.

The editor says in the preface to this volume that "the radical changes introduced in the last edition of the United States Pharmacopœia has necessitated the rewriting of the entire descriptive part of the materia medica." The National Convention of 1890 instructed its committee on revision to employ the metric system of weights and measures, and the committee say (page 33) that "as directed by the convention the committee has in most cases employed definite weights for solids and measures for liquids in terms of the metric system," but the book continues to use the old British system in giving the doses of medicines. Many of the "definitions," or rather examples, cited in the opening chapter are properly subject to adverse criticism, for example, "Empirical Therapeutics.—Therapeutics based upon clinical experiences only, e.g., the use of mercury for syphilis." This is news to carry to those experimenters who have spent so much time in studying the physiologic effect of this drug. Keyes, Voit, Nega, Mialhe, Buchheim, Grassi, Wilbouchemitz and Brentouneau. How a book of this character can go to a second edition passes our comprehension.

Therapeutics: Its Principles and Practice. By H. C. WOOD, M.D., LL.D., Professor of Materia Medica and Therapeutics, and Clinical Professor of Diseases of the Nervous System, in the University of Pennsylvania. A work on medical agencies, drugs and poisons, with especial reference to the relation between physiology and rational medicine. Ninth edition thoroughly revised. Cl., pp. 1007. Philadelphia: J. B. Lippincott Company. 1894.

The work has passed as current coin for so many years that it were a bold man that would undertake its serious criticism. In its statements of the physiologic effect of drugs it is unrivalled, and as a scientific treatise on therapeutics it has few equals, but while one can not paint the lily or gild refined gold, we may always praise a treatise that has for practitioners the charm of truth. When the author has doubts he frankly says so; and there are so many doubts in real life! The only suggestion we would make to the author would be that the additions made necessary by reason of facts learned by recent experiments, be inserted in the text, instead of the brief reference in a foot note, and that the terms be changed to conform to modern usage. Thus while the author uses the term, "official," correctly in the preface, the old term, "officinal" still remains throughout the book, and the metric system of dosage is not used in the text, although it is mentioned, and tables are inserted in the appendix. However, the book will still remain a favorite, for its merits far outweigh these blemishes.

The Rights and Duties of Citizens of the United States; a Manual of Citizenship. By DR. EDWARD C. MANN, of New York. Advance sheets. Published for the author. 1894.

Every word of the opening paragraph in the preface should be engraved on parchment and hung up in every school room, for it is not less true now, than when Cicero wrote in "De Officiis" that "men inherit their principles and defend them afterward as they do their estates." Our author says:

"The scholars in our public schools and colleges should be instructed as to the elements that go to make up a good and useful citizen of our country, and the obligations, civil, social and political, due to others from them. They should be instructed to yield respect and obedience

to the laws, and to hold on with unflinching firmness to the Constitution of the United States. They should be taught the love of liberty and order, to walk in the path of patriotism, of fidelity to our country, and of duty to God. This is necessary in order that when they become of adult age they may be prepared to exhibit wisdom in the cabinet; the purest patriotism; the highest integrity, public and private; morals without a stain; and religious feelings without intolerance and without extravagance."

The book is dedicated to the National Educational Association, and the doctrines inculcated are such as can be approved by every well wisher of his country, and in these days when so large a proportion of our school children are of foreign born parentage, these are urgent reasons. The purposes and spirit of the Manual should receive support and encouragement.

A System of Legal Medicine. By ALLEN McLANE HAMILTON, Consulting Surgeon to the Insane Asylum of New York city, etc., and LAWRENCE GODKIN, Esq., of the New York Bar, with the collaboration of Prof. James F. Babcock, Lewis Balch, M.D., Judge S. E. Baldwin, Louis Binse, Esq., C. G. Chaddock, M.D., C. F. Bishop, Esq., A. T. Bristow, M.D., B. F. Cardozo, Esq., A. F. Currier, M.D., C. L. Dana, M.D., Geo. Ryerson Fowler, M.D., W. T. Gibbs, M.D., W. S. Haines, M.D., F. A. Harris, M.D., W. B. Hornblower, Esq., Chas. Jewett, M.D., P. C. Knapp, M.D., R. C. McMartini, Esq., C. K. Mills, M.D., J. E. Parsons, Esq., C. E. Pellew, E. M. Judge, C. E. Pratt, W. A. Purrinton, Esq., B. Sachs, M.D., F. R. Sturgis, M.D., Brandreth Symonds, M.D., V. C. Vaughn, M.D. Royal, 8vo, cl., pp. 657. Illustrated. Vol. I. New York: E. B. Treat. 1894.

With the formidable array of talent presented on the title page of this volume an excellent book should be expected and a perusal of the contents of this volume is not disappointing. Unlike a great many of the books with so large a staff the articles are all published under the name of the author, who thus accepts the responsibility for it, and the reader is enabled to know what weight to attach to a particular article when he knows who wrote it. The standard books on medical jurisprudence such as Beck, Taylor, McClellan, Wharton and Stillé, are far behind the recent decisions of the courts, while the knowledge of the organic chemistry has created almost a new science since those revered text-books were the sole authorities. Following as this does, so soon after Witthaus and Becker, it will necessarily come into competition with that work, and it is no disparagement to either that they should be so placed. The work under consideration is devoid of padding, is clear and comprehensive, and the references to cases are so full as to make it encyclopedic in scope. It is, therefore, quite likely to become the favorite text-book on legal medicine for the next decade.

Laboratory Manual of Elementary Chemical Physiology and Urine Analysis. By JOHN H. LONG, M.S., Sc.D., Professor of Chemistry and Director of the Chemical Laboratory in the Schools of Medicine and Pharmacy of Northwestern University. With numerous illustrations. Cl., pp. 366. Chicago: E. H. Colegrove & Co. 1894. Price \$2.50.

This well-written little book consists of eighteen chapters, of which the first nine are given to elementary chemical physiology, and nine to urine analysis. There is an appendix which gives useful tables and formulæ for test solutions. Students will find it of great value in their laboratory work as a practical and simple guide.

A Handbook of Medical Microscopy. For students and general practitioners, including chapters on Bacteriology, Neoplasms and Urinary Examinations. By JAMES E. REEVES, M.D. With a glossary and numerous illustrations (partly in colors). Cl., pp. 237. Philadelphia: P. Blakiston, Son & Co. 1894. Chicago: E. H. Colegrove & Co. Price \$2.50.

The author of this work has long been known as one of the most expert microscopists in the country, and his mounted specimens have been much admired by all who have had the good fortune to see them. In the production of this little volume the author has turned his long prac-

tical experience to good account. He has succeeded in condensing in a minimum space a great deal of material of especial interest to the practitioner. The success of the distinguished author shows that the general practitioner need not despair of becoming a microscopist, if like the author, he will industriously and patiently work out the problem for himself and this book if carefully studied will help to show him how to do it.

Directions for Laboratory Work in Bacteriology. For the use of the medical classes in the University of Michigan. By FREDERICK G. NOVY, Sc.D., M.D., Junior Professor of Hygiene and Physiological Chemistry. Cl. Interleaved, pp. 209. Ann Arbor: George Wahr. (No date). Preface dated April, 1894. Chicago: E. H. Colegrove & Co. Price \$1.50.

This is essentially a laboratory book, which gives the technique of practical bacteriologic study. The life history of the commoner bacteria is taken up and the different steps of their development shown and the directions for their complete demonstration are minute and accurate. It is not a treatise on bacteriology, but as its title indicates, a working guide. The formulæ for staining fluids and culture media are given in extenso. The blank pages will enable the worker to make full notes of his own experiments.

SOCIETY NEWS.

Illinois State Medical Society.—The Treasurer of this Society, Dr. George N. Krieger, Springfield, Ill., requests the JOURNAL to announce to members that the volume of Transactions for 1894 are now ready for issue. Gentlemen who have paid their annual dues have already received them; those who have thus far omitted to send their dues can have their Transactions at once on receipt of the amount.

Medical Society of the Missouri Valley.—The seventh annual session of the Medical Society of the Missouri Valley was held at the city hall, Council Bluffs, Iowa, Sept. 20, 1894, under the presidency of Dr. A. F. Jonas, of Omaha. The meeting was called to order at 10 A.M., and after the various committees had made their reports the regular work of the meeting was inaugurated by Dr. W. Ross Martin, of Omaha, who read a paper on chronic articular osteitis of hip with analysis of 208 cases. The following papers were read:

Chronic Articular Osteitis of Hip; analysis of 208 cases, W. Ross Martin, Omaha, Neb.; Report of an Interesting Case. W. O. Henry, Omaha, Neb.; Erosions and Lacerations of Cervix Uteri, Geo. H. Simmons, Lincoln, Neb.; A Case of Spurious Pregnancy, Adda Bowman, Reynolds, Neb.; Amnionitis, from Abscess of Frontal Sinus, Flavel B. Tiffany, Kansas City, Mo.; Two Interesting Cases which underwent Celiotomy, Donald Macrae, Council Bluffs, Iowa: Absorbable Sutures, J. P. Lord, Omaha, Neb.; Sarcoma of Eye—Traumatic Origin, D. C. Bryant, Omaha, Neb.; The Treatment of Typhoid Fever, W. F. Milroy, Omaha, Neb.; Mental Deficiency in Children, George Mogridge, Glenwood, Iowa; The Proper Management of Cases of Miscarriage, Mary Strong, Omaha, Neb.; Anal Fistula, J. C. Robertson, Council Bluffs, Iowa; Two Cases of Intestinal Surgery in which the "Murphy Button" was used, J. E. Summers, Jr., Omaha, Neb.; The Medico-Legal Aspect of Paranoia, J. Punton, Kansas City, Mo.; Ovariectomy, with Dermoid Cyst, W. S. Ross, Omaha, Neb.; The Morbid and Curative Influence of Mental and Moral Emotions, W. H. Kerr, Fall City, Neb.; Muscular Asthenopia, C. M. Hobby, Iowa City, Iowa; "Anthrax" or Malignant Pustule, W. Jepson, Sioux City, Iowa; The Beginnings of Disease, A. B. Somers, Omaha, Neb.; Hyperemesis Gravidarum, B. F. Crummer, Omaha, Neb.; Operative Treatment for Vascular Naevus, A. F. Jonas, Omaha, Neb.; A Case of Quadrisectional Hemianopia, M. F. Weymann, St. Joseph, Mo.; Total Hysterectomy without Ligation of Uterine Arteries, J. E. Summers, Jr., Omaha, Neb.

Tri-State Medical Society, of Alabama, Georgia and Tennessee.—

The sixth annual meeting to be held in the ballroom of the Kimball House, Atlanta, Ga., October 9, 10 and 11. There

will be three sessions a day—morning, evening and night. Reduced rates on the railroads from all points in the South. Members of the profession are all invited. The following papers are announced:

The Responsibility of a Class of Criminals from a Medico-Legal Point of View. J. C. LeGrand, Anniston, Ala.

Treatment of Stricture of the Urethra by Electrolysis. P. L. Brouillette, Huntsville, Ala.

The Obstructive Urinary Diseases. W. L. Gahagan, Chattanooga.

Urethral Surgery Ten Years ago and To-Day. T. C. V. Barkley, Chattanooga.

Reflex Neurosis in the Male. Andrew Boyd, Scottsboro, Ala.

The Pathologic Import of Albumen in the Urine. E. B. Ward, Selma, Ala.

How to do Abdominal Section without Fuss, Feathers or Foolishness and with Immunity from Sepsis. Joseph Price, Philadelphia.

Puerperal Septicemia with cases illustrating the Several Varieties. J. R. Rathmell, A.M., M.D., Chattanooga.

Reform in the Treatment of the Neurotic and Insane Viewed from the Gynecologic Standpoint. Charles A. L. Reed, Cincinnati.

Essentials of Obstetric Nursing. R. R. Kime, Atlanta.

Pernicious (or Inveterate) Vomiting of Pregnancy. A Plea for the Mother; based on Cases in Actual Practice. E. A. Cobleigh, Chattanooga.

The Induction of Labor to Prevent Blindness. Frank Trester Smith, Chattanooga.

Slaughter of the Innocents. E. van Goidtsnoven, Atlanta.

Prognosis and Treatment of Placenta Previa. Richard Douglas, Nashville.

Uterine Cancer. George R. West, Chattanooga.

Treatment of Uterine Fibroids. W. Gill Wylie, New York.

A Report of some Rare Surgical Lesions connected with the Liver. John A. Wyeth, New York.

The Treatment of Stone in the Kidney. W. E. B. Davis Birmingham, Ala.

Tuberculosis of the Kidney and Bladder. H. Berlin, Chattanooga.

Some Causes Leading to Invalidism in Women. President's Address. J. B. S. Holmes, Atlanta.

Amputation of Mamma for Carcinoma and Treatment of the Axilla. B. W. Bizzell, Atlanta.

Excision of Malignant Tumors of the Breast. Willis F. Westmoreland, Atlanta.

Some Remarks upon Brain Surgery, with Report of Cases. Paul F. Eve, Nashville.

The Surgical Treatment of Empyema. J. A. Goggans, Alexander City, Ala.

Some Points in Rectal Surgery. J. M. Mathews, Louisville.

Appendicitis—Its Surgical Treatment, and Report of Cases. R. J. Trippe, Chattanooga.

Treatment of Injuries and Inflammations of the Joints. Wm. L. Nolen, Chattanooga.

Burns and Treatment Thereof. T. Ellis Drewry, Griffin, Ga.

Is there Danger of not getting Good Union after Tenotomy. C. W. Barrier, Columbus, Ga.

Hygienic Treatment of Syphilis. T. M. Baird, Hot Springs, Ark.

Mixed Infection. M. B. Hutchins, Atlanta.

Electro-Therapeutics. J. P. Stewart, Chattanooga.

Headaches; Their Etiology and Treatment. R. P. Johnson, Chattanooga.

Migraine; Its Etiology and Treatment. Hugh Hagan, Atlanta.

Tuberculosis of the Nasal Bones. B. F. Travis, Chattanooga.

Adenoids and their Sequelæ. Arthur G. Hobbs, Atlanta.

Paresis and Paralysis of the External Rectus of the Eye with Report of Two Cases. Dunbar Roy, Atlanta.

The use of Hydrastis Canadensis in Diseases of Mucous Membranes. P. R. Cortelyu, Marietta, Ga.

Combination of Carbolic Acid and Camphor as an Antiseptic and Local Anesthetic. William Perrin Nicholson, Atlanta.

The Treatment of Pneumonia in Children. Frank S. Parsons, Philadelphia.

The Treatment of Smallpox. C. H. Holland, Chattanooga.

Some Practical Points in the Treatment of Typhoid Fever. James B. Boid, Atlanta.

The Hygiene of the Hospitals and Prison Camps of the Georgia Penitentiary. W. O'Daniel, Atlanta.

An outline of the History of Medicine and Surgery in Georgia. L. B. Grandy, Atlanta.

Unusual Nervous Phenomena in a Case of Fracture of the Fifth Cervical Vertebra, with its Pathology. W. C. Townes, Ph. B., M. D., Chattanooga.

The following notice has been issued:

My Dear Doctor:—You are invited, with your friends, to attend the sixth annual meeting of the Tri-State Medical Society of Alabama, Georgia and Tennessee, to be held in the ballroom of the Kimball House, Atlanta, Ga., Tuesday, Wednesday and Thursday, October 9, 10 and 11, 1894.

FRANK TRESTER SMITH, M.D. Sec'y,
Chattanooga, Tenn.

J. B. S. HOLMES, M.D. Pres't, Atlanta, Ga.

SELECTIONS.

Report on the Etiology and Prevention of Diphtheria—Presented on behalf of the German Committee to the Eighth International Congress of Hygiene and Demography, at Budapesth.

[The following is the summary of the conclusions of this important report:]

1. The productive agent of diphtheria is the diphtheria bacillus. Dispute as to the etiologic definition of this bacillus exists no longer. We can, therefore, henceforth indicate as diphtheria such forms of disease as are infested with the bacillus.

2. Not infrequently cases appear in the early stages to the clinical observer as true diphtheria, which, however, are caused by other organisms, as streptococci, staphylococci, pneumococci, and in light or graver form may be mistaken for diphtheria. But the differential diagnosis can be effected through bacteriologic research. Statistical compilations on the epidemic spread of diphtheria, as well as on the character of diphtheritic epidemics, can not represent an exact definition so long as the bacteriologic investigation of cases suspected of diphtheria fails to mark a division between true diphtheria bacillus and cases merely resembling diphtheria.

3. Diphtheria epidemics show a various character, as do many other epidemics of infectious disease. The course of epidemics is very often light, but also much more severe, indicated by the high figure of the death rate, the rapid infection of the larynx and the nose, and by severe heart and kidney affections, and consecutive paralyses. But also in the same epidemic instances of severe and light forms of disease frequently alternate irregularly.

4. The variation will be determined by several factors: *a* by differences in the number and the virulence of the diphtheria bacilli; the causes of the latter are not yet absolutely known; *b*, by concomitant bacteria, and, indeed, as much by pathogenic as saprophytic; the processes of infection with regard to the diseased mucous membranes in the passages and in the nose appear to influence the course of the disease unfavorably, in part by increasing the virulence of the bacilli, in part by weakening the body through absorption of decomposition products; *c*, by individual tendencies not yet thoroughly recognized.

5. The diphtheria bacillus can appear in the passages, especially of the nose, of separate individuals without causing indications of sickness, which it first induces when it has actually established itself. Lesions of the mucous membranes, small eruptions, catarrhal changes, are favorable to its residence. In brief, meteorologic conditions giving admission by the first approach to catarrh, especially cold damp weather, appear to favor the sickening from this cause. But this influence has to be more closely observed.

6. Diphtheria is most rapidly communicated by direct contact between sick and well through spitting, coughing,

sneezing, kissing and grasping of the hands, whereby the hands come into contact with fresh secretion, but also freely through utensils which the sufferer has fouled, with his excretions by beverages, food, eating and drinking vessels, cast off washing, clothes and other articles, as pocket handkerchiefs, playthings, even long after their actual infection.

7. The sick is infectious so long as he has bacilli upon the mucous membranes. The bacilli usually disappear with or soon after the disappearance of the local signs, but they may be detected still lively and virulent in the passages or nose for weeks and even months.

8. In organic matters condensed and excluded from light the bacilli can maintain themselves for a period of months outside the body; accumulations of dirt, dark and close dwellings favor thus the preservation of bacilli and the extension of disease.

9. As a specially noticeable vehicle for the extension of disease is to be noted the crowding together of susceptible individuals, especially in families of many children. But other gatherings of people, apart from children, where separate persons do not come into such proximity as the members of a family, may offer facility for the extension of infection, as schools, barracks, and the like.

10. The diphtheria bacillus is so far not identified with certainty as the cause or inducer of other diseases similar to diphtheria or of other spontaneous disease of lower animals. The possibility of the conveyance of true diphtheria from sick animals to human beings is thus outside our present knowledge. It is desirable that the governmental investigating committees should combine with research regarding diphtheria coming under their notice the similar diseases of animals, and also the communication from animals to human beings of diseases resembling diphtheria.

11. As prophylactic means are to be considered: *a*, care for cleansing, keeping dry, sufficient ventilation, and lighting of the dwelling; *b*, careful cleansing of the mouth and nose, gargling with weak solutions of common salt and carbonate of soda, thorough brushing of the teeth, extraction of bad teeth, attention to the deeper cavities of the tonsils, and removal of hypertrophied tonsils; *c*, cold douching of the throat in times of diphtheria prevalence.

12. Every case suspected as diphtheria must, when possible, be bacteriologically investigated. The physicians must have easy access to the required materials for carrying on the culture, for example, in the chemists' shops. The investigation has to be carried on by specialists, as in the case or cases of suspected cholera.

13. All cases proved bacteriologically to be true diphtheria, as well as all cases suspected as diphtheria which have not been bacteriologically investigated, must be dealt with as under police regulations.

14. Every diphtheria case must be isolated either in a separate room of the dwelling or in an isolation ward. In order to restrict as much as possible the spread of the bacilli by the sick, a local anti-bacillar treatment must be employed with a view to prophylaxis against the early stages of the disease.

15. One of the most effective means against the spread of diphtheria to be cared for is the protective inoculation of susceptible individuals in the neighborhood of the patient, especially of children. In proportion as the innocuousness of Behring's serum cure through preventive injection is established for curing or prophylaxis, it appears worth while to develop further as far as possible the art of inoculating it in families and in school classes in which diphtheria cases have occurred.

16. In every case of diphtheria disinfection is imperative. This is needed for all utensils for the sick, as well as for the sick themselves and the sick room.

17. Convalescents from diphtheria must not mix freely with others (or children go to school) till bacteriologic investigation has proved the removal of the bacilli, and the sick after a warm bath with soap have been thoroughly cleansed and have put on clean clothing.

18. On the outbreak of diphtherial epidemics, notification should be given in the public press.—F. LOEFFLER, M.D., Professor of Hygiene in University of Griefswald, in the *British Medical Journal*.

PUBLIC HEALTH.

A Healthful Season.—Reports to the JOURNAL from State Boards of Health and health officers of cities in all parts of the country almost uniformly concur in pronouncing the past four months one of the most healthful periods on record. This is especially true in the large cities; New York, for example, is congratulating itself on a reduction of 2,600 deaths in the period from July 1 to September 15, as compared with the corresponding period last year, and estimates that, notwithstanding the increase of population, the total deaths for the year will be less than 42,000 as against 44,500 in 1893; it is noted, also, that the birth rate of the city to the middle of September is nearly 10 per cent. in excess of the usual birth rate for corresponding periods. Even with the smallpox incidence in Chicago, Brooklyn, Detroit and Milwaukee, as well as in New York, the season has been exceptionally healthful. In some of the smaller cities, with defective water supplies, the prolonged dry weather has been unfavorable to the general health in causing an increase of typhoid and other intestinal diseases. But, on the whole, the summer season of 1894, and thus far in the autumn quarter, the general health of the country has been above the average.

Pure Food Exposition.—Under the somewhat ambitious title of the "World's Pure Food Exposition," an exhibit of food products will open in Chicago, October 1, prox., and continue three weeks. It is announced that not only will specimens of all manner of edibles be shown, but that the processes of manufacture of many kinds of food products will be exhibited and explained and "high art cookery" be exploited for the benefit of visitors. If the associations under whose auspices this exposition is held should exert their influence toward legislation for the suppression of adulteration—if even only to the extent of the proper branding of adulterated foods and drugs—they would confer fully as much benefit on the public as by their show. Special Agent Wedderburn, of the Department of Agriculture, asserts that there is 15 per cent. of adulteration in the \$6,760,000,000 worth of food, drinks and drugs which the 65,000,000 people of this country annually consume. That is to say, our purveyors of these articles extort over a billion dollars a year from the hungry, thirsty and sick, under false pretenses. It is true that only about 2 per cent. of the adulteration is injurious to health; but even this amounts to \$135,000,000 annually "paid by the American people for sacrifice of their lives or injury to their health." Mr. Wedderburn, in his recent report, says that foreign competitors of our manufacturers of food products use the fact of this extensive adulteration to their own advantage, and that the United States "occupies the unenviable position of being one of the very few countries that fail to require by law the proper branding of their manufactured food and drugs." The legislation suggested is not less in the interest of the pockets of the people, to the extent of the enormous sum above given, than it is in the interest of the public health.

Typhoid Fever and the Drouth.—Dr. Henry B. Baker, Secretary of the Michigan State Board of Health, has issued a circular note of warning to the health officers of that State on the danger to be apprehended from the pollution of water supplies owing to the recent protracted dry weather. He states that the water in the test well at Lansing in September, 1893, was three inches more than the average of previous years, while it is now four inches less than the average and says: "For the second week in September, typhoid fever is reported from thirteen places more this year than last year. More people should boil their drinking water, and all should be more careful not to breathe or take in on fruit, celery, or other uncooked article, any dust from dried human excreta, that substance being usually the cause of typhoid fever. The danger usually culminates in October."

In an accompanying chart Dr. Baker shows the relation of sickness from typhoid fever to the rise and fall of the water in wells in Michigan for a period of ten years. Although this chart is not recent, its lesson is most striking and appropriate at this time. The curves of depth of soil above the ground-water of wells and of the amount of typhoid are almost identical; in other words, when the ground-water in wells is highest—i. e., the least depth of soil above the surface of the water—there is the least sickness and *vice versa*. Thus, in May, when the ground-water is highest only 5 per cent. of the reports state the presence of typhoid fever; in October, when the ground-water is lowest, 20 per cent. of the reports state the presence of the disease. The graphic curves of the chart add emphasis to Dr. Baker's warning.

Smallpox and Typhoid.—During the last ten days there has been a remarkable subsidence of smallpox, especially in Chicago, where it was feared, from the increase of new cases in August, that an epidemic had begun. Up to the 27th inst. there had been but thirty-six cases in September and during the first four days of the week only three new cases were reported. From Milwaukee. Dr. U. O. B. Wingate, Secretary of the Wisconsin State Board of Health, reports to the JOURNAL, under date September 24: "Since September 10, smallpox has appeared as follows in this State: Dover, Racine County, one case; La Crosse, La Crosse County, one case (that of Dr. Marquardt, member of the State Board of Health, reported in the JOURNAL of the 22d); Milwaukee, Milwaukee County, seventy-nine cases, fourteen fatal; Wauwatosa, Milwaukee County, nine cases, two fatal; Two Rivers, Manitowoc County, two cases. Total number of cases reported in Milwaukee since outbreak of January last, 315, of which there were fatal, 74. Total number of cases now existing (September 24) in Milwaukee, 103. Total number of cases reported in the State since the beginning of the outbreak, 427, of which there were fatal, 107. Total number of places infected in the State since the beginning of the outbreak, thirty-seven; total number of places now infected, seven." The outbreak in Newark, N. J., is reported to be rapidly subsiding. Although there has been some spread of the disease in Leavenworth, Kan., the health authorities do not anticipate serious trouble and believe the outbreak is under control. A case, said to have been contracted in Pittsburg, Pa., during the Grand Army encampment, is reported from one of the neighboring towns in Pennsylvania.—While there is a decided increase in the typhoid fever mortality, largely in excess of the usual autumnal increase, no reports have been received of any epidemic incidence of the disease. Special attention is being paid to water supplies—in many localities as a matter of necessity owing to the cause heretofore noted, namely, the effect of the prolonged drouth on water courses and ground-water. The increase of typhoid fever emphasizes this necessity and a permanent improvement of the quality of water supplies will, no doubt, result in many places.

Iowa Health Bulletin.—The current number of the Bulletin of the Iowa State Board of Health (edited by Dr. J. F. Kennedy, Secretary of the Board,) records a well-authenticated case of the transmission of diphtheria by a pet dog, which was, unfortunately overlooked while taking all other precautions; the reporter, Dr. A. O. Strout, adds: "Wherever any contagious disease exists, especially diphtheria, we should not forget the dogs and cats when disinfecting, and if they are inclined to stay in the house shoot them at once."—Dr. Frederick Becker, President of the Board, renews his warning of the danger of the spread of infectious diseases by itinerating pack-peddlers, and illustrates his subject by cases in point; he is convinced that the pack-peddler is becoming more and more the disseminator of contagion and infection.—The editor dwells upon the frequent fatal accidents from the careless use of kerosene and gasoline and calls attention to the importance of Rule 5 in the Board's circular on "Kerosene Oil . . . Gasoline and Its Dangers," which reads as follows: "If, from leakage from a stove or vessel, there is discovered an odor of gasoline in a room that

has been closed, throw open the doors and windows until the air is changed before a match is struck or a flame of any kind is permitted therein."—Considerable space is given to the correspondence elicited by the attempt to ship the body of Dr. John Sinnett—who died of diphtheria in New York—to his late residence in Muscatine, Iowa; it would appear from this correspondence that the rules for the transportation of the bodies of those dying from contagious diseases are not always carried out, and that in some States they are practically a dead letter; in Iowa, however, they are rigidly enforced, Dr. Kennedy remarking that, while from a sentimental standpoint, the enforcement may be regarded as harsh and unfeeling, from a sanitary point of view it is essential for the protection of the public.—Prefacing an address on the sanitary needs of Dubuque by the physicians of that city and furnished to the Bulletin by Dr. E. A. Guilbert, member of the State Board of Health and President of the Iowa State Board of Medical Examiners, the editor takes occasion to say that "It is an able and earnest appeal and comes from a class of citizens and tax-payers whose financial interests would be best subserved by preventing rather than urging such sanitary measures; the address is not only applicable to Dubuque but will, doubtless, interest many other localities in Iowa."—Dr. Kennedy says there has never been a season in Iowa of such general good health as during the past four months, and finds cause for congratulation in the fact that there has been no case of smallpox in the State for several weeks prior to September 1; but is sorry to admit that there is still a dangerous neglect of vaccination.

MISCELLANY.

Dr. W. M. Scott, of Pittsburg, has been appointed physician to the poor of that city, *vice* Dr. P. D. Perch.

Dr. W. L. Jennings, of Boston, has been appointed Professor of Organic Chemistry at the Wooster Polytechnic Institute, *vice* Dr. George D. Moore resigned.

Dr. Wm. G. Bissell, City Bacteriologist of Buffalo, N. Y., has been appointed Assistant Surgeon of the Seventy-fourth Regiment.

Dr. D. G. Hathaway, of Milwaukee, has been appointed Medical Superintendent of the Oshkosh Hospital for the Insane, *vice* Dr. Wegge, resigned.

Dr. Waldo, a London Health Officer, has found thirteen different kinds of living microbes in a new loaf of bread. It is said that the London underground bakehouses are proverbially dirty.

Biologic Station in Norway.—A biologic station is to be established at Drobatt in the Fjord of Christiania and near the city of the same name. It will be installed on the model of the celebrated station at Naples, and, like the latter, will be open to foreigners.

Physicians and Street Names.—A committee of the Municipal Council of Paris has decided to christen some new streets and rename some old ones after the following physicians and scientists: Jean Baptiste, Dumas, Milne Edwards, Trousseau, Charcot, Ulysse Trélat.

A Japanese Army Ambulance Fired Upon.—The reports from the seat of war near Seoul, Corea, show that the Chinese fired upon an ambulance of the Japanese service, although the attendants wore the Geneva cross. An ambulance surgeon was slain, with others, by the Chinese volley. We trust there is some error in the reports, somewhere.

The Eleventh Census.—The work of the census of 1890 is rapidly being closed up. In less than five months, or about February 1, 1895, the end will have been reached. The work on population and vital statistics is the part that now remains to be completed. Population by occupations has been the last of the population tables to be brought up, but the end is now in sight.

The Ideal Physician.—In an article upon the subject, how to

choose a doctor the author Dr. Kane says: The ideal physician has intelligence, education, courage, patience, sympathy, truth and a high conception of the grand destiny of humanity. When you find such a one, one with a soul as well as mind and body, respect him and do not turn to the first humbug who "knows it all" when your good physician in his honesty sometimes says "I don't know," in reply to a question that science itself has not yet answered.

If he sometimes says that you do not need medicine, and gives you some good advice in regard to your manner of life instead, prize him. He is honest.—*Medical Summary.*

An Anti-Contagium Society in Asia.—At Baku, on the Caspian Sea, the advance wave of sanitary knowledge has been the means of establishing a new society intended to do away with hand-shaking and osculation in the greeting of acquaintances. The ground is taken by the members of this society that these acts tend to propagate and disseminate the bacilli of disease. According to the Paris *Herald* the friends of this movement are males, and the ladies of the city have entered a protest against it to the Governor-General of the province.

Typhoid Fever at Marlboro, Mass.—The prevalence of fever at this place has impelled the State Board of Health to make an investigation as to its causation. Dr. Sedgwick, bacteriologist of that Board, has been detailed to visit the town. From the preliminary studies made, it does not seem possible to incriminate the water supply of the town as the source of sickness. The condition of the sewers, on the other hand, has been the occasion of much complaint, on account of alleged inadequate cleansing and flushing. The investigation is still pending.

Was not Spoiled by Prosperity.—A newspaper paragraph is going the rounds to the effect that a Scotch girl named Lithgow recently graduated from the medical school of Ann Arbor University with a very fair record. Immediately following the event came the news that an uncle had died in Glasgow, Scotland, and left her a fortune variously estimated at \$650,000 to \$800,000. The young doctress exhibited no surprise or emotion on receiving the announcement, but merely said: "That will enable me to relieve the wants of the poor, without any regret for the loss of my time and labor."

Electric Melons.—All organisms and living tissues produce a certain amount of electricity, which may be made manifest by the galvanoscope or other more delicate apparatus. Consequently the following experiment, performed by an English electrician and recounted in the *Revue Scientifique*, is not so singular as it appears at first glance. He took a dozen ripe melons and connected them together so as to form a battery, by running a platinum wire from the top of one melon to the bottom of the next, and obtained a current strong enough to work an electric bell. The experiment only succeeded with ripe melons and when they were insulated by being placed upon glass.

Oikology, or the Science of the Home.—This new science is for the benefit of those, more especially our wives and housekeepers, who are aiming at a truly wholesome condition of the home. The word is said to be Bostonese in origin, and has the same Greek root as economy, namely from *oikos*, a house or domicile. Mrs. Tobey, of Boston, who is President of the Massachusetts Household Economic Association, a branch of that national organization of similar name, has been engaged in lecturing to full audiences on oikologic subjects. The National Association, above referred to, is in its turn a reflex of the sanitary work done at the World's Fair last year, whereby the eyes of many were opened as to the improvements in home life that have been made possible by sanitarians, inventors and food producers. No one can receive any harm from oikology.

A Worthy Saying: Medical Advice Indispensable to the State.—

Dr. E. Long Fox, the new President of the British Medical Association, in his inaugural address spoke upon the benefits conferred on the general public by medical men. Among other notable sayings of his, the following is worthy of lasting remembrance: "Happy is that State that legislates, in all things concerned with the well-being of the people, in dependence upon medical advice."

Here is food for thought. We know here, no less than does the profession of Great Britain, how futile and transitory is much of the legislation on vital questions, simply for the reason that medical opinion is ignored, when the laws are framed. The great feature of medical counsel in law making is that it commonly effects two important purposes, at one and the same moment; it tends to the reduction of pain and human misery (our primal function); secondly it shows the way to a reduced expenditure on the part of the State, especially in the elevation of the deficient classes. These classes are, as the result of medical investigations, to an increasing extent put in a condition of earning, in part at least, their own livelihood. These classes, left to the good offices of the average legislator, would never cease to be a dead weight and a burden on the pauper fund. In fact, the average politician often looks upon it as personal slight to himself to have his imbecile charges trained to work for their own support.

Medical College Notes.

THE WISCONSIN COLLEGE OF PHYSICIANS AND SURGEONS was reopened September 18, with a class of thirty-four. The opening address was made by Dr. Mereness.—Toledo Medical College, opened September 19, with a class of one hundred.—The Ohio Medical University at Columbus held its opening exercises September 19, with a larger class than last year. Drs. Brown, Ross and Burner made addresses.—Prof. D.R. Porter, of the Kansas City Medical College has resigned. A reception was given by the Faculty and Alumni Association September 17.

Hospital Notes.

ST. JOSEPH'S HOSPITAL, PATERSON, N. J., is to have a new maternity ward.—The Women's Hospital, Detroit, acknowledges a donation of \$2,500 from the estate of C. H. Buhl.—A contract has been let for a new Catholic hospital in Cincinnati, the cost to be \$15,000.—Anderson, Ind., is to have a new hospital to cost \$100,000; it will be managed by the Sisters of the Holy Cross.—The managers of the Colored Home and Hospital, Brooklyn, N. Y., are disturbed because of a report that the property is in the way of the new East River bridge.—Dr. Simeon B. Bell, of Kansas City, Kan., has given land valued at \$125,000 to found a hospital and medical college. The college is to become the Medical Department of the State University at Lawrence.—St. Mary's Hospital, of Evansville, Ind., was dedicated September 20.—The contract for building the hospital to be erected by the Atchison, Topeka & Santa Fé Railway at Topeka, was awarded September 15. The probable cost of the hospital will be \$80,000. It will be the principal hospital of the system, and in addition to accommodations for railroad men it will be equipped with a ward for others who may be ill or meet with accident.

FOR HOSPITAL AMBULANCES.—The makers of hospital ambulances have learned something from the bicycle makers. They are now using the pneumatic tires, which save the jarring and jolting. The well-known lines of Hood:

"Then rattle his bones over the stones;

For he's a poor pauper whom nobody owns,"

will no longer be applicable to the unfortunates who are conveyed in hospital ambulances.

DR. DAVID GILBERT HATHAWAY, of Milwaukee, was September 19, appointed Medical Superintendent of the Northern Hospital for the Insane, at Oshkosh, Wis.

Washington Notes.

HEALTH OF THE CITY.—There was no death from either diphtheria or scarlet fever reported while there were seven fatal cases denominated as typhoid fever against six during

the same period last year and eight in the year previous to that. The report for the week ending September 15, is as follows: Number of deaths, 90; white, 59; colored, 31. Death rate per 1,000 per annum, white, 13.2; colored, 17.9; total population, 16.4. Twenty-eight were under 5 years of age, 23 were under 1 year old and 12 over 60 years. Twelve of the deaths occurred in hospitals and public institutions. The deaths by classes were as follows: Zymotic, 28; constitutional, 13; local, 42; developmental, 4; violence, 3. The principal causes of death were: Consumption, 6; diarrheal, 12; typhoid fever, 7; malarial, 3; pneumonia, 2; congestion of the lungs, 2; bronchitis, 1; whooping cough, 2; kidney diseases, 1; meningitis, 1; cancers, 3. Births reported: Thirty-two white males, 32 white females, 23 colored males, 23 colored females. Marriages reported: Twenty-eight white, 11 colored. Stillbirths reported: Five white, 7 colored.

MORE BAD PUMPS.—The inspection of pump water continues and more pumps have been found to contain water contaminated with colon bacillus, and have been closed by the Commissioners.

DIPHTHERIA REGULATIONS.—The Health Officer is preparing a compilation of the regulations and rules for the handling of cases of diphtheria and scarlet fever in the District. The present publication is unsatisfactory in being too costly and not complete enough, and he expects to make the cost of the new one so small that physicians of the city may be able to distribute them among the families of their patients and that the instructions will be so full that the danger from infection may be greatly diminished.

GARBAGE DISPOSAL.—Pursuant to act of Congress, the Commissioners have been making investigations into the best and cheapest method of disposing of the garbage of the District, and the Health Officer has been sent to the principal Northern cities to investigate the subject. It is more than probable that the method by incineration will be adopted and Congress will be requested to furnish the plant and have it operated by the District authorities. The authorities of Alexandria, Va., are constantly complaining of the nuisance caused by the presence of the foul smelling scows conveying garbage past their city, and they threaten to sink them.

ARMY SURGEONS DETAILED TO MONTREAL.—By direction of Gen. Schofield, Acting Secretary of War, Maj. Charles Smart, Surgeon, and Capt. Harry O. Perley, Assistant Surgeon, have been detailed to represent the Medical Department of the Army as delegates at the twenty-second meeting of the American Public Health Association to be held at Montreal, Canada, Sept. 25 to 28, 1894.

HOSPITAL FOR LIFE-SAVERS.—The Marine-Hospital Bureau has issued a circular carrying into effect the law extending the benefits of the marine-hospitals to the keepers and crews of life-saving stations. A list of nineteen hospitals where they can be treated is given.

THE HEALTH DEPARTMENT AND NEW CEMETERIES.—The application of the President and Secretary of the congregation of Agoodas Achim for a permit to establish a new cemetery in a suburb of this city, was referred to the attorney for the District for legal opinion. In his decision to the Commissioners, Attorney Thomas says: "That no new cemeteries can be established in the District of Columbia without authority of law, unless by a cemetery association organized under Section 594, and following, of the District Revised Statutes or unless the person or persons desiring to establish the cemetery dedicates land therefor, not exceeding five acres, according to the provisions in Section 604 of said statute. It must be apparent that the Health Officer has nothing to do with the establishment of a cemetery. His functions as to cemeteries relate to interments and disinterments."

HONORS FOR DA. TAYLOR.—Dr. Thomas A. Taylor, Microscopist of the Department of Agriculture, has received from the Society for the Advancement of Hygiene, of Brussels a silver medal, intended as an acknowledgment of the value of his scientific work. Two diplomas have also come to him from the World's Fair, and for his exhibit of 1,000 models of

the mushrooms of America, and the other for his exhibit of instruments of precision invented by himself for microscopic work.

TEMPORARY PRESIDENT ELECTED.—Rev. Samuel H. Green has been elected temporary President of the Columbian University to succeed the late Dr. James C. Welling. Dr. Green has been Vice-President for a number of years.

St. Louis Notes.

ST. LOUIS MEDICAL SOCIETY.—The meetings of the St. Louis Medical Society were resumed on the 15th inst. The program for the meeting on the 22nd inst. consisted of a continuance of a discussion begun at the preceding meeting: "The effect of gases and odors emanating from sewers and various mercantile and manufacturing establishments upon the health of communities;" the presentation of a specimen of tubal pregnancy by Dr. H. C. Dalton, and specimens of strangulated femoral hernia by Dr. A. H. Meisenbach. The discussion of the effects of gases upon health comes *apropos* of much complaint that has been aroused by the city plant for the disposal of garbage, dead animals, etc. A vigorous effort has been made to induce the Board of Health to abate the nuisance, but thus far without success. There seems to be a prospect that the political "pull" will prove to be as strong as the odors; if the community can not weaken the "pull" it can hardly expect to mitigate the emanations from its profitable city establishments.

PROF. W. S. CHAPLIN.—The return of W. S. Chaplin, Chancellor of Washington University, has re-awakened a lively interest, professional and public, in the now famous speech made at the banquet of the Harvard Medical Alumni Association, and in which he reviled and derided the science and culture of the West, and of St. Louis in particular. The Chancellor's thrusts were most pointedly directed toward the medical colleges of St. Louis, which he characterized as institutions founded for the professional advancement and advertisement of medical specialists; but his sweeping imputation to Westerners of profound ignorance of even the significance of the words, science and culture, aroused feelings of enmity in the general public as well as in medical men; and it is rumored that the Chancellor may be invited to find a field of usefulness elsewhere for the exercise of his talents. As if to controvert his statements, the medical schools of St. Louis have entered on a year of striking increase of prosperity; several of the colleges show enrollments of students far in excess of previous years, notwithstanding the fact that all comply with the requirements of the Association of American Medical Colleges. This is especially true of the newer and more progressive schools. This year many students who formerly attended in the East have been attracted to St. Louis by the somewhat low fees that prevail here, so that the hard times have favored our medical schools. With a continuance of the present spirit of worthy emulation in the faculties of our colleges, St. Louis will quickly take the second place as an important center of medical science.

THE CITY BOARD OF HEALTH, it is said, is not a unit in its efforts to control the advertising propensities of the heads of city medical institutions. At least one member of the Board is thought to be in favor of allowing such officers all the scope they desire in the direction of publicity, believing that such posts are accepted largely with a view to future reputation in the community for medical and surgical skill. It would seem that any prestige gained through service as superintendent of a large hospital is legitimate enough, but it is going far beyond limits of even city hospital tradition to use the daily press as it has been used of late. To show the length to which the rules of the Board can be disregarded, a daily paper lately contained the report of an important operation performed at the City Hospital and credited to one of the members of the Board, though it is said that he was not even present at the operation. Such a playful example of medical reporting is a demonstration of the general character of the public statements emanating from the institution. The most serious aspect of this matter, however, is the unlawful and inconsiderate publicity given to cases of an unfortunate character where young women especially are involved; and it is within the bounds of possibility that some patient cognizant of his or her rights in the matter of medical treatment may take occasion to make the

management of the City Hospital suffer for its selfish and inconsiderate indiscretion.

THE BOARD OF HEALTH, during the year notified all former consultants of the City Hospital that their services would be dispensed with. This action, it was alleged, was made necessary by the assumption of this great dignity by unqualified medical men, who made use of this title without authorization, and thus brought discredit to the Hospital and its ethics. The members of the Board have since become the self-appointed consulting staff, and the profession of St. Louis feel secure in the assurance thus given that all will henceforth be as it should be. In justice it should be added that many former consultants were merely so in name, since they could not be depended upon to respond to a call.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Sept. 14, 1894, to Sept. 21, 1894.

Capt. EDWARD C. CARTER, Assistant Surgeon, is relieved from duty at Vancouver Barracks, Washington, and ordered to Fort Buford, South Dakota, for duty, relieving Capt. AARON H. APPEL, Assistant Surgeon. Capt. APPEL, upon being relieved by Capt. CARTER will proceed without delay to Fort Ethan Allen, Ver., and report for duty at that post. Capt. C. N. B. MACAULEY, Assistant Surgeon, is granted an extension to twenty-three days of his seven days' leave of absence. Capt. W. W. GRAY, Assistant Surgeon, is granted leave of absence for twenty days, to take effect upon the arrival at Fort Schuyler of a medical officer to relieve him. Capt. LOUIS BRECHEMIN, Assistant Surgeon, is granted an extension to twenty-three days of his seven days' leave of absence. Major HENRY M. CRONKHITE, Surgeon, is granted leave of absence for one month. Capt. WILLIAM P. KENDALL is granted leave of absence for twenty-one days, to take effect about Sept. 20, 1894.

LETTERS RECEIVED.

- (A) American, S., San Francisco, Cal.; Adams, Ovid L., Shelbyville, Ind.; Andrews, B. J., Burlington, Iowa.
- (B) Bernd, Henry & Co., St. Louis, Mo.; Barbat, Henry, San Francisco, Cal.; Berkmeier, Bechtel & Co., Allentown, Pa.; Buxton, Geo. E., National City, Cal.; Bulkeley, L. Duncan, New York, N. Y.; (2) Baker, A. R., Cleveland, Ohio; Briggs, W. A., Sacramento, Cal.; Beck, Carl, Chicago, Ill.; Bryant, R. C., Omaha, Neb.; Batten, J. M., (2) Pittsburg, Pa.; Bates, T. T., Poughkeepsie, N. Y.; Bridger, W. O., Omaha, Neb.; Blair, B. H., Lebanon, Ohio; Barker, H. H., Washington, D. C.
- (C) Chaddock, C. G., St. Louis, Mo.; Crothers, W. H., San Francisco, Cal.; Cole, T. C., Kansas City, Mo.; Cleaver, M. A., New York, N. Y.; Collins, Lindley, (2) Milwaukee, Wis.; Clark, A. P., Cambridge, Mass.; Coleman, Thos. D., Augusta, Ga.
- (D) Davis, W. E. B., Birmingham, Ala.; Dolher-Goodale Co., Boston, Mass.; Dunham, W. R., Stoneham, Mass.; de Schweinitz, E. A., Washington, D. C.; Dibrell, J. A., Little Rock, Ark.; Damrell & Upham, Boston, Mass.
- (E) Elliot, Llewellyn, (2) Washington, D. C.; Ellegood, Robt. A., Delmar, Del.; Edwards, S., Oakfield, Wis.; Ellis, T. B., Bethany, Mo.; Ewing, W. G., Nashville, Tenn.
- (F) Flint, Austin, New York, N. Y.; French, Pinckney, St. Louis, Mo.; Fackler, Geo. A., Cincinnati, Ohio.
- (G) Gibbons, Henry, San Francisco, Cal.; Gardner, M., Sacramento, Cal.
- (H) Hooper, F. H., New Bedford, Mass.; Hummel, A. L., (2) Philadelphia, Pa.; Hopkins, J. G., Thomasville, Ga.; Hobbs, A. G., Atlanta, Ga.; Holmes, H. R., Portland, Ore.; Holmes, J. B., Atlanta, Ga.; Hay, Lyman T., Hot Springs, Ark.; Harriman, W. J., Iowa City, Iowa; Hofman, J. A., San Francisco, Cal.; Howell, J. T., Wilkes Barre, Pa.; Hemenway, Stacy, Eugene, Ore.; Huntington, T. W., Sacramento, Cal.; Hampton, S. E., Milton, Ky.; Holsholt, A. W., Stockton, Cal.
- (I) Ingals, E. Fletcher, Chicago, Ill.
- (J) Johnson, A. S., Buffalo, N. Y.; Josephi, S. E., Portland, Ore.; Jenkins, J. T., Tecumseh, Mich.
- (K) Kemper, G. W. H., Muncie, Ind.; Kirkbride, M. F., Philadelphia, Pa.; Keblen, J. B., St. Louis, Mo.; Keener, W. T. Co., Chicago, Ill.; Ketchum, Geo. A., Detroit, Mich.
- (L) Lord, J. P., Portland, Ore.; Lander, E., St. Louis, Mo.; Laplace, Ernest, Philadelphia, Pa.; Levy, Robt., Denver, Colo.
- (M) Marsh, Geo. S., Whitewater, Wis.; Martin, J. E. T., Pittsburg, Pa.; Mudd, H. H., (2) St. Louis, Mo.; McLean, R. A., San Francisco, Cal.; Marshall, John, Philadelphia, Pa.; McAlester, A. W., Columbia, Mo.; Macauley, Thos. E., Gilberts, Ill.; McGarvey, J. F., Lorain, Ohio; Millard, P. H., St. Paul, Minn.; McBride, M. A., Leesville, Texas; McLauthin, H. W., Denver, Col.; McGahan, C. F., Aiken, N. C.
- (N) Newman, Henry P., (3) Chicago, Ill.
- (O) Papold Co., New York, N. Y.; Parker, F. L., Charleston, S. C.; Paquin, Paul, Lebanon, Mo.; Parke, Davis & Co., Detroit, Mich.
- (R) Ross, G. T., Montreal, Canada.
- (S) Scherer, Otto, Detroit, Mich.; Stoll, J. S., Gervais, Ore.; Sherman, H. M., San Francisco, Cal.; Sheridan, W. T. & C. B., Chicago, Ill.; Stewart, T. E., Detroit, Mich.; Spillsbury, E. A., Toronto, Canada; Solly, S. E., Colorado Springs, Colo.; Steiger, E. & Co., New York, N. Y.; Scollard, W. E., Milwaukee, Wis.; Shurtleff, David, Boston, Mass.; Stowell, Chas. H., Washington, D. C.; S'm, F. L., Memphis, Tenn.; Strader, J. C., Iowa City, Iowa.
- (T) Townsend, H. C., St. Louis, Mo.; Thomas, J. D., Pittsburg, Pa.; Thompson, C., New York, N. Y.; Toal, David D., New York, N. Y.; Thompson Laboratory, Washington, D. C.; Thomas, J. D., Pittsburg, Pa.
- (W) Winbaugh, G. W., Fort Wayne Ind.; Welch, W. H., Baltimore, Md.; Winton, H. N., San Francisco, Cal.; Wheaton, C. A., St. Paul, Minn.; Walker, H. O., Detroit, Mich.; Wathen, Wm. H., Louisville, Ky.

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No. 14.

THE MEDICAL COLLEGES OF THE UNITED STATES AND CANADA.

The Editor of the JOURNAL a few weeks ago addressed a circular to the Secretary or Dean of the various Medical Colleges, requesting them to state their plan of education, including the requirements for admission, the facilities they possessed for teaching, the names of the teachers, and the cost of attendance.

The general response to the circular has enabled the very complete summary here presented.

It should be remembered that these statements are those prepared by the schools themselves and in no way changed in this office.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES.

The Association of American Medical Colleges, requires for all members that candidates for matriculation will be allowed admission, subject to the conditions prescribed by Article III of the Constitution of the Association:

ARTICLE III.

SECTION I.—Members of this Association shall require of all matriculants an English composition in the handwriting of the applicant of not less than two hundred words; an examination by a Committee of the Faculty, or other lawfully constituted Board of Examiners, in higher arithmetic, algebra, elementary physics, and Latin prose.

SEC. 2.—Graduates or matriculants of reputable colleges or high schools of the first grade, or normal schools established by State authority, or those who may have successfully passed the entrance examination provided by the statutes of the State of New York, shall be exempt from the requirements of Section 1.

SEC. 3.—Students conditioned in one or more of the branches enumerated as requirements for matriculation shall have time until the beginning of the second year to make up such deficiencies; provided, however, that students who fail in any of the required branches in this second examination shall not be admitted to the second course.

SEC. 4.—Colleges granting final examination on elementary subjects to junior students shall not issue certificates of such final examination, nor shall any member of this Association confer the degree of Doctor of Medicine upon any person who has not been first examined upon all the branches of the curriculum by the Faculty of the College granting the degree.

SEC. 5.—Candidates for the degree of Doctor of Medicine shall have attended three courses of graded instructions of not less than six months each in three separate years.

SEC. 6.—Students who have matriculated in any regular college prior to July 1, 1892, shall be exempted from these requirements.

NOTE:—Colleges belonging to this Association are designated by an asterisk. (*)

THE SOUTHERN MEDICAL COLLEGE ASSOCIATION.

The Southern Medical College Association makes the following requirements, viz.:

Every student applying for matriculation must possess the following qualifications:

He must hold a certificate as the pupil of some known,

reputable physician, showing his moral character and general fitness to enter upon the study of medicine.

He must possess a diploma of graduation from some literary or scientific institution of learning, or certificate from some legally constituted high school. General Superintendent of State Education, or Superintendent of some County Board of Public Education, attesting the fact that he is possessed of at least the educational attainments required of second-grade teachers of public schools. Provided, however, that if a student, so applying, is unable to furnish the above and foregoing evidence of literary qualifications, he may be permitted to matriculate and receive medical instruction as other students, and qualify himself in the required literary departments, and stand his required examination, as above specified, prior to offering himself for a second course of lectures.

The foregoing certificate of educational qualifications, attested by the Dean of the medical college attended, together with a set of tickets showing that the holder has attended one full course of medical lectures shall be essential to attendance upon a second course of lectures in any college belonging to the Southern Medical College Association.

(1), 189—
Dean of Medical Department of University of Tennessee—Nashville Medical College:

DEAR SIR—Mr., of, is a gentleman of good moral character. I recommend that he be allowed to enter upon his medical studies in your college. He has been my pupil months.

Yours,
[Sign here]

(2), 189—
Dean of Medical Department of University of Tennessee—Nashville Medical College:

DEAR SIR—I have examined Mr., of, and find his scholastic attainments equal to those requisite for a second-grade teacher's certificate in our public schools.

Yours,
.
Supt. of Pub. Instruction.

NOTE:—Colleges belonging to this Association are designated by reference mark. (+)

ALBANY MEDICAL COLLEGE.*

MEDICAL DEPARTMENT OF UNION UNIVERSITY, 1894-95.

Three years strictly graded course: Instruction by lectures, recitations, clinics, laboratory work and practical demonstrations and operations.

Fees: Matriculation \$5; lectures, \$100 (perpetual ticket for three or more courses, \$200; dissection, \$10 (material free); laboratory courses in chemistry, histology, and in pathologic anatomy, each, \$10; graduation fee, \$25.

Hospital Advantages—Albany Hospital, St. Peter's Hospital, Child's Hospital, Albany County Hospital, Eye and Ear Infirmary, and their Dispensaries are available for clinical purposes, to students. The regular fall session commenced Tuesday, Sept. 25, 1894, and closes April 17, 1895.

Various prizes are awarded at the close of the term to meritorious students (see catalogue for particulars). Appointments to positions upon the House Staff of the Albany and St. Peter's Hospitals are made by competitive examination, open to the graduating class of the College.

Commencement occurs April 16, 1895. The annual meeting of the Alumni Association held on that day. For catalogue of the College or further information, address Willis G. Tucker, Registrar, 4 Lancaster Street, Albany, N. Y.

Thomas Hun, M.D., LL.D., Dean; Joseph W. Russell, President.

Professors: Albert Vander Veer, Maurice Perkins, John Milton Bigelow, Lewis Balch, Samuel Baldwin Ward, James Peter Boyd, Willis Gaylord Tucker, William Hailes, Cyrus Strong Merrill, Franklin Townsend, Jr., Frederick Colton Curtis, Henry Hun, Samuel Roseburgh Morrow, Joseph Davis Craig, with the assistance of a corps of lecturers, instructors and clinical assistants.

BELLEVUE HOSPITAL MEDICAL COLLEGE.

NEW YORK.

The collegiate year embraces a winter session and a spring session. The winter session for 1894-5 will begin on Monday, Sept. 24, 1894, and continue for twenty-six weeks. During this session there is a vacation from December 24, at noon to January 1, inclusive, and from noon the day before Thanksgiving to the following Monday morning. There are no lectures on February 22 and on Election Day.

The recitations, lectures and clinics for the spring session will begin Monday, March 25, 1894, and continue for twelve weeks. As heretofore, attendance on the winter session only is required for graduation. During the spring session clinical lectures and didactic lectures on special subjects are given by members of the Faculty and others. The lectures and clinics are free to those who are matriculated for the spring and the following winter sessions.

PRELIMINARY EDUCATION.

Medical Student Certificates.—Students beginning the study of medicine or coming to New York to continue their studies should be provided with Medical Student Certificates issued by the Regents of the University, which must be filed with the Secretary of the College before the final examination.

RESOURCES FOR CLINICAL INSTRUCTION.

Bellevue Hospital receives annually between five and six thousand patients. Medical and surgical cases of all kinds are admitted, except cases of contagious diseases.

The City Hospital on Blackwell's Island receives annually between eight and ten thousand patients. A considerable number of the patients admitted into this Hospital are affected with venereal diseases.

The Bureau of Medical and Surgical Relief for Out-Door Poor is in the College building and furnishes most of the cases for the clinics held in the College Lecture Room. The number of new patients treated in this department in 1893 was 42,959.

RECITATIONS.

First- and second-year students are required to attend recitations on materia medica and therapeutics, physiology, anatomy and chemistry.

Third-year students are required to attend recitations on practice of medicine, surgery, obstetrics, etc.

First-year students and second-year students are examined in separate sections. The third-year class is divided into two sections. Each section will be examined once a week on the subjects of the lectures by the professors and their assistants.

REQUIREMENTS FOR GRADUATION.

Students admitted to the College as third-year

students may become candidates for graduation under the following conditions:

1. Candidates must have followed the regular curriculum for the third year and must have reached the age of 21 years, and file satisfactory certificates of good moral character and of three years' study of medicine, which period of study may include the time spent in attending lectures.

2. Candidates matriculated at the College after the regular session of 1893-94 will be required to file a certificate from a regular physician in good standing or from a recognized institution that they have attended at least six cases of labor, as one of the requirements for graduation.

FEES AND REGULATIONS FOR THE THREE YEARS' COURSE.

The matriculation fee, to be paid before any other tickets are issued, is \$5 for each year. The fee for each of the three courses required and for each additional course is \$150. The tickets for dissection, to be taken during the first and second years, are \$10 for each year. The ticket for the regular laboratory course, to be taken during the third year, is \$20. The fee for the examinations at the end of the second year is \$15. The fee for the final examinations is \$15. The fee for final examinations for those who have their first two courses at other colleges is \$30.

Professors and Instructors: William T. Lusk, President; Austin Flint, Secretary; A. Alexander Smith, Frederic S. Dennis, Lewis A. Sayre, Hermann M. Biggs, Joseph D. Bryant, R. Ogden Doremus, Austin Flint, Jr., Charles A. Doremus, Henry D. Noyes, J. Lewis Smith, Francke H. Bosworth, Beverley Robinson, Samuel Alexander, Carlos F. Macdonald, Edward K. Dunham, Edward B. Dench, John A. Fordyce, D. Hunter McAlpin, Jr., William P. Northrup.

Lecturers and Instructors: Leroy Milton Yale, Thomas H. Burchard, John E. Weeks, Joseph N. Henry, Henry M. Silver, J. F. Erdmann, G. D. Stewart, L. M. Silver, R. J. Carlisle, R. Kalish, R. H. Sayre, W. E. Studdiford, G. P. Biggs, W. J. Pulley, J. H. Huddleston, H. A. Hanold, J. H. Titterington, J. A. Mandel, D. W. Hunter, J. C. Lester, H. R. Purdy, E. Harrison Griffin, D. S. Spellman, F. M. Jeffries, Joseph V. Standish, clerk.

BEAUMONT MEDICAL COLLEGE.*

ST. LOUIS, MO.

This College offers to its students a three years' graded course. Each session extends through six months, beginning on September 10. A spring course of two months follows the winter session.

The College has well equipped physical, chemical, physiologic, histologic and pathologic laboratories. The dissecting room contains all modern conveniences and work is done, for the most part, by daylight. A large museum illustrating normal, morbid and comparative anatomy together with numerous charts and preparations furnish illustrations for the lectures. (In all of which the work is compulsory for students.)

Clinical advantages are offered by the Missouri Pacific Railroad Hospital, the Alexian Brothers Hospital, St. Mary's Infirmary and a large out door college clinic, including an out-door obstetric department. All of these Hospitals are under the exclusive control of members of the Faculty. The St. Louis City Hospital, Female Hospital and City Insane Asylum and Poor-House, together with many private hospitals with which members of the Faculty are connected are utilized as occasion offers for clinical instruction.

The Faculty consists of twenty professors, six lecturers and a corps of twenty-one medical assistants.

The fees are: For the Junior year \$50; for the Intermediate year \$60; for the Senior year \$75. The laboratory fee is \$10 and the matriculation fee \$5. No charge is made for hospital tickets, anatomic material, laboratory supplies or diploma.

The requirements for admission are those exacted by the various State Boards of Health.

W. B. Outten, M.D., Dean.

BARNES MEDICAL COLLEGE.*

ST. LOUIS, MO.

A three years' graded course of instruction. Session of 1894-95 commenced Sept. 10, and continues six months. New building, located in heart of the city and five blocks from the new depot; modern in appointments; ample clinical and laboratory facilities; course of study conforms to the requirements of all health boards; tuition moderate. Special terms to sons and brothers of physicians and sons of the clergy; to graduates in pharmacy and dentistry. Largest college west of the Mississippi.

C. H. Hughes, M.D., President. Pinckney French, M.D., Secretary.

BIRMINGHAM MEDICAL COLLEGE.

BIRMINGHAM, ALA.

This College requires an attendance of three terms of six months each before application for graduation; and a general average of 75 per cent. for a degree. The school has good hospital advantages and abundant clinics, and furnishes splendid facilities for the study of medicine. There is an excellent building well arranged for medical instruction, and well equipped laboratories.

Faculty: W. H. Johnston, Dean; H. N. Rosser, J. H. McCarty, J. D. S. Davis, W. E. B. Davis, B. G. Copeland, J. A. B. Lovett, T. M. Allen, Cunningham Wilson, L. G. Woodson, R. M. Cunningham, George S. Brown, J. C. LeGrand, E. D. Bondurant, Demonstrators of Anatomy: W. R. Luckie, G. C. Chapman, E. L. Morris.

Special Lecturers and Clinicians: E. H. Sholl, J. W. Sears, A. B. Burke, G. W. Macon.

Clinical Assistants: D. F. Tally, Ella E. Barnes, F. E. Nabers, W. H. Wilder, R. K. Smith, C. A. Merrill, W. W. Ransom.

BALTIMORE MEDICAL COLLEGE.*

BALTIMORE, MD.

Preliminary fall course begins September 1; regular winter course begins October 1.

Excellent teaching facilities; magnificent new college building; superb lecture halls; large and completely equipped laboratories; capacious hospital and dispensary; lying-in department for teaching clinical obstetrics; large clinics.

David Streett, M.D., Dean.

COLLEGE OF PHYSICIANS AND SURGEONS.*

CHICAGO.

Has recently lengthened its term to seven months and requires attendance upon four annual courses of instruction with a preliminary matriculation examination in English, Latin, physics and mathematics. This examination is open to the public and is held at the College building on the Saturdays preceding the opening of the winter and spring terms. Attendance at the spring term of three months is optional. Special attention is given during the first and second years to thorough laboratory instruction which is conducted in the new Laboratory Building of the College. Three surgical, two medical and a venereal, neurologic and dermatologic public clinics are held each week. Special clinics are also held in the County

Hospital for the exclusive benefit of the students connected with this College. In addition to these general clinics small classes are instructed in fourteen clinic rooms in the West Side Free Dispensary, which occupies the first floor of the College building, where an average of 20,000 patients a year are prescribed for.

The students of this College are admitted to the clinics and autopsies of the County Hospital, and the clinical advantages of the Illinois Charitable Eye and Ear Infirmary; the Woman's Hospital, the Masonic Hospital, the Chicago Hospital, and St. Elizabeth's Hospital are all open to the students of this College.

The fees average about \$100 per year.

Faculty: William E. Quine, Prest.; William Allen Pusey, Sec'y; F. E. Waxham, Daniel A. K. Steele, A. W. Harlan, Albert E. Hoadley, Oscar A. King, Henry Parker Newman, Bayard Holmes, Weller Van Hook, John H. Curtis, G. Frank Lydston, Robert H. Babcock, T. Melville Hardie, Boerne Bettman, J. M. G. Carter, Ludvig Hektoen, W. S. Christopher, John B. Murphy, Henry T. Byford, Moreau R. Brown, W. Augustus Evans, Dudley C. Trott, T. A. Davis, J. A. Wesener, Henry L. Tolman, F. R. Sherwood, Adolph Gehrmann, J. N. Bartholomew, Henry Palmer, John A. Benson, C. M. Burrows, Henry F. Lewis, Ira D. Isham, W. F. Eckley, Edward C. Seufert, G. W. Post, George F. Butler.

CHATTANOOGA MEDICAL COLLEGE.†

MEDICAL DEPARTMENT U. S. ORANT UNIVERSITY, OF ATHENS AND CHATTANOOGA.

Has a Faculty corps of twenty-eight active instructors, covering every specialty of medicine and embracing much in collateral sciences. Course, a *graded* three-year, which is compulsory, and a four-year course strongly urged upon students, but optional as yet.

Annual session of six months, without any preliminary session whatever, commencing about September 15, and closing the following March about same day of month. Sixth annual term opened Sept. 12, 1894.

The usual facilities of medical colleges for practical anatomy, dispensary and bedside clinics and general practical training, including all requisite laboratories of chemistry, physiology and histology, microscopic technique, pathology, bacteriology, surgery, pharmacy, obstetrics, etc. The closest attention is paid to detailed training of each individual pupil in all manipulative matters.

Requirements of admission and graduation those of the Southern Medical College Association, of which this school is an original member.

Fees, total tuition Freshman year, \$85, Junior year, \$80, Senior year, \$75. Examination fees, \$30, prior to graduation.

Faculty and Professors: Bishop I. W. Joyce, Chancellor; E. A. Cobleigh, Dean; R. L. Vaught, G. W. Drake, W. C. Townes, W. T. Hope, H. Berlin, G. A. Baxter, J. R. Rathmell, W. G. Bogart, Frank Trester Smith, N. C. Steele.

Demonstrators: G. M. Ellis, J. B. Lee, A. A. Ellis.

Lecturers: T. C. V. Barkley, C. Holtzclaw, E. M. Eaton, W. C. Heskett, Y. L. Abernathy, G. R. West, W. L. Gabagan, W. L. Nolen, R. P. Johnson, E. L. Jones, Harry Wise, C. H. Smith, H. B. Case, F. B. Stapp, W. M. Bogart, E. M. Murphey, F. L. Case.

CHICAGO POLICLINIC AND HOSPITAL.

CHICAGO, ILL.

A clinical school for practitioners of medicine, 174-176 Chicago Avenue.

The Chicago Policlinic organized in 1886 for the purpose of giving post-graduate medical instruction, now occupies its own six-story, double building, costing over \$100,000, thus providing ample space and

every facility for treating and demonstrating the ample clinical material which is supplied by this city of a million and a half inhabitants.

The building contains, in addition to the large clinical rooms, laboratory, dissecting rooms, etc., a model hospital of a hundred beds provided with every facility for modern surgical and medical work.

The great need and value of post-graduate instruction has long been recognized. The unlimited supply of clinical material in Chicago, with its wealth of hospitals, infirmaries, dispensaries and medical schools, enables the Faculty of this institution to furnish practical instruction on a scale as wide as that found abroad, and to offer unsurpassed advantages to American physicians.

Instruction continues throughout the year in courses of one, two, three, six or twelve months. Fees according to length of course, and physicians can enter at any time.

In constructing and furnishing this institution, the Faculty feels that it has spared neither money nor pains to make a model hospital and school.

Faculty: Truman W. Miller, President; Christian Fenger, Nicholas Senn, John B. Hamilton, Wm. T. Belfield; Fernand Henrotin, Secretary; Moreau R. Brown, Corresponding Secretary; John H. Chew, Treasurer; R. D. MacArthur, A. E. Hoadley, J. Elliot Colburn, George F. Fiske, Malcolm L. Harris, Henry Hooper, James H. Etheridge, Henry Banga, Jos. M. Patton, Archibald Church, G. Fütterer, F. C. Hotz, E. Fletcher Ingals, W. S. Christopher, Henry G. Anthony, E. M. Smith, C. S. Bacon, J. H. McBride, E. L. Holmes, Henry M. Lyman, Otto L. Schmidt, W. H. Wilder, H. B. Favill.

COLLEGE OF PHYSICIANS AND SURGEONS.*

BOSTON, MASS.

Hospitals and Dispensaries are directly connected. Incorporated 1880. Power to confer Degree of Doctor of Medicine by special act of Legislature. Four years recommended, three years required. Graded course. Entrance examination third Tuesday in September. Regular session begins the following day. Beneficiary fund limited to a few worthy persons. Fees \$125 yearly. Material at cost. Graduation fee \$30. Instruction in single branches at reasonable rates. Special evening classes for those unable to attend all of the lectures during the day. Fee for entire three years' course when paid in advance \$275.

MATRICULATION REQUIREMENTS.

In accordance with the recommendation of the Association of American Medical Colleges their requirements have been adopted:

Students conditioned on any branches of the matriculation examination will be allowed to enter on the regular course, but before graduation all conditions must be removed.

Hon. Edward Avery, President; Augustus P. Clarke, Dean; Rev. David Shurtleff, Registrar.

COOPER MEDICAL COLLEGE.

SAN FRANCISCO, CAL.

Thanks to the generosity of its President, L. C. Lane, this school is amply provided with facilities for instruction. Its handsome buildings, its hospital, just completed; and its endowments and funds represent half a million of dollars. An educational qualification or an examination is required before admission. Four courses of lectures are necessary to complete the curriculum, except for such as have through collegiate education or otherwise, accomplished the work required for the first year. The regular or long

term begins June 1, and continues six months. The short term begins February 1, and continues three months. The graduation exercises take place in December. As will be observed the regular course is held in the summer and autumn. The objections to the summer which obtain on the Atlantic border are entirely unknown here. The dryness of the atmosphere prevents decomposition; thus dissecting can be carried on with far more comfort and satisfaction than during the winter or summer months in other climates. Excellent clinical facilities are offered at the City and County Hospital and at the extensive College Dispensary. The Lane Hospital, adjoining the College, now just completed, will accommodate a hundred patients. A fee of \$130 is charged for each of three courses: Matriculation fee \$5; demonstrators' fee, \$10; graduation fee \$40. At the last graduating exercises 42 received the degree; the present graduating class numbers 70; the total matriculates, 226.

Henry Gibbons, Jr., Dean; Wm. Fitch Cheney, Secretary. Faculty: L. C. Lane, President; C. N. Ellinwood, Adolph Barkan, Jos. H. Wythe, Henry Gibbons, Jr., Jos. O. Hirschfelder, Clinton Cushing, W. D. Johnston, R. H. Plummer, Chas. H. Steele, Albert Abrams, H. E. Sanderson, A. M. Gardner, Chas. E. Farnum, G. F. Hanson, Wm. Fitch Cheney, A. W. Hoisholt, Chas. M. Fisher, Stanley Stillman, Emmet Rixford, D. F. Ragan, R. L. Rigdon, W. M. Swett.

COUNCIL BLUFFS MEDICAL COLLEGE.*

COUNCIL BLUFFS, IOWA.

Two commodious and well equipped hospitals within easy reach of the College afford facilities for clinical instruction.

Medical and surgical clinics are held daily.

The County Insane Hospital furnishes clinical instruction in diseases of the mind.

The curriculum is complete and every branch of instruction is under careful and constant supervision.

Work in the histological, pathological and chemical laboratories, which are well supplied with all modern appliances, is made a prominent part of the College instruction.

The standard for admission is in accord with the requirements of the Association of American Medical Colleges.

The qualifications for graduation are four years of study including three courses of lectures of seven months each.

The fees for the first year are: Matriculation (paid but once) \$5; general ticket for all lectures, dissections (including material) and laboratory work, \$60; fees for the second year are: General ticket for all lectures (including material) laboratory work and hospital clinics, \$60; examination (compulsory) \$10. For the third year: General ticket for all lectures (clinical and didactic) and all practical third year work, \$65; final examination (not returnable) \$15; graduation, no charge.

Communications should be addressed to the Dean, Donald Macrae, M.D.

CENTRAL COLLEGE OF PHYSICIANS AND SURGEONS.*

INDIANAPOLIS, IND.

Sixteenth session began Sept. 19, 1894, and continues six months. Three years' graded course. Increased facilities. Excellent clinical advantages. Graduates of colleges having preparatory medical course and students giving evidence of having com-

pleted work equivalent to such course will be admitted to advanced standing. Professors' tickets, \$40.

Samuel E. Earp, M.D., Secretary.

DARTMOUTH MEDICAL COLLEGE.

HANOVER, N. H.
(*Ninety-Ninth Year.*)

Recitations—Winter and Spring. Lectures—Summer and Fall.

Recitation Term begins January 2, ends June 20, 1895; Lectures begin July 16 and end November 21, 1895. Hitchcock Memorial Hospital. Excellent place for study.

For circular address Dr. C. P. Frost, Hanover, N. H.

DENVER MEDICAL COLLEGE.*

MEDICAL DEPARTMENT OF THE UNIVERSITY OF DENVER.
(*Oldest Medical College in Colorado.*)

The fourteenth regular annual session will begin Sept. 12, 1894, and will continue seven months. Every opportunity is given students of acquiring a scientific and complete medical education. The laboratories of chemistry, histology, and physiology are complete in all details. A large and well equipped clinical department affords students ample clinical instructions. Especial attention is paid to clinical instruction, exercises being held at the School Dispensary and at the several hospitals.

Fees: Matriculation fee (annually) \$5; tuition fee, \$75; graduation fee (not returnable) \$30; demonstrators' ticket, including material \$10; chemical laboratory ticket \$10.

E. R. Axtell, M.D., Assistant Sec'y., Barth Block.

DETROIT COLLEGE OF MEDICINE.*

DETROIT, MICH.

The medical department of the Detroit College of Medicine gives a three years' course of medical study of seven months in each year. A large and commodious new building renders great service in the giving of thorough lecture and laboratory courses. Connected with the College are St. Mary's, Harper, and St. Luke's Hospitals, together with St. Mary's Hospital Free Dispensary, Harper Hospital Polyclinic, the Children's Free Hospital and Harper Hospital Contagious Disease Building. In these institutions students are thoroughly drilled in clinical medicine and surgery. The advanced student is supplied with cases of obstetrics in the House of Providence and in the Woman's Hospital. Many opportunities are also given the student for practical work through the courtesy of the officers connected with the Board of Health, Poor Commission, etc.

The Faculty consists of twenty professors, eleven additional clinical professors, and twenty-six instructors and assistants.

The lecture fees are \$50 per year. The diploma fee is \$30. The total fees for the three years, including all laboratory fees are \$285.

H. O. Walker, M.D., Secretary.

ENSWORTH MEDICAL COLLEGE AND HOSPITAL.*

ST. JOSEPH, MO.

The Ensworth Medical College and Hospital, located at St. Joseph, Mo., is an endowed institution, with a full corps of experienced teachers. Its course of instruction embraces three terms of six months each, and is properly equipped in its several departments. Its requirements precedent to matriculation

are those prescribed by the Association of American Medical Colleges and the State of Missouri. It affords the special advantage of an abundant out-door clinic during the sessions at the Hospital, as well as those afforded by the City Hospital and State Lunatic Asylum. The tuition fee is \$50 for each session. In honor of Mr. Ensworth, the school grants a scholarship to each Congressional District of the State. The Ensworth has under its direct control the largest hospital in the Central West.

H. Christopher, M.D., Dean.

FORT WAYNE COLLEGE OF MEDICINE.*

FORT WAYNE, IND.

The College was organized in 1879, the present term of 1894-5, being its sixteenth session. The length of the term is six months with a three years' graded course. After the present session a four years' graded course will be required. The expense for fees in all the departments will be about \$75 per year.

Clinics are held in the St. Joseph and Hope Hospitals where there is an abundance of clinical material, both surgical and medical. The special advantages are, that in these Hospitals many capital operations are made in the presence of the students, the Seniors being assistants.

The College has fifteen professors, and five lecturers.

C. B. Stemen, M.D., Dean.

GROSS MEDICAL COLLEGE.*

DENVER, COLO.

The Gross Medical College is in its eighth year. Its term extends over a period of seven months, and three regular courses of lectures are necessary for graduation. The requirements for admission are in strict accord with those of the Association of American Medical Colleges.

There is a commodious and well equipped College building, with which is connected a free dispensary.

The special claim is in the advantages gained by practical clinical instruction. Our students are divided into three classes, and the work is systematically graded. Our Senior class, which numbers ordinarily from fifteen to twenty-five, is divided into small classes for section work in the Dispensary, under competent instructors.

Besides clinical instruction drawn from our free Dispensary, where there is received from 1,500 to 2,000 visits per month from patients, there are four excellently conducted hospitals in Denver, upon the staffs of which many of the professors have appointments. These hospitals are utilized to the fullest extent for teaching.

Faculty: Thomas Hayden Hawkins, Pres't; John Boice; Robert Levy, Sec'y; John Elsnor, William Harmon Buchtel, William Henry Davis, William John Rothwell, Robert Fields LeMond, George Fayette Wright, Henry Herbert Bucknum, Charles Franklin Shollenberger, Carey Kennedy Fleming, James William Exline, Mark Hiram Sears, Edward Curtis Hill, Edgar Parker Hershey, Neil Macphatter, Calvin Pickering Butler, William Fairman Bradner, Horace Granville Harvey, John William Higgins, David Hunt Ludlow, Moses Kleiner, Thomas Mitchell Burns, Chas. Jaeger.

GEORGETOWN UNIVERSITY, MEDICAL DEPARTMENT.*

Forty-fifth session opened Oct. 1, 1894, and will continue seven months. Instruction is given by lectures, recitations, clinical teaching, and practical demonstrations. In the subjects of anatomy, chem-

istry, physiology, hygiene, histology, pathology and bacteriology special practical instruction is given in well-equipped laboratories. Excellent and ample clinical facilities are furnished.

G. L. Magruder, M.D., Dean.

HOSPITAL COLLEGE OF MEDICINE,*

MEDICAL DEPARTMENT CENTRAL UNIVERSITY OF KENTUCKY.
LOUISVILLE, KY.

The Hospital College of Medicine, Medical Department of the Central University of Kentucky, is situated in new buildings; the City Hospital, of four hundred beds, is directly opposite. The next regular session of this College will begin Jan. 2, 1895, and end June 18. The course of instruction is conducted by ten professors, and twenty tutors, demonstrators, and assistant instructors.

Freshmen are required to present evidences of good moral character, and satisfactory preliminary education, in documentary form. The course of study is graded and divided into three annual terms of six months each.

Candidates for the degree of Doctor of Medicine must be 21 years old, of good moral character, must have studied medicine four years, including preliminary reading with a preceptor, and have attended three complete courses of lectures, no two of which shall have been taken within a period of twelve months, and the last of which shall have been in this institution. He must have dissected during at least two sessions, and have attended two courses of clinical and hospital instruction.

Regular attendance upon the daily exercises is obligatory upon the members of the class. The course of study at this College, in addition to the usual didactic lectures and quizzes, embraces two clinics every day in the College building; not less than four clinical lectures every week at the City Hospital, besides bedside instruction in the wards of the City Hospital and College Infirmary. The College Hospital or Infirmary has accommodations for thirty patients, and is used chiefly for the accommodation of such cases of surgical injury from the out-door department, as require detention in the Hospital. All the members of the Senior class are required to take part in the clinical service in general medicine, surgery, diseases of the chest, diseases of children, venereal and skin diseases, diseases of the eye, ear and throat, and diseases of women, under the direct supervision of the professors and their adjuncts, in these several departments.

During the regular session, the clinical professors in this College have entire charge of the wards of the Hospital; the class being divided into sections suitable for the purpose, will be taken through the wards daily, during this portion of the term. Separate apartments are provided in the College for the reception and classification of the patients, who are received for treatment in the several departments, each especially equipped for the purpose.

Fees: Professors' fees, \$75. Practical anatomy, including material, \$12. Bacteriology and histology, laboratory fees, first year \$10. Chemical laboratory, second year, \$10. Surgical laboratory, \$10. Fee for final examination, (not returnable) \$30. Hospital fee required by the city, \$5. No fee is charged for intermediate examinations.

Faculty: John A. Larrabee, President; Dudley S. Reynolds, Frank C. Wilson, Samuel G. Dabney, Thomas Hunt Stuckey, John Edwin Hays, H. Horace Grant, Lewis S. McMurtry, P. Richard Taylor, Phil. F. Barbour.

JEFFERSON MEDICAL COLLEGE.

PHILADELPHIA.

The annual session of the Jefferson Medical College begins October 1, and continues over seven months. Preliminary lectures will be held from September 24.

COURSE OF INSTRUCTION.

The regular course is a graded three years' curriculum at college. It is so arranged that the student is trained in both the fundamental and practical branches of medicine. The instruction consists of didactic lectures, laboratory work, clinical lectures, ward classes, and practical demonstrations by the professors and instructors in each branch.

Didactic lectures are given in the Medical Hall on practice of medicine, surgery, obstetrics and gynecology, materia medica and therapeutics, chemistry, physiology, pathology, anatomy, medical jurisprudence and hygiene. In the laboratories special instruction is given in physiology, chemistry, pathology, histology, dissections, and major and minor surgery, with bandaging; while the work in the Hospital consists in clinics on medicine, surgery, obstetrics, gynecology, ophthalmology, laryngology, dermatology, diseases of children, orthopedics, neurology, genitourinary diseases, and otology, and in small ward classes taken to the bedside, or to the various special dispensaries.

The Hospital of the Jefferson Medical College provides a wealth of clinical material unequalled in America and in few places in Europe. It contains beds for 140 patients, which are constantly filled, and in the out-patient departments over three hundred cases are treated daily.

In order to meet the demands for ampler accommodations the Maternity Department has been removed to a separate building at 327 Pine Street. Here bedside instruction in midwifery is given to each member of the graduating class.

FOUR YEARS' COURSE.

All persons beginning their medical studies by matriculation after June 1, 1895, must take four annual courses.

REQUIREMENTS FOR ADMISSION.

To be admitted to the first-year class without examination the applicant must show a teacher's certificate or a diploma from some recognized literary or scientific school, or a certificate of having passed a college entrance examination, or a satisfactory certificate from the master of some academy or high school, or a certificate from the examiners of a county medical society. In the absence of such evidence of having acquired a suitable preliminary education the applicant must stand an examination in English and elementary physics at the College or at a distance, before some examiner appointed by the Faculty.

Entrance examinations, as a test of fitness for entering upon the study of medicine, will be held September 25 and October 3 and 14, at 11 A.M., and at other times by special arrangement.

Any student who has taken one or more courses in an accredited medical college, or two in a dental and pharmaceutical college, desiring to be graded as a second-year student on entrance, must stand an examination in inorganic chemistry, materia medica, physiology of nutrition (see studies of first year), and part of anatomy (osteology, syndesmology, and myology), unless he presents a satisfactory certifi-

cate of having passed in these branches. Doctors of Dentistry are received into this grade without examination.

Any student who has taken two or more courses at another accredited medical college desiring to be graded as a third-course student, must be examined in materia medica, physiology, anatomy, and chemistry on entrance, unless he presents a satisfactory certificate of having passed the final examination in these branches. Graduates of accredited medical colleges may be received into the third grade without examination, and after taking the third course in this institution will receive the degree of M.D., on passing an examination in therapeutics, surgery, practice of medicine, obstetrics, and gynecology. Graduates of veterinary surgery may be admitted into the third-year class in all branches, but will be required to pass an examination in human anatomy on entering, or at the end of the third-year, in addition to the third-year branches. They will also be required to dissect.

No student or graduate is admitted to the fourth year class without showing evidence of attendance on at least three courses of lectures and satisfactory evidence of having passed examinations on the subjects included in these years of study. Students who matriculate after June 1, 1895, will be required to take four annual courses.

EXAMINATION FOR THE DOCTORATE.

The examination for the degree of M.D. is held at the close of the term of lectures. The examination, conducted by the Faculty—each professor in his own branch will be written or oral, or both. Students failing to reach the standard exacted for the degree of Doctor of Medicine may be credited as having passed on those branches in which they have shown proficiency, and will not be required to stand a second examination on these branches should they apply again. The presentation of a thesis will not be required unless in competition for a prize. The candidates are examined in turn upon all subjects of the third year, except those candidates who have been previously examined and passed under regulations then existing.

The candidate for the degree of M.D. must present a certificate of good moral character, and be at least 21 years of age. He must have attended at least three regular sessions of lectures, no two of which shall have been in the same twelvemonth, and of which the last shall have been in this College, and the previous ones either here or in some regular college authorized to confer the degree of M.D., and in which anatomy, chemistry, materia medica and therapeutics, physiology and medical jurisprudence, surgery, practice of medicine, obstetrics, and gynecology are embraced in the curriculum. He must have attended two courses of clinical instruction and practical anatomy. Graduates of pharmacy and dentistry, to become candidates for graduation will be required to show certificates of at least two courses of practical anatomy or dissection, either at the Jefferson Medical College or some other accredited medical or dental college empowered to confer the degree of M. D., and D.D.S.

Students of dental colleges in which five months' winter session is held, and where full courses are given on anatomy, materia medica, physiology and chemistry, may become candidates after attendance

on two courses at such colleges, and the second- and third-year courses at the Jefferson Medical College, provided that in all four annual sessions be attended.

Students of colleges of pharmacy, where full courses are given on materia medica and chemistry, may become candidates after attendance on two such courses at such colleges, and on the second and third-year courses at the Jefferson Medical College including, however, two courses in anatomy and physiology.

Fees: Matriculation, paid once, \$5. First year, full course including laboratory work and dissection, \$140; dissecting material, per part, \$1. Second year, full course of lectures, including dissection and clinics, \$140; dissecting material, per part, \$1. Third year, full course, including laboratory work and clinics, \$140; operative surgery material, \$1. If dissections are taken in this year a fee of \$10 is required. No fee is charged for diploma when the last two years of study are spent in this College. Fourth year voluntary, full course, including special instructions, \$140. Students who do not take the last two years at the Jefferson Medical College pay a diploma fee of \$30 if they take degree in Medicine.

Professors: J. M. DaCosta, Roberts Bartholow, Henry C. Chapman, John H. Brinton, Theophilus Parvin, James W. Holland, William S. Forbes, William W. Keen, Morris Longstreth, H. A. Hare, James C. Wilson, E. E. Montgomery, Wm. Thomson, J. Solis-Cohen, Henry W. Stelwagon, Augustus Wilson, E. E. Graham, F. X. Dercum, Geo. De Schweinitz, Orville Horwitz, W. M. Late Coplin, W. J. Hearn, E. P. Davis, S. MacCuen Smith.

JOHN A. CREIGHTON MEDICAL COLLEGE.

OMAHA, NEB.

The John A. Creighton Medical College, of Omaha, Neb., began its regular session Sept. 25, 1894. The length of term is seven months and the course is four years. The requirements for admission are: 1, a certificate of good moral character from a reputable physician; 2, a diploma or certificate from a recognized college, school of science, academy, normal or high school, a teacher's certificate or other evidence, equivalent to the foregoing, of satisfactory preliminary education; 3, a satisfactory examination equal to the above.

The Creighton Medical College is not dependent upon its faculty or fees from students for its existence and equipment; but upon a fund sufficiently large to place it among the better institutions of the country. Its salaried teachers' list is already equal to that of most schools and exceeds the majority. It is not a stock institution. The chemic, histologic, pathologic and bacteriologic laboratories are supplied with the best apparatus obtainable. The course is thorough and complete. Clinically the school is especially favored. There are about two hundred thousand people in Omaha and vicinity from which number clinical material may be obtained. Creighton College has the exclusive use of St. Joseph's Hospital—an institution of 300 beds and of the most approved architecture. College clinics are held at the Hospital on three days of each week. An out-door clinic is held at the College building every morning at 9 o'clock.

The fees are as follows: Matriculation, \$5; general ticket, \$45; hospital ticket, \$10; dissecting ticket, \$5; laboratory tickets, \$10; graduation fee, \$25.

D. C. Bryant, M.D., Secretary Creighton Medical College.

KENTUCKY SCHOOL OF MEDICINE.†

LOUISVILLE, KY.

This school was organized in 1850 as the direct descendant of the Medical Department of Transylvania University situated at Lexington. The school requires attendance upon three graded courses of lectures of six months each in three separate years and a four years' course of study.

The importance of laboratory and clinical work is emphasized, and the school is prepared to do the most modern work in the laboratories of histology, practical anatomy, chemistry, physiologic chemistry, pharmacy, bacteriology, pathology and surgery.

The Faculty have erected a large hospital adjoining the College which contains a commodious Dispensary department, and every modern convenience for aseptic and antiseptic work. The students of the College are also required to attend the clinical lectures at the City Hospital during the entire term, and for one-half of the term the City Hospital is under the control of the Faculty of the Kentucky School.

REQUIREMENTS FOR ADMISSION.

The applicant must have a diploma from a literary, scientific, or high school; a certificate of having passed a college entrance examination, a teacher's certificate, or a certificate from a county or State Superintendent of Public Instruction, testifying that his literary attainments qualify him for a teacher's certificate.

REQUIREMENTS FOR GRADUATION.

The applicant for the Degree of Doctor of Medicine must be 21 years old and of good moral character. He must have studied medicine four years, and have attended three courses of lectures, of six months each, in three separate years, the last of which must have been in this College. He must have dissected during two sessions, and have attended two courses of clinical instruction. He must have attended one course of practical work in each of the laboratories of chemistry, histology, pathology, bacteriology and surgery. He must furnish to the Dean satisfactory evidence of having complied with the above requirements. He must be regular in attendance upon lectures, and pass a satisfactory written or oral examination upon all the branches taught in the school.

The fees and requirements are as follows: Matriculation \$5; professors' \$75; final examination \$30. The fee for each of the laboratory courses: Anatomy, chemistry, histology, pathology, bacteriology, surgery, etc., is \$10.

KEOKUK MEDICAL COLLEGE.*

KEOKUK, IOWA.

The regular fall and winter session opened Sept. 4, 1894, and will continue for six months.

The Faculty is composed of experienced medical teachers. Clinics regularly at St. Joseph's Hospital.

A ten weeks' reading and recitation course following the regular winter session is provided.

Fees: For regular session: Matriculation, \$5; lecture fees, including hospital ticket, \$28; graduation fee, \$30. Material at cost.

J. A. Scroggs, M.D., Secretary; T. J. Maxwell, M.D., Corresponding Secretary.

LONG ISLAND COLLEGE HOSPITAL.

BROOKLYN, N. Y.

The Long Island College Hospital was organized

for the purpose of practically uniting a Medical School and Hospital.

The success of the system depends mainly on two important facts:

1. The Hospital and Dispensary, in which 17,797 patients were treated in 1893, are under the immediate control of the Regents, and are, therefore, available at all times for practical instruction.

2. The courses of instruction are given in the Hospital buildings, so that the student, without loss of time, is brought in direct contact with patients, not only in the amphitheater, but also in the wards of the Hospital.

Great prominence has always been given to clinical teaching in this institution, which was originally organized for the purpose of fully maturing and carrying out practical bedside instruction. From the commencement of the collegiate year to its close the student is constantly brought in contact with disease and accident. Elementary and didactic instruction are thus daily supplemented by the practical application of the principles taught in the general lecture.

The Hoagland Laboratory, is available to the students of the College. This laboratory fully meets the demand for practical instruction in histology, pathology and bacteriology. Thorough practical instruction is given in these branches. Each student is made familiar with the use of the microscope in the investigation of disease, and with the methods to be employed in the recognition of the known germs of disease, and thus is enabled to make diagnoses which without these means would be impossible.

Under competent instructors, sections of the class are thoroughly drilled in physical diagnosis. The wards of the Hospital and the Dispensary furnish ample material for complete instruction in this branch of medical science.

Patients having wounds, fractures or dislocations, admitted to the Hospital during the session of the College, are brought into the amphitheater, examined, commented on, and treated in the presence of the class, by the Professor of Operative and Clinical Surgery. Subsequently, in the wards of the Hospital, these patients are visited by the Professor, accompanied by students of the Senior class, to whom the changes that have occurred in the cases in the meantime are explained and illustrated.

The Professor of Operative and Clinical Surgery performs the various operations on the cadaver in the presence of the class. Each step of the operation is carefully explained, and then the operation is performed and demonstrated in such a manner as to impress it on the mind of the student.

Senior students in small sections attend all labors in the Lying-in Department of the Hospital. The phenomena and management of labor are demonstrated, and the students participate in the conduct of the cases, making abdominal and vaginal examinations during their progress.

In addition to the course of didactic and clinical lectures in gynecology, the advanced students are present at all the important gynecologic operations performed in the Hospital, including laparotomies and operations upon the cervix and perineum.

Furthermore, all the Senior students attend the clinics of the gynecologists of the Dispensary of the Hospital and are thoroughly drilled in the examina-

tion and treatment of the ordinary diseases of women.

The admission of Senior students to the Hospital, under the supervision of the clinical teachers, gives opportunities for the practical study of the diagnosis of disease, as well as for special bedside instruction in auscultation, percussion, minor surgery, dressing of fractures, speculum examinations, the phenomena of labor, etc.

The reading and recitation term begins at the close of the regular term, and continues into June. It is designed to thoroughly prepare the student for attendance on the lectures of the ensuing regular term. Clinical instruction for advanced students is continued during the reading and recitation term.

In connection with the College building is a Dispensary. The number of patients treated in the Dispensary during the year 1893 was 15,844.

Fees for the first regular term: Matriculation, \$5; lectures and clinics, \$100; practical anatomy ticket, \$5; use of anatomical material (dissection of entire body), \$7; practical normal histology, \$10; total, \$127.

Fees, second regular term: Matriculation, \$5; lectures and clinics, \$100; practical anatomy ticket, \$5; practical urine analysis, \$10; practical pathologic histology, \$10; total, \$130.

Fees, third regular term: Matriculation, \$5; lectures and clinics, \$100; graduation fee, \$25; total, \$130.

Fee for reading and recitation term is \$40.

Alex. J. C. Skene, President of College; Jarvis S. Wight, Dean of Faculty; Joseph H. Raymond, Secretary of Faculty; Frank E. West, Treasurer of Faculty.

LAVAL UNIVERSITY, MEDICAL DEPARTMENT.

QUEBEC.

The college year is divided into four years. The course comprises the following, divided into two sections, Primary and Final.

The Primary section comprises: Anatomy, descriptive and topographic, practical anatomy, histology, physiology, general pathology, hygiene. Students from the School of Arts are exempted from the following, which must otherwise be taken: General chemistry, medical chemistry, biologic chemistry, botany.

The Final section comprises a course in each of the following: *Materia medica*, general therapeutics, practical pharmacy, legal medicine, toxicology, theory of surgery, minor surgery, practice of surgery, gynecology, rhinology and laryngology, internal pathology and special therapeutics, pædiatrics, nervous diseases, mental diseases, diseases of the eye and ear, history of medicine, medical dentistry, a course in the external clinic and a course in the internal clinic, the gynecologic clinic, the clinic of nervous diseases, mental diseases and diseases of children, a course of toxicology and pathology of diseases of infancy.

For graduation as a Bachelor of Medicine the student must have followed the courses conformably to the rules during nine terms of three years and have successfully passed all the examinations of the nine terms. The language of the College is French. Fees, \$180 to \$216, and a diploma fee of \$5, \$8 and \$20 respectively for the Bachelor, Licentiate or Doctor's degree.

Faculty at Quebec: Charles-Eusèbe Lemieux, Doyen; Albert Marois, Secrétaire; Louis Joseph-Alfred Simard, Charles Verge, Laurent Catellier, Arthur Vallée, Michel-Joseph

Abern, Edwin Turcot, Michael-Delphis Brochu, Joseph-Francois-Xavier Lavoie.

Agrégés: Albert Marois, Siméon Grondin, E.-T.-Arthur Simard, P. Coote, E.-René Fortier.

Professors at Montreal: Jean-Philippe Rottot, Adolphe Lamarche, Adolphe Dagenais, Alfred-T. Brosseau, Norbert Fafard, Sévérin Lachapelle, Hugues-E. Desrosiers, Salluste Duval, A.-A. Foucher, W.-H. Hingston, L.-E. Desjardins, L.-P. Mignault, J.-P. Chartrand, L.-A. Demers, J.-J. Guerin, Emmanuel Persillier-Lachapelle.

MARION-SIMS COLLEGE OF MEDICINE.*

ST. LOUIS, MO.

The Marion-Sims College of Medicine which was organized in 1890, has met with much success. This has been due to the untiring energy of the Faculty, and to the disposition of its teachers to equip and maintain a medical institution fitted in line with the most advanced methods of medical instruction. Two years ago a hospital was built by the Faculty immediately adjoining the College, which has been a most valuable aid to the instruction in the institution. This hospital, known as the Rebekah Hospital, has afforded a great supply of clinical material. During the present year, sixty-five laparotomies have been performed in this institution, certainly indicative of its value. The school is well equipped with appliances of all kinds, necessary for instruction in medicine. Its chemic laboratory, its microscopic laboratory, and physiologic laboratory are modern and complete. The college dispensary is a large one, and is continually growing. The dental department has been added during the present year which bids fair to meet with the same success that the medical department has received. The length of the course is six months, and three courses are required as a condition to graduation. The fees are as follows:

Matriculation fee, (paid but once) \$5; entire lecture fee, (each year) \$50; final examination fee, (not returnable) \$25; dissecting ticket, \$10; single professor's ticket, (where the entire course is not taken) \$20; general ticket for sons and brothers of physicians, and sons of the clergy, \$25; lecture fee for three years, including matriculation, dissection and examination ticket, if paid in advance, \$150; hospital tickets free; clinic tickets free.

H. W. Loeb, M.D., Secretary, St. Louis, Mo.

MICHIGAN COLLEGE OF MEDICINE AND SURGERY.*

DETROIT, MICH.

Regular winter session opens Sept. 27, 1894.

The course of study required for the session of 1894-95 extends over three years, with a voluntary fourth year. The work is graded.

All clinics are held at the Detroit Emergency Hospital and Free Dispensary. Practical clinical and laboratory work is required of all.

Women are admitted upon the same terms as men. A separate dissecting room is provided for them.

Fees: Matriculation, annually, \$5; lectures, each term, \$50; anatomy, dissecting, each course, \$10; chemistry, each course, \$10; graduation fee, \$25; practitioners' course, all departments, \$50; single department, \$25; pharmacy department, full course, \$25; graduation, \$5. Optional course: Experimental therapeutics, \$10; physiologic, laboratory, \$10; surgical laboratory, \$10.

Wm. I. Hamlen, Secretary.

Faculty: Hal. C. Wyman, Dayton Parker, L. E. Maire, Edward W. Jenks, Zina Pitcher, Willard Chaney, Samuel Bell, Kenneth Gunsolus, Henry A. Chaney, D. L. Dakin,

W. R. Scurr, James S. Newell, Frank S. Hough, Arthur D. Holmes, A. Ahlborn, R. S. Linn, Geo. J. Dakin, Edward T. Milligan, M. V. Meddaugh, Caryl B. Storrs, R. J. Hamlen, Jas. A. Patton.

MEDICAL COLLEGE OF ALABAMA.*

MOBILE, ALA.

The twenty-ninth annual session of this institution will begin Oct. 12, 1894, and continue six months. The Faculty offer a curriculum that has been carefully and systematically graded, so as to conduct students in a judicious and logical order through the three sessions of study now required for graduation. The chemic, microscopic, surgic and pharmaceutical laboratories are fitted up in accordance with the most modern and advanced ideas, and afford ample and convenient facilities for the practical work exacted of each student in these departments. The dissecting rooms are large and well ventilated, and material for practical anatomy abundant. Medical and surgical clinics are held daily at the City Hospital and College Dispensary. Fees, including laboratory course, \$100 for each session. Diploma fee, \$25.

The genial winter climate of Mobile is peculiarly adapted to earnest uninterrupted mental work. The freedom of the city from epidemics, the refinement, culture and proverbial hospitality of its citizens, combine to make it most attractive as a dwelling place, while its constantly increasing commerce, railroad connections, its machine shops and rapidly multiplying mills and other industrial establishments add annually, a class to its population that increases the number and variety of diseases, and offers superior inducements and advantages to the earnest medical student. The requirements for matriculation and for obtaining the degrees are set forth in the Annual Announcement, which will be sent to any address upon application.

Geo. A. Ketchum, M.D., Dean, Mobile, Ala.

MEDICAL COLLEGE OF INDIANA.*

INDIANAPOLIS, IND.

Twenty-fourth regular term begins Oct. 2, 1894, and ends April 2, 1895. Matriculation, \$5; laboratory ticket, \$5; professors' tickets, \$40; demonstrator's ticket, \$10; graduation fee, \$25; hospital tickets, \$6. Clinics are given at the City Hospital, St. Vincent's Hospital, Bobb's Free Dispensary, City Dispensary and College Dispensary. Daily clinical instruction throughout the course. The clinical, histologic, pathologic and bacteriologic laboratories, dissecting rooms and museum are thoroughly appointed and complete, and no extra charges for same. The munificent gift of Dr. William Lomax, of Marion, Ind., added to the former resources and equipment of the College, enables the Trustees to construct and equip an ideal modern medical college which shall meet the most exacting demands for advanced, thorough medical education.

Franklin W. Hays, Secretary.

MEDICAL COLLEGE OF GEORGIA.*

MEDICAL DEPARTMENT UNIVERSITY OF GEORGIA, AUGUSTA, GA.

Sixty-third annual session. Three separate sessions of six months each.

All the public charities of the city of Augusta and vicinity, representing a population of more than 50,000 people, are under the control of the Faculty of the College. This includes a large out-door poor clinic; the new City Hospital located in the rear of the College building and having accommodation for

100 patients; and the Colored or Freedman's Hospital with room for 50 patients. A large and well lighted operating amphitheater has just been added to the new Hospital, and a morgue or dead-house has been built in the yard between the two buildings. This building has a capacity for 50 advanced students, and autopsies will be held at frequent intervals for the purpose of instructing students in pathology. The new biologic laboratory has been equipped with German microscopes of a superior order; thorough instruction in normal and pathologic histology is given. The City Hospital affords facilities for bedside instruction. This is carried out in all the departments of medicine, surgery, obstetrics and diseases of the eye, ear and throat. The fees are: Matriculation, (once) \$5; tickets, full course, \$75; practical anatomy, \$10; graduation (once), \$30.

Faculty: W. E. Boggs, Chancellor; Thomas R. Wright, Dean; George W. Pains, De Saussure Ford, Theodore Lamb, Wm. H. Doughty, Jr. George A. Wilcox, Eugene Foster, Jas. M. Hull, Thomas D. Coleman, Joseph E. Willet, Joseph Eve Allen, Henry C. Doughty, L. C. Spence, C. J. Montgomery, W. W. Battey, J. B. Morgan, R. C. Eve, F. Wohl, W. B. Crawford.

MEDICAL COLLEGE OF OHIO.*

CINCINNATI, OHIO.

The Medical College of Ohio was founded in 1819 by Dr. Daniel Drake, and annual courses of lectures have been delivered regularly since then. The seventy-sixth regular term opened September 27. The length of each term is six months, and attendance upon three annual courses of lectures is required. Beginning with those entering in the fall of 1895 attendance upon four annual courses will be demanded. This College was the first medical school in this country to establish a bacteriologic laboratory. In addition to this department, its pathologic, histologic and chemic laboratories are thoroughly equipped. The Cincinnati Hospital and the Hospital of the Good Samaritan (the latter under the sole medical control of the College) afford ample clinical material. These Hospitals are supplemented by a large Polyclinic at the College which averages two hundred cases per day; and clinics are held simultaneously in medical, surgical, throat, eye and ear, nervous, gynecologic and orthopedic cases, the classes being so subdivided as to bring the student in close contact with the patients.

MEDICO-CHIRURGICAL COLLEGE.*

PHILADELPHIA, PA.

The course extends over three years of time, a fourth year being added as optional, entitling those who take it to a special diploma *cum laude*. The course is so graded that the fundamental branches of anatomy, chemistry, physiology and kindred sciences are introduced the first year, and continued during the second, when the clinical and practical branches are also begun. In the third year the latter are completed and the various specialties introduced. The special branches are all taught fully, with the opportunity of a certain amount of election during the fourth year. The regular winter course opens the first Monday in October and extends into the third week in April. This is preceded by a preliminary session, extending over the entire month of September, during which time all the clinics are in full operation, and the dissecting rooms and laboratories are open, while lectures on the collateral sciences are delivered by members of the Faculty and the

lecturers connected with the College. Special attention is called to the practical bedside instruction in all the departments by the professors themselves.

The Philadelphia, Pennsylvania, St. Agnes, St. Mary and St. Joseph Hospitals, in addition to the Medico-Chirurgical Hospital, furnish clinical advantages to our students. The completely appointed laboratories in hygiene, chemistry, histology, pathology, bacteriology and operative surgery furnish unlimited instruction in the various branches. A new Maternity Hospital connected with the College offers the students unsurpassed advantages in the practical study of obstetrics.

Four resident physicians are selected by competitive examination from the graduating class to serve one year. A thorough system of quizzing is kept up by the professors themselves and their assistants upon all branches free of charge. The importance of this special feature can not be over-estimated. The fees for each year, including all practical work, \$140.

Fourth year free to those having taken three courses at this College.

All communications regarding the business of the College should be addressed,

Ernest Laplace, M.D., Dean, Philadelphia.

MEMPHIS HOSPITAL MEDICAL COLLEGE.†

MEMPHIS, TENN.

The Memphis Hospital Medical College was organized in 1880. Courses of instruction six months each, and graded. Clinical advantages good, two hospitals and two free dispensaries. Daily quizzes of ten or fifteen minutes, on the previous lecture, by each professor and daily quizzes of one hour each, by the Adjuncts, free of charge.

Requirements: The school is governed by the rules of the Southern Medical College Association.

For graduation: Three full courses of lectures occupying three years, requisite. Candidate must be 21 years old, and of good moral character.

Laboratory work: Building new and ample provision for laboratory departments. Laboratory instruction includes histologic, pathologic, bacteriologic training, chemic and pharmaceutic exercises, physiologic illustrations and operative surgery.

The number of matriculates for 1893-94, was 263.

Fees: First session \$75; second \$75; third \$95.

J. L. Sim, Dean.

MISSOURI MEDICAL COLLEGE.*

ST. LOUIS, MO.

The Missouri Medical College, now entering upon its fifty-fourth annual session, is the oldest medical institution west of the Mississippi. In the way of museum and laboratories it is well equipped. It occupies two spacious buildings, and is now erecting a third. The property is owned and controlled by the Faculty and is so entailed. A large and efficient corps of experienced teachers are responsible for the proper instruction of the pupils. It has a three-year graded course, each annual session being six months in length. The clinical advantages are very great; there were treated last year in the two Dispensaries connected with the College nearly 15,000 cases, and 900 operations were performed. It enjoys the exclusive privileges of St. Johns General Hospital; and with clinics at the City Hospital and other institutions with which the Faculty are connected leaves nothing more to be desired in this particular. Dur.

ing the last session each member of the Senior class was present at and assisted in two confinements at the Maternity. There are held weekly five clinics in general surgery, four in general medicine, two in children's diseases, two in gynecology and one or more in diseases of the eye, ear, chest and throat, and one each in neurology, dermatology and orthopedics. The number of pupils in attendance last session was 184, with 50 graduates. This school is a member of the American Medical College Association, and is in "good standing" with the Health Board of Illinois.

P. G. Robinson, M. D., Dean.

MIAMI MEDICAL COLLEGE.*

CINCINNATI, OHIO.

The Miami Medical College requires attendance upon three full winter courses of lectures, besides dissections, and a course each in laboratory work in inorganic chemistry, organic chemistry, histology, pathologic anatomy, and bacteriology. Daily clinics are given at the College building. There are clinics in medicine, surgery, gynecology, ophthalmology, laryngology, dermatology, diseases of children, etc. In the special clinics students of the advanced class are assigned to practical work for certain portions of the term, the classes rotating from one clinic to another.

The regular session begins about the first of October in each year and ends during the first week in April. A short spring course of six weeks supplementary to the winter's work is given, but attendance thereon is not compulsory.

Students of the College have access to the clinics of the Cincinnati Hospital, in the immediate vicinity, and to the Ophthalmic, Christ's, Children's, Presbyterian and Jewish Hospitals; as also to several private clinics and hospitals, with which members of the College Faculty are identified.

Obstetric cases are attended at their homes by members of the Senior class under the supervision of the director of the obstetric clinic. Public recitations, or oral examinations are conducted by assistants to the professors in the various departments. Private quiz classes can be formed, and will be conducted by junior members of the Faculty for stipulated terms.

Practical courses are given in bandaging, minor surgery, surgical operations on the cadaver, medical jurisprudence, with lectures on mental diseases.

The fees are as follows: First year, \$110; second year, \$100; third year, \$105. These fees are inclusive of laboratory tickets, matriculation, and graduation fees.

Joseph Eichberg, M.D., Secretary.

MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA.

COLLEGE OF MEDICINE, CHARLESTON, S. C.

Three years graded course. Good hospital advantages. Well equipped chemic, pathologic and bacteriologic laboratories. Modern dissecting room. Excellent teaching facilities and ample clinical material.

Every facility afforded for a thorough course of instruction by lectures, demonstrations, quizzes, laboratory work and frequent clinics.

Lectures begin Oct. 16, 1894, and cease March 9, 1895.

COLLEGE OF PHARMACY.

Allard Memminger, John Forrest, Edward S. Burnham.

Two years' course. Moderate fees.

Students coming from other colleges and taking only one or two courses of lectures will be charged \$100 for the general ticket each year.

Students of this class, on presenting certificates of satisfactory examination in the primary branches from other reputable colleges, will not be examined again, unless they desire to be graded and to compete for graduation honors, when they must stand our own examinations.

Graduates, not members of the Alumni Association, may take the course of histology and pathology, including the microscope, for a fee of \$10.

Fees for pharmaceutical students: Matriculation, paid but once, \$5; tuition fee, \$30; practical laboratory work, chemical and pharmaceutical, \$10; graduation fee, \$10, only to be returned in case of rejection.

Medical students wishing to take the practical course in pharmacy are advised to do so, and will pay a fee of \$10.

Fees for medical students: Matriculation, payable once only, \$5; histologic and pathologic laboratory, each year, \$5; general ticket, first year, \$100; general ticket, second year, \$100; general ticket, third year, \$50; diploma fee, payable before graduation, \$30; demonstration and hospital tickets, no charge.

Medical Faculty: Francis L. Parker, Allard Memminger, Manning Simons, P. Gourdin DeSaussure, J. L. Dawson, Jr., J. Somers Buist, John Forrest, Edward F. Parker, Lane Mullally, Robert Wilson, B. E. Baker.

For catalogue and other information address Francis L. Parker, M.D., Dean, Charleston, S. C.

McGILL UNIVERSITY, FACULTY OF MEDICINE.

MONTREAL.

The sixty-second session of this University commenced on Tuesday, Oct. 2, 1894.

The buildings of this Faculty of the University occupy the northeast corner of the University grounds and are directly connected by Carleton Road with the new Royal Victoria Hospital.

Special suites of laboratories are provided for practical training in all of the primary and scientific branches of medicine.

The dissecting room containing twenty-two tables for subjects, with bone room and anatomical room adjoining. Large chemical laboratories and suites of laboratories for physiology, pharmacy, hygiene and pathology are also provided in the new buildings. The course consists of four sessions of nine months each, beginning on September 20 of each year. The fees are \$100 per session, including clinical teaching, laboratory fees, dissecting material and all other laboratory requirements. The primary courses are chiefly practical; the didactic lectures in most departments being reduced to a minimum. The professors of clinical medicine and clinical surgery have charge of the medical and surgical wards of the Royal Victoria Hospital and Montreal General Hospital, each hospital containing about three hundred beds. Two clinics in medicine and two clinics in surgery are given every week in each Hospital. Each student is required to show certificates when presenting himself for a degree, of having acted six months as clinical clerk in medicine and six months as clinical clerk in surgery.

Clinics are also given in both hospitals in gynecology, ophthalmology, laryngology, etc.

The officers are: Robert Craik, Dean; R. F. Ruttan, Reg-

istrar; F. J. Shepherd, Librarian; J. G. Adami, (Cantab) Director of the Museum.

For any further information and calendars applications should be made to the Registrar.

NEW YORK POST-GRADUATE MEDICAL SCHOOL
AND HOSPITAL.

NEW YORK.

The Post-Graduate Medical School and Hospital is now permanently located in its new building, which has been erected to fill all the modern requirements of a medical school and hospital. The new Hospital is so much larger than the old one that the number of all major and minor surgical operations has been very much increased.

Students are brought into closer contact with patients than ever before, by their admission into the dispensary rooms, where they really act as "assistants" to the physicians who examine patients, before they are sent into the large amphitheaters for clinical demonstration.

The Babies' Wards contain sixty beds, and furnish great facilities for the study of infantile diseases. An entirely new course has been arranged in the department of Diseases of Women. Classes are limited to three students. Members of the class are allowed to make all the examinations, and also to perform the treatments. It is proposed during the coming winter to permit competent matriculates to operate in the department of Diseases of Women, under careful supervision. Every branch of medicine and surgery is taught by a system of personal and private instruction, exactly suitable for the general practitioner who wishes to acquire a knowledge of all departments of medicine and surgery. Three or four clinics are given daily in every department. The instruction is entirely clinical; no formal lectures are permitted. The Faculty being connected with most of the great hospitals and dispensaries of the city, also hold clinics at these for the benefit of the Post-Graduate Medical School. Pathologic and histologic laboratories are also a part of the school.

Clarence C. Rice, M.D., Secretary; F. Eugene Farrell, Superintendent.

OMAHA MEDICAL COLLEGE.*

OMAHA, NEB.

Four years graded course of six months after session of 1894-95. Thorough instruction given by means of recitations, lectures, laboratory work in anatomy, chemistry, histology, pathology and bacteriology and clinical work in the Methodist, Douglas County, Immanuel, Presbyterian and Clarkson Hospitals. Obstetrical cases are furnished all Senior students. The College Dispensary also furnishes abundant material for individual instruction in medicine, surgery, gynecology, eye and ear, nose and throat, genito-urinary and skin diseases.

In 1893 a new building was erected at a cost of \$20,000 which is thoroughly modern in its design. The laboratories have been newly equipped.

Fees for each course including all material, \$65; graduation, \$25.

W. O. Bridges, M. D., Secretary.

POST-GRADUATE MEDICAL SCHOOL.

CHICAGO, ILL.

The school is now well located and equipped in its new building. The Faculty is full and the clinical facilities unexcelled.

Faculty: Robt. H. Babcock, John A. Robison, M. H. Lack-

ersteen, Fenton B. Turck, H. W. Gentiles, W. F. Waugh, Weller Van Hook, J. B. Murphy, Dudley C. Trott, D. A. K. Steeie, L. L. McArthur, W. P. Verity, Carl Beck, Alex. Hugh Ferguson, Frederic S. Coolidge, Henry T. Byford, Henry Parker Newman, Fred. Byron Robinson, Albert Goldspohn, Marie J. Mergler, Franklin H. Martin, W. W. Jaggard, W. Franklin Coleman, Casey A. Wood, Boerne Bettman, Francis Dickinson, N. S. Pierce, T. Melville Hardie, F. D. Owsley, George Morgenthau, Daniel R. Brower, Sanger Brown, Sydney Kuh, Richard Dewey, D. J. Hayes, Joseph B. Bacon, Rosa Engelmann, J. C. Cook, H. Newberry Hall, W. E. Coates, Jr., R. W. Bishop, W. L. Baum, Franklin H. Martin, Secretary.

RUSH MEDICAL COLLEGE.*

CHICAGO, ILL.

The fifty-second course of lectures of this institution began Sept. 25, 1894, and continues eight months.

The new laboratory building, in which are located the anatomic departments and all the laboratories, presents an unexcelled series of working rooms for the undergraduate. No more extensive and thoroughly equipped dissecting room is to be found in any medical college. Every student is required to take special courses in laboratory instruction in histology, pathology, bacteriology and materia medica as well as in chemistry. The laboratories for these different special courses are extensively and thoroughly equipped.

A special feature of the instruction in this institution is the large number of men attending exclusively to teaching by recitations in the different classes divided into sections.

The clinics of this College are an especial feature of its instruction. Nearly all of them are held in the afternoon. In some of them the students are required to make their examinations and to defend their diagnoses before the class. The adjoining Presbyterian Hospital affords facilities for clinical instructions unsurpassed anywhere. A vast amount of surgical operations of all kinds is housed in this Hospital and students of this College enjoy the advantage of such operations in the clinics to an extent equalled by no college in this country.

The Central Free Dispensary connected with the College affords about one thousand patients monthly. They are extensively utilized for clinical purposes throughout the year.

Fees: The general ticket costs \$80 and the matriculation fee is \$5. Special courses are \$10 each, of which about ten must be taken during the undergraduate period.

Faculty: Edward L. Holmes, President; James H. Etheridge, Secretary; Henry M. Lyman, Walter S. Haines, James Nevins Hyde, Norman Bridge, Arthur Dean Bevan, Nicholas Senn, John B. Hamilton, E. Fletcher Ingals, Truman W. Brophy, Daniel R. Brower, a large corps of professors of special departments, instructors and demonstrators.

STARLING MEDICAL COLLEGE.*

COLUMBUS, OHIO.

The forty-eighth annual session of Starling Medical College, Columbus, Ohio, opened on August 19, 1894. The College is one of the oldest in the State and has a fine building, with all the modern equipments. Its hospital facilities are of the best, material being supplied from the two largest hospitals in the city, one being in the College building. Students are required to study cases at the bedside, and instructed in physical diagnosis.

Information as to terms, etc., can be had by addressing Thos. C. Hoover, M.D., Registrar, Columbus, Ohio

SOCIETY OF THE LYING-IN HOSPITAL OF THE CITY OF NEW YORK.

The Midwifery Dispensary has been absorbed by this institution. The number of deliveries during 1891, 955; during 1892, 2,070. The administrative building is in the most densely populated tenement-house district in the city. There are accommodations for twenty students, the regular term of instruction being two weeks, with six to fifteen deliveries for each student. Instruction is given during the entire year and is open to practitioners of medicine and students who have attended one course of medical lectures. Students are admitted in the order in which their applications are received, or they may be assigned to special dates when practicable. While waiting they can attend the various hospital clinics, dispensaries, etc., in the city. All deliveries are strictly aseptic, and all cases are attended at their houses as in private practice. Lodgings, instruments and medicines are furnished at the hospital during the two weeks' service, and certificates are issued to those who have performed the service satisfactorily. (Separate apartments for graduates.

Special instruction upon the manikin given by the attending physicians.

Consulting Physicians: Edward W. Lambert, Thomas M. Markoe, Wm. T. Lusk, Wm. M. Polk.

Attending Physicians: J. W. Markoe, S. W. Lambert, J. Clifton Edgar, H. McM. Painter, Austin Flint, Jr.

Chas. Ford, M.D., Superintendent.

TENNESSEE MEDICAL COLLEGE.*

KNOXVILLE, TENN.

Was one of the first in the South to extend the regular course to six months, and to require attendance upon three courses of lectures as an essential for graduation; its great success is a source of special satisfaction to the friends of the school. Knoxville, with its suburbs, has about 50,000 inhabitants.

Plans are being submitted by architects for a hospital on the College grounds, to cost \$30,000; it will be completed by Sept. 1, 1895. Fees for each course \$65, or for the three courses a perpetual ticket is provided at a cost of \$150. This includes everything except graduation fee of \$25.

TUFTS COLLEGE MEDICAL SCHOOL.

BOSTON, MASS.

Organized in 1893. A co-educational institution. Located in the city of Boston, where clinical facilities are of the best, it bids fair to become one of the most successful institutions in the country. The course of study consists of a three-years' graded course of didactic and clinical lectures and recitations upon the different subjects of medical science, illustrated by charts, plates, drawings and dissections. These will be supplemented by individual work in the laboratories and dissecting room, thus requiring the student to become familiar with the various phenomena met with in practice.

Requirements for admission: All students must pass an entrance examination consisting of:

1. A composition written in English, of not less than two hundred words.
2. The translation of easy Latin prose, or showing a satisfactory knowledge of the derivation of medical terms, and medical and pharmaceutic terminology.
3. An examination in higher arithmetic.

4. An examination in elementary physics, including heat, light and electricity.

Students who may fail in any of these examinations may be enrolled as conditioned, and will be required to make up the deficiency during the year before they can be enrolled as students in regular standing.

Exceptions: Such entrance examinations will not be required of students who have matriculated in a regular medical school requiring a similar examination; nor of students who have passed the entrance examination required by the Regents of the State of New York, or similarly constituted authority in other States; nor of students, matriculates or graduates of reputable colleges of literature, science and the arts, or graduates of high schools of the first grade, or of State normal schools.

For graduation: Candidates must be 21 years of age, of good moral character.

They must have attended three full courses of medical lectures of not less than six months' duration each, the last at this College, no two courses to have been taken in the same year.

They must present evidence of having dissected under the direction of a demonstrator of anatomy.

They must satisfactorily pass all the required examinations.

It is understood that attendance upon a course of lectures requires actual presence at a majority of the exercises of each chair each term.

This session commenced on Wednesday, Oct. 3, 1894, and continues until Wednesday, June 5, 1895.

For further information address the Secretary, Prof. Charles P. Thayer, M.D., 74 Boylston Street, Boston, Mass.

Board of Instruction: Elmer H. Capen, President; Albert Nott, Dean.

Charles P. Thayer, Secretary; Henry W. Dudley, William R. Chipman, Walter L. Hall, John W. Johnson, Frank G. Wheatley, Arthur E. Austin, Charles A. Pitkin, John A. Tenney, Samuel G. Webber, Ernest W. Cushing, Thomas M. Durell, J. Cushing Gallison, J. Sterling Kingsley, William R. Woodbury, Harold Williams, Charles D. Knowlton, Richard M. Pearce, Fred. S. Raddin, William A. White, Edward E. Thorpe, Charles L. Cutler, Frank B. Brown, Albert E. Rogers.

THE WOMAN'S MEDICAL COLLEGE, OF THE PRESBYTERIAN CHURCH.

CINCINNATI, OHIO.

This institution began its session September 29, which will continue for seven months and end May 24.

Candidates for admission must present a diploma from a recognized college or high school or a teacher's certificate. Without these they must pass an examination in the English branches.

For graduation a four years' course of study three of which shall be in attendance upon full winter courses of lectures. The course of study is graded and includes practical work in anatomy and in the chemic, physiologic, bacteriologic, histologic, and pathologic laboratories. Ample clinical advantages are afforded by the College clinic, the Presbyterian Hospital and the Cincinnati Hospital.

The College is in no sense sectarian but is under the control of a board of lady managers appointed by the Presbyterian Church, and does not depend upon the fees of students for its maintenance.

It is the purpose of the institution to give to women a complete education in the branches of medicine. John M. Withrow, A.M., M.D., Dean.

TRINITY MEDICAL COLLEGE.

TORONTO, ONT.

Established 1850. In affiliation with the University of Trinity College, the University of Toronto, Queen's University, the University of Manitoba, and specially recognized by the several Royal Colleges of Physicians and Surgeons in Great Britain. The winter session of 1894-5 commenced on Monday, Oct. 1, 1894.

Daily clinical instruction in the spacious wards and theater of the hospital will be given by members of the Hospital Staff on all interesting cases, medical and surgical. Arrangements have also been made for the delivery of daily clinics, out-door, in-door and bedside, in the Hospital, by the respective members of the in-door and out-door Hospital Staff which has been recently largely increased.

Fees for the course: The fee for anatomy, surgery, practice of medicine, obstetrics, materia medica, physiology, general chemistry, clinical medicine and clinical surgery, \$12 each; practical anatomy, practical chemistry, normal histology and pathologic histology, \$8 each; medical jurisprudence, \$6; botany and sanitary science, \$5 each. Registration fee (payable once only), \$5. Students are free in all the regular branches after having paid for two full courses. Surgical appliances is an optional branch, fee, \$5.

Full information respecting lectures, fees, gold and silver medals, scholarships, certificates of honor, graduation, diplomas, fellowship, etc., will be given in the annual announcement.

Faculty, Professors: Walter B. Geikie, Dean; J. Algernon Temple, Thomas Kirkland, C. W. Covernton, Fred. LeM. Grasett, W. T. Stuart, Charles Sheard, G. Sterling Ryerson, Luke Teskey, John L. Davison, G. A. Bingham, Newton Albert Powell, D. Gilbert Gordon, E. B. Shuttleworth, H. B. Anderson.

Lecturers, demonstrators, instructors and assistants: E. A. Spilsbury, Allan Baines, A. Y. Scott, D. J. Gibb Wishart, J. T. Fotheringham, H. B. Anderson, D. Albert Rose, C. A. Temple, Frederick Fenton, A. H. Garratt, Harold C. Parsons, C. Trow, W. H. Pepler.

WOMEN'S MEDICAL COLLEGE.

TORONTO, ONT.

The winter session commenced October 1, and continues six months. The summer sessions will commence April 22, and last ten weeks.

Students are fully instructed in all the subjects demanded by the University of Trinity College and Toronto University for the degrees of Doctor of Medicine and Master of Surgery—and in the full curriculum of the College of Physicians and Surgeons of Ontario.

The primary lecture course includes anatomy, practical anatomy, physiology, embryology, materia medica, inorganic chemistry, organic chemistry, practical chemistry, histology, biology, pharmacy and toxicology.

The first course of lectures includes, medicine, theory of surgery, applied anatomy, practice of surgery, medical jurisprudence, sanitary science, pathology, pathologic microscopy, obstetrics, diseases of women, diseases of children, therapeutics, mental diseases, bacteriology, and diseases of the eye, ear, nose and throat.

The clinical course includes, medicine, surgery, medical and surgical diseases of children, diseases of women, practical midwifery, psychology, ophthalmology, and physical diagnosis.

The hospitals open to the students are: The Toronto General Hospital, (300 beds); Victoria Hospital for Sick Children (200 beds); St. Michael's Hospital (150 beds).

Instruction is given in each of the above at least thrice per week, to classes composed of women only, while all the other clinical classes are available if desired.

SPECIAL ADVANTAGES.

This is the only medical college in Canada which is solely for women. The clinical material is abundant and the facilities which the students enjoy of studying the cases are unusually good. Diseases of women and children receive special attention, over and above the course in these subjects demanded by the examining bodies. The cost of living averages only \$3 per week.

Fees: The course is a four-year graded course. The fee for the full course is \$360, payable in four annual installments of \$90 each. The fees for examination and degree vary with the University selected. University students are admitted at two-thirds of the regular fees. The Hospital fees amount to \$40 for the entire course.

Full particulars may be obtained from the Dean, Dr. R. B. Nevitt, or from the Secretary, Dr. S. J. Gibb Wishart.

WOMAN'S MEDICAL COLLEGE.*

CINCINNATI, OHIO.

The eighth annual session begins Oct. 1, 1894, and ends in April, 1895, extending over a period of twenty-eight weeks. The curriculum is graded and attendance upon three annual sessions is required. Methods of instruction are divided into didactic, recitative, laboratory and clinical. Well equipped laboratories for the study of chemistry, histology, pathology and bacteriology.

Daily clinics at the College building, Ophthalmic Hospital and the Cincinnati Hospital.

Senior students are admitted to several private hospitals and to the Training School for Nurses. They are also afforded the opportunity of attending a number of cases in the thoroughly organized outdoor obstetric department.

Matriculation fee, \$5; general ticket, including fees for all special courses, \$75.

G. A. Fackler, M.D., Dean; Amelia Prior, M.D., Secretary.

WOMEN'S MEDICAL COLLEGE.*

BALTIMORE, MD.

Special stress is given to the laboratory work the first year and in the second and third years the students have to attend the sick and make examination of them, a thorough study of the practical part of medicine, upon which they are examined as well as in theory. The Hospital is large and gives a great number of all kinds of cases for examination and treatment of women, men and children. In addition to the Good Samaritan Hospital clinical lectures, are held at the city alms-house by our teachers, and the number of patients there are 2,500. So we are more than well supplied with material.

Faculty: B. Bernard Browne, Thos. A. Ashby, Eugene F. Cordell, John G. Jay, Hiram Woods, Jr., Joseph T. Smith, John R. Winslow, Pearce Kintzing, Charles E. Simon, Chas. O'Donovan, Henry P. Hynson, B. B. Lanier, Claribel Cone, Ralph Robinson, T. B. Marden, Ida Pollack, Louise Eaton, Profs. Simon and Dr. W. Milton Lewis.

Clinical Assistants: Sue Radcliff, Hugh Forsythe, S.

Griffith Davis, W. Milton Lewis, Edith Eareckson, John Girdwood, Jessie Brevitt.

Our College building, rooms and laboratories are fully supplied with the latest improvements in the way of apparatus to assist in treatment and work.

All communications should be addressed to I. R. Trimble, Dean.

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA.*

PHILADELPHIA.

College opens for registration of students September 26. Lectures begin September 27. Annual commencement for conferring the Degree of Doctor of Medicine, Wednesday, May 8.

REQUIREMENTS FOR ADMISSION.

Applicants for admission to the regular College course must be not less than 18 years of age. They will be required to pass a preliminary examination on the following subjects:

Orthography and English composition by means of a page on an assigned subject written at the time and place of examination; arithmetic, including fractions and percentage; physics, as presented in Avery's Physics or other standard text-book; Latin, including the declension of nouns and adjectives and the conjugation of verbs.

Candidates bringing a diploma or certificate from a recognized college or school, or from a duly organized county medical society which has instituted a preliminary examination (such as that adopted by the Medical Society of the State of Pennsylvania) or a teacher's certificate from a county superintendent of schools or a Regent's certificate of the State of New York or a certificate of having passed the examination preliminary to the study of medicine required by the present Medical Act of Canada will not be required to pass the entrance examination, provided such diploma or certificate shall state proficiency in the subjects of the examination as given above. No examination will be required of applicants desiring to pursue special studies in the College who do not intend to apply for the degree in medicine.

Preparatory education: Women intending to pursue the study of medicine in this College are urgently advised to secure a preparatory education which shall include some knowledge of chemistry, biology and modern languages, especially German, in addition to the branches covered by the entrance examination.

A degree in arts from a college in which the natural sciences have a place in the curriculum, or a college course "preparatory to medicine," similar to that given in the Schools of Biology connected with several American Universities, will admit to the second year: the student thus admitted to advanced standing will, however, be required to make up any deficiencies and pass an examination in all the studies of the first year.

Clinical advantages: The Woman's Hospital, in which over four thousand patients are treated annually, adjoins the College. The amphitheater in connection with the Hospital, has a seating capacity of about three hundred; the building also includes a number of smaller rooms, thus admitting of a systematic classification of patients in attendance upon the daily dispensary service and their treatment by the various attendants in the different departments of medicine and surgery at the same hours. Clinics in the departments of medicine, surgery, obstetrics and gynecology are held by the clinical lecturers. Clini-

cal lectures are also given by specialists in diseases of the skin, the nervous system, the eye, the ear, the throat and in orthopedic surgery.

Clinical instructions in practice of medicine, surgery, gynecology, nervous diseases and orthopedics, ophthalmology, laryngology and rhinology is given to students of the third and fourth years, in sections by the clinical instructors and the clinicians of the Woman's Hospital, under the general supervision of the Physician-in-charge of the Hospital.

Students of this College are admitted to clinical lectures at the Pennsylvania, the German, the Children's and the Philadelphia (Blockley) Hospitals; and by private arrangement classes may obtain instruction in the wards of the last-named Hospital which offers rare opportunities for clinical study. The daily clinics at Wills' Hospital for Diseases of the Eye, and at the Eye and Ear Department of the Philadelphia Dispensary are also accessible. The Philadelphia Lying-in Charity affords advantages to students of this College.

Hospital appointments: Five graduates are appointed annually on the basis of a competitive examination to serve as internes in the Woman's Hospital of Philadelphia. The large out-practice connected with this institution is mainly intrusted to these assistants.

The Maternity Hospital of Philadelphia, the Philadelphia Lying-in Charity, the Sheltering Arms and the Home for the Care and Treatment of Consumptives each make one appointment annually to the position of resident physician. The present residents in these institutions, also in the female department of the Philadelphia County Prison, and in the Insane Department for Women of the Philadelphia Hospital are graduates of this school.

The competitive examinations for the position of Resident Physician in the Philadelphia (Blockley), the German, the Presbyterian, the Methodist Episcopal and the Polyclinic Hospitals of Philadelphia and in the Charity Hospital of Norristown, Pa., and for that of externe in the Polyclinic Hospital are open to women.

The New England Hospital for Women and Children, in Boston, Mass., makes eight; the Nursery and Child's Hospital of Staten Island, N. Y., two; the Maternity Hospital in Detroit, Mich., two; the Northwestern Hospital for Women and Children, Minneapolis, Minn., one, and the West Philadelphia Hospital for Women, two annual appointments of Resident Physician from among the graduates of the various medical schools for women.

Expenses: First year: Matriculation ticket, \$5; general ticket admitting to all the lectures and laboratory courses, including dissection, belonging to the year, \$130; dissecting material, \$6; reading room fee, \$50.

Second year: General ticket admitting to all the lectures and laboratory courses, including dissection, belonging to the year, \$135; dissecting material, \$3; reading room fee, \$50.

Third year: General ticket admitting to all the lectures and practical courses belonging to the year, also to the clinical and ward instruction provided at the Woman's and the German Hospitals, \$135; reading room fee, \$50.

Fourth year: General ticket admitting to all the lectures and practical courses belonging to the year and required for graduation, also the clinical and

ward instruction provided at the Woman's Hospital, including that connected with the out-practice, special instruction at the German Hospital by the clinical professor of medicine, and bedside instruction in the wards of the Philadelphia Hospital by the professor of practice of medicine during his term of service at that institution, \$100; reading room fee, \$50; total, \$516.

WOMAN'S MEDICAL COLLEGE OF THE NEW YORK INFIRMARY.

The Woman's Medical College of the New York Infirmary made a four years' course obligatory with the entering of last year's class. Each year is divided into two terms of sixteen weeks each; students are examined at the end of each year on the year's work, and there are frequent recitations on the various subjects throughout the year.

Fees: Matriculation fee, \$5; fees for first year, \$130; fees for second year, \$130; fees for third year, \$130; fees for fourth year, \$80; graduation fee, \$30; dissection material, \$10.

Reading-room fee, 50 cents yearly.

Students taking special courses will pay \$20 for each course of lectures in addition to laboratory fee, should the course include laboratory work.

The aim of the Faculty is to make the course in the highest degree practical, and to this end the work in the laboratories and dissecting room occupies a large part of the time during the first year; later in the course the student, in addition to the usual didactic lectures, spends much time, under supervision, in the clinics of the Dispensary connected with the College, at the bedside of patients in the wards of the Infirmary and in the large and effective out-practice.

WISCONSIN COLLEGE OF PHYSICIANS AND SURGEONS.*

MILWAUKEE, WIS.

Milwaukee has a population of 270,000. The Faculty consists of nineteen professors, two lecturers, five assistants and demonstrators, and is now beginning its second year. The curriculum is three years of seven months each, and the course is graded so that the student pursues the various studies in their natural order. The College belongs to the Association of American Medical Colleges, and its diplomas are recognized by the Illinois Board of Health. The requisitions for admission are those prescribed by the Association named above. The annual dues are \$85, (anatomic material not included), and are divided as follows: Matriculation, \$5; lectures, \$60; chemic laboratory, \$10; histologic and physiologic laboratory, \$10; pathologic laboratory, \$10. The fee for final examination is \$30. The clinical advantages are sufficient, and are derived from the following sources: The Free Dispensary and the Presbyterian Hospital adjoining, St. Mary's Hospital.

WESTERN PENNSYLVANIA MEDICAL COLLEGE.*

MEDICAL DEPARTMENT OF THE WESTERN UNIVERSITY OF PENNSYLVANIA.

The regular session began third Tuesday in September, 1894, and continues six months. During this session, in addition to four didactic lectures, two or three hours are daily allotted to clinical instruction. Attendance upon three regular courses of lectures is requisite for graduation. A three years' graded course is provided. Four years required from April,

1895. The spring session embraces recitations, clinical lectures and exercises, and didactic lectures on special subjects; this session begins the second Tuesday in April, 1895, and continues ten weeks.

The laboratories are open during the collegiate year for instruction in chemistry, microscopy, practical demonstrations in medical and surgical pathology, and lessons in normal histology. Special importance attaches to "the superior clinical advantages possessed by this College."

For particulars address the Secretary of Faculty, Prof. T. M. T. McKennan.

UNIVERSITIES.

CLARK UNIVERSITY.

WORCESTER, MASS.

Graduate courses in psychology, physiology, neurology, etc. Special attention given to the study of the brain and central nervous system, with laboratory work and clinics. Exceptional opportunities offered in the sciences underlying the study of medicine.

G. Stanley Hall, M.D., President.

COLUMBIAN UNIVERSITY, MEDICAL DEPARTMENT.*

WASHINGTON, D. C.

The system of instruction includes lectures on anatomy, physiology, chemistry, materia medica and therapeutics, surgery, obstetrics, the theory and practice of medicine, hygiene, bacteriology, otology, laryngology, gynecology, dermatology, ophthalmology, mental diseases, medical jurisprudence, nervous diseases, pediatrics, minor surgery, histology, pathologic histology, orthopedic surgery, and surgical pathology.

These lectures are combined with clinical instruction in the various hospitals and dispensaries of the city.

Laboratory instruction is given in chemistry, histology and pathologic histology, bacteriology and practical pharmacy.

The course extends over four years, of seven months each.

The location of the University at the seat of the National Capital affords several striking advantages to the medical student. He has free access to the Libraries of Congress, of the Army Medical Museum, of the Smithsonian Institution, and of the Patent Office, all of which contain rare and costly works in every department of science and literature. The Army Medical Museum is also open for inspection daily from 9 to 3 o'clock. With its unrivaled collection of anatomic and pathologic specimens, illustrating normal anatomy and the results of disease in every form, and an almost unlimited number of other preparations, showing the effect of gunshot wounds and surgical injuries of every kind, this Museum presents a field for study superior to any other institution of the kind, either in this country or Europe.

[This remark applies to all medical colleges at Washington.—Ed.]

The Garfield, Children's, Columbian and Emergency Hospitals and Lutheran Eye and Ear Infirmary, offer ample clinical facilities.

Fees, regulations, etc.: Matriculation fee, payable only once, \$5; single tickets, \$20; practical anatomy, by the demonstrator, \$10; full course, first

year, \$75; full course, second year, \$75; full course, third year, \$75; full course, fourth year, \$75.

Candidates for graduation must have studied medicine four years. They must be of good moral character and at least 21 years of age.

The candidate must have dissected at least two sessions, during each of which he shall be required to dissect two "parts" of a subject, and it is recommended that he dissect three parts. He must have attended also two courses of clinical instruction.

One month before the close of the session he shall enter his name with the Dean of the Faculty as a candidate for graduation, and at the end of the term present himself for examination. The examination will be both written and oral. The examination for the degree will be held at the end of the session in April.

The diploma is granted only at the annual commencement in May.

Faculty: N. S. Lincoln, J. Ford Thompson, William W. Johnson, A. F. A. King, D. W. Prentiss, D. Kerfoot Shute, William P. Carr, H. C. Yarrow, George Byrd Harrison, H. L. E. Johnson, Thomas E. McArdle, Theobald Smith, William K. Butler, Sterling Ruffin, Charles W. Richardson, A. Clark Patterson, Edmund L. Tompkins, William M. Gray, Veranus A. Moore, A. R. Shands, John Van Rensselaer, O. A. M. McKimmie.

Clinical Professors: J. Ford Thompson, William W. Johnson, George N. Acker, H. L. E. Johnson, Samuel S. Adams, William K. Butler, Charles W. Richardson, Edmund L. Tompkins, George Byrd Harrison, G. Wythe Cooke.

Demonstrators: Sterling Ruffin, E. G. Seibert, Charles R. Clark, Harry W. Rollings, Glendie B. Young, W. F. R. Phillips, John R. Wellington, Henry S. Goodall, Francis Smith Nash, P. C. Hunt, C. M. Ketcham, Frank Leech, E. Y. Davidson, Charles J. Hopkins, Irving W. Rand, Francis T. Morgan, Albert L. Stavely, Edward C. Morse.

Dr. D. K. Shute, Dean.

Dr. E. A. de Schweinitz, Secretary-Treasurer.

HOWARD UNIVERSITY.*

WASHINGTON, D. C.

Medical, Dental, and Pharmaceutical Departments will open the winter session October 1, continuing six months.

Candidates for degrees must have attended four courses of lectures of six months in each year.

Students are expected to attend the laboratory courses in chemistry, bacteriology and histology.

Ample clinical opportunities are offered in surgery, practice of medicine, gynecology, obstetrics, eye and ear in the Freedmen's Hospital. Fees, \$60 per term.

C. B. Purvis, Secretary.

JOHNS HOPKINS UNIVERSITY, MEDICAL DEPARTMENT.

BALTIMORE, MD.

The Medical Department of the Johns Hopkins University was opened for the instruction of students as candidates for the degree of Doctor of Medicine in October, 1893. It has in addition to resources of the Johns Hopkins University and the Johns Hopkins Hospital available for its use a special endowment fund of \$500,000. It forms an integral part of the University and is in close affiliation with the Johns Hopkins Hospital.

The requirements for matriculation are higher than those of any other medical school in this country. Those who are admitted as candidates for the degree of Doctor of Medicine must possess a degree in arts or in science from an approved college or scientific school, and in addition must be able to read French and German and must have had a year's collegiate training with laboratory work in physics, chemistry

and biology; or they must furnish evidence by examination that they possess the general education implied by a degree in arts or in science and the knowledge of French, German, physics, chemistry and biology indicated. Men and women are admitted upon the same terms. No one is admitted to advanced standing without furnishing evidence that the terms of admission as regards preliminary training have been fulfilled and that courses equivalent to those given in this medical school, preceding that year of the course for admission to which application is made, have been satisfactorily completed.

The required course of instruction continues through four years, the academic year beginning the first of October and closing the middle of June, with short recesses at Christmas and Easter. Only the first two years of the course have been organized as yet. The courses for the third year will be started in October, 1895, and those for the fourth year in 1896. The first two years are devoted mainly to anatomy, physiology, physiologic chemistry, pathology, bacteriology and pharmacology, and the last two years to practical medicine and surgery. In the studies of the first two years especial emphasis is laid upon practical laboratory work and in the studies of the clinical subjects upon personal bedside and dispensary instruction and work in clinical microscopy and methods of diagnosis.

Abundant clinical material is afforded by the Johns Hopkins Hospital and Dispensary, this Hospital being unsurpassed by any in the world in the perfection of its arrangements. The clinical amphitheaters and laboratories are in the Hospital buildings. Physiology is taught in the biologic laboratory of the University, which is one of the largest and best equipped in this country. The pathologic laboratory is a four story building on the grounds of the Hospital. This building contains the autopsy theaters, the pathologic museum, the bacteriologic laboratory, the physiologic chemic laboratory and rooms for instruction and special work in all departments of pathology.

A new and commodious anatomic building, three stories in height, has been erected during the past year upon a large plot of ground adjacent to the Hospital and intended for additional buildings of the medical department. The pharmacologic laboratory finds for the present accommodation in the new anatomic building.

The charge for tuition is \$200 per annum. There are no extra charges for instruction in any department or for laboratory courses.

In addition to the regular course of instruction for undergraduates in medicine, special courses of instruction have been given to physicians in pathology and the clinical subjects since the opening of the Johns Hopkins Hospital in 1889. These are to continue. A fee of \$100 covers all of these special courses for physicians. The separate courses can be taken by payment of a fee of \$25 or \$50 according to the subject chosen.

MICHIGAN UNIVERSITY, MEDICAL DEPARTMENT.*

ANN ARBOR, MICH.

The course of instruction covers four years of nine months each. The first two years are devoted to the more strictly scientific work which serves as a basis for the technical and clinical studies which follow. The forenoons are given to lectures and recitations,

three each day; the afternoons to laboratory drill during the first two years, and to the study of methods of diagnosis and means of treatment during the second two years. Four hours constitute a day's work in the laboratory and the hospital.

The University Hospital accommodates a large number of patients and is thoroughly equipped. Clinical material is abundant.

Matriculation fee for Michigan students, \$10; for all others, \$25; annual fee for Michigan students, \$25; for all others, \$35. The total amount of fees paid to the University during the whole four years' course, for matriculation, incidental expenses, materials used, and diploma, is for Michigan students, about \$256; and for others, about \$311, varying a little with the student's actual laboratory expenses.

A combined six-year course leading to the B. S., and M. D. degrees is offered in conjunction with the literary department.

Victor C. Vaughan, M. D., Dean.

NATIONAL UNIVERSITY, MEDICAL DEPARTMENT.* WASHINGTON, D. C.

The eleventh annual course of lectures began Monday, Oct. 1, 1894.

Women are admitted to this school, subject in all respects to the same rules and regulations as apply to other students of the institution. Instruction is given by lectures, recitations, clinical teaching, and practical laboratory work uniformly distributed throughout the year. Oral examinations are held each week by the professors.

Qualifications for the degree of Doctor of Medicine: No student will receive his degree until he has studied medicine at least three years and has passed a satisfactory examination in all subjects of the three years' course, and has presented a certificate from the demonstrator of anatomy to the effect that he has made the necessary dissections of the human body in a satisfactory manner. Candidates for a degree must be of good moral character and at least 21 years of age. No student will receive his degree until he has paid, in full, the required fees.

Fees: Matriculation fee (payable once only) \$5. Tuition fees: First year (four tickets) \$60; second year (seven tickets) \$105; third year (three tickets) \$45; demonstrators' ticket, two years, each \$10; examination fee for graduation, not returnable, \$30.

For further information apply to H. H. Barker, M. D., Dean.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL, CHICAGO MEDICAL COLLEGE.*

The regular course at this medical school includes four years of eight months each, and is carefully graded. A matriculation fee of \$5 is payable once for the course. An annual fee of \$100 includes all other charges for the regular course except deposits for breakage in laboratory work. If the apparatus used is not broken these deposits are returned.

LABORATORY BUILDINGS AND COURSES.

The laboratory building has a frontage of 110 feet and a depth of 105 feet, is five stories above the basement, and is constructed of cut stone and brick. The arrangement of the building and the equipment are those demanded in modern laboratories of its class.

First-year students work in chemistry six hours a week in general manipulation and general qualitative and toxicologic analysis. Second-year students de-

vote Saturday forenoon of each week to physiologic chemistry, including chemic and microscopic analysis.

Students of the first year work in normal and pathologic histology, two hours a week in cutting, staining and mounting normal histologic sections. Free-hand drawing of a large number of the sections mounted in this course is compulsory. Students of the second year devote two hours each week to the study of mounted sections of pathologic tissue already cut and stained for them. Free-hand drawing of the sections is compulsory. Students of the third year devote two hours each week to the study of specimens of tumors, repair processes and the staining and identification of pathogenic bacteria.

All the work in the microscopic laboratories is done in the presence and under the supervision of the demonstrators. No fee is charged for either of the microscopic courses.

The course in obstetrics is clinical, operative and didactic. The clinical material is ample and is furnished by Mercy, Wesley and Provident Hospitals, and by the College. Each student is required to be present at, but not to conduct, four confinements. Typical obstetrical operations are taught to the fourth-year class, in sections of five, on Pinard's phantom and the cadaver, with actual fetuses, under the direction of the demonstrators.

Physical diagnosis is taught by lectures, by clinics and by demonstrations on the healthy subject. The demonstrators will teach small sections of the second-year class the physical signs in the healthy individual and in patients, and this will be supplemented by the demonstration of abnormal physical conditions in the various departments of the dispensary and in the hospitals.

CLINICS.

Students of the second, third and fourth years only are members of the clinical class. The clinical class consists of two divisions, which are assigned to work in the Dispensary and Hospital on alternate weeks. The dispensary division of the class is again subdivided into classes each of eight or nine individuals. The arrangements are such that during the College session each small dispensary class works two or more weeks in each department of the Dispensary.

The Hospital division of the class is also subdivided. The second-year students attend the clinics at St. Luke's Hospital and the general College clinics. The third-year students attend the clinics at Mercy Hospital and the general College clinics. The fourth-year students attend the College clinics, and may elect either or both Hospital courses.

HOSPITALS.

Hospital facilities are ample.

Mercy Hospital, at the corner of Calumet Avenue and Twenty-sixth Street, is under the exclusive care of the Faculty, and receives a large number of patients annually, both from the city and the country. It has been rebuilt and enlarged during the past year so that its capacity is increased to about four hundred beds. Daily clinics are held in the Hospital amphitheater or at the bedside in the wards, according to the nature of the individual case.

The South Side Dispensary, in the new Davis Hall, contains accommodations as complete as any institution of its kind in this country. Over nineteen thousand patients are treated in this Dispensary an-

nually. It has the following eight departments: Medical, surgical, throat, eye and ear, gynecological, neurological, diseases of children, syphilis and diseases of the skin and orthopedic surgery. Each department occupies a separate room and is in charge of a clinical instructor. The small classes of students are trained by the physicians in charge of the respective departments, in the details of physical diagnosis appropriate to each. Members of the clinical class may serve as assistants to the physicians and surgeons of the several departments of the Dispensary, and to the Pharmacist of the Dispensary, and receive certificates of such service. Members of the Attending Staff and the Dispensary Pharmacist appoint their own assistants, and the term of service is six weeks.

Davis Hall is named in honor of the Dean of the Medical School. It immediately adjoins the laboratory building on the south. The first and second floors are arranged for the clinical and didactic work of the last three years of the course, and contain two amphitheatres, numerous small clinical rooms for the different departments of the Dispensary, the drug store and the College office.

N. S. Davis, M.D., L.L.D., Dean.

NIAGARA UNIVERSITY, MEDICAL DEPARTMENT.*

BUFFALO, N. Y.

The medical department was organized in 1883 with a compulsory three-year course and preliminary requirements for admission to its classes; it contemplates at an early day to advance the course to four years; it possesses fine College buildings and well equipped laboratories; the course of instruction is both clinical and didactic, its sources of clinical material being: The Sisters of Charity Hospital, the Emergency (accident) Hospital, St. Francis Hospital, Buffalo Woman's Hospital, the Sisters' Lying-in Hospital, the State Hospital for the Insane, in which clinics in insanity are given every alternate week, the College Dispensary, the Buffalo Eye and Ear Infirmary and the German Orphan Asylum for Children's Diseases.

The Faculty consists of twenty professors and eight lecturers and assistants.

We have no endowment.

The special advantages of the school consist in its clinical facilities; the advanced preliminary requirements for admission; the thoroughness of instruction; its graded curriculum of study and the rigid examinations required to pass from the lower to the higher classes. We also claim the best clinical course in obstetrics; each Senior being required to attend from five to ten labor cases before he is admitted to the final examination for his degree.

The fees are moderate: Matriculation, \$5; lectures, single course, \$75; perpetual ticket, \$165; practical anatomy, \$10 (annually); physiologic and histologic laboratory, \$10; chemic laboratory, \$10; pathologic laboratory, \$5; examination for graduation, \$25.

John Cronqu, M.D., Ph.D., L.L.D., President; Freeman Lothrop, M.D., Ph.D., Vice-President; A. A. Hubbell, M.D., Ph.D., Secretary.

NEW ORLEANS UNIVERSITY, MEDICAL DEPARTMENT.

NEW ORLEANS, LA.

1. A four years' graded course of study.
2. Is the *only* medical school in the far South which admits women students.

3. Is open to persons of *all races* and religions.
4. Tuition is thirty dollars (\$30) per year.
5. Being located near the center of New Orleans, the metropolis of the South, unexcelled clinical advantages are afforded.
6. Its laboratories are equipped with the object in view of careful training of the students in the various practical courses pursued.

The school is located at 302 Canal Street, New Orleans, La.

C. F. Dight, M. D., Dean.

NORTHWESTERN UNIVERSITY, WOMAN'S MEDICAL SCHOOL.

WOMAN'S MEDICAL COLLEGE, OF CHICAGO.

This school is located at 333 to 339 South Lincoln Street. Thorough and practical instruction given in every department. Hospital advantages unsurpassed. Excellent laboratories. This school was founded in 1870.

Marie J. Mergler, M.D., Secretary.

OHIO UNIVERSITY, MEDICAL DEPARTMENT.*
COLUMBUS, OHIO.

Chartered in 1890. The peculiar feature of this institution is the method of instruction adopted, which consists in the practical abolition of didactic lectures. All instruction, where practicable, is imparted by assigned topics and recitations, and clinics. It has departments of medicine, dentistry, and pharmacy.

Clinics are given in the College building, in the hospital of the Ohio Penitentiary, and at the Protestant Hospital. This school has the exclusive use of the clinical material of the latter hospital.

Fees: Matriculation (once), \$5; course tickets, \$50; dissecting (including material), \$10; laboratory courses (three), each \$5; graduation, \$10.

The College building has been built especially for the needs of the school and is one of the largest and finest in the country. The laboratories are especially well equipped.

J. F. Baldwin, M.D., Chancellor.

QUEENS UNIVERSITY AND ROYAL COLLEGE OF PHYSICIANS AND SURGEONS.

KINGSTON, ONTARIO.

Candidates for degrees of M. D., A. M., and L. R. C. R. S., must have completed a period of four years study, comprising four winter and one summer session and passed a matriculation examination including Latin, English arithmetic, algebra and geometry. Two full courses of six months each, require to be taken in anatomy, practical anatomy, chemistry, physiology, materia medica, practice of medicine, clinical medicine, surgery, clinical surgery, obstetrics and one of six months in jurisprudence, one in sanitary science, one in practical and analytical chemistry one in botany, and two years hospital attendance must be certified. The College presents special advantages as to acquiring a practical knowledge of anatomy and laboratory work.

SYRACUSE UNIVERSITY COLLEGE OF MEDICINE.*
SYRACUSE, N. Y.

Its clinical resources embrace two hospitals, one dispensary and two asylums.

College year extends from first Tuesday in October to first Tuesday in June. By unanimous vote of Faculty a four years course will commence October, 1895.

ENTRANCE EXAMINATIONS.

In addition to the State examination, all students are examined in algebra, geometry and Latin. No student is allowed to enter unless he or she shall have passed *unconditionally* the examinations required by the State and by the College rules.

No student will be advanced from one class to a higher one till he or she shall have passed unconditionally all the examinations made for purpose of such advancement.

Fees and expenses: Fees for an entire year are required in advance. Matriculation, \$5; tuition each year, \$80; dissection, \$12; graduation, \$25. Children of regular physicians or clergymen may have a reduction of one-half the tuition fee.

The Faculty consists of sixteen professors, eight lecturers, four instructors and demonstrators.

TULANE UNIVERSITY OF LOUISIANA, MEDICAL DEPARTMENT.†

NEW ORLEANS, LA.

This institution, founded in 1834 as the "Medical College of Louisiana," became in 1847 the "Medical Department of the University of Louisiana," and in 1884 the "Medical Department of the Tulane University of Louisiana." It is the oldest medical college in the Southwest, and has the greatest number of alumni and of students. To April, 1894, it had registered the names of 10,905 students, and of these it had conferred diplomas on 3,141—namely, on 2,895 graduates in medicine, and 246 graduates in pharmacy.

The next annual course of instruction in this department, now in the sixtieth year of its existence, will begin on Thursday, Oct. 18, 1894.

The Medical Department, as well as all reputable Southern Medical Colleges, have added to the obligatory studies heretofore required for graduation, medical jurisprudence and also one laboratory course in chemistry, one in histology and bacteriology, and one in operative surgery.

The Medical Department now occupies a new site, twice the size of the former one and only two squares from the Charity Hospital, and thereon a four-story building, three stories above a most excellent basement which provides ample accommodation for larger classes and for all the needs now requisite to medical education; larger and better lecture and recitation rooms, and best of all ample and well equipped laboratories for chemistry, for pharmacy, for practical anatomy, for operative surgery, for microscopic anatomy, pathology and bacteriology, and working rooms for practical physiology and for gross pathologic anatomy. These admirable laboratories, now added to the unrivaled practical advantages for clinic, anatomic and pathologic studies given by the Charity Hospital, enable the Medical Department to provide its students with unsurpassed advantages for their medical education. The clinical instruction at the Charity Hospital is unexcelled; this Hospital has 700 beds.

Fees for first course students of 1894-95 taking three full courses: Matriculation fee, first year, \$5; second year, \$5; third year, \$5; professors and lecture, first year, \$120; second year, \$120; third year, \$120; demonstrator of anatomy, first year, \$10; second year, \$10; chemic laboratory, first year, \$15; second year, \$15; microscopic laboratory, second year, \$15; operative surgery, third year, \$10; diplo-

ma or graduation fee, third year, \$30. Totals first year, \$150; second year, \$150; third year, \$165.

All fees are payable in advance, that is on admission.

For any additional information, address Professor Chaillé, Dean, P. O. drawer 261. Letters thus *officially* addressed secure prompt attention even if the Dean be absent.

Stanford E. Chaillé, M.D., Dean of the Medical Department.

Medical Faculty: Stanford E. Chaillé, Joseph Jones, Ernest S. Lewis, Jno. B. Elliott, Edmond Souchon, Albert B. Miles, Louis F. Reynaud.

Lectures, instructors, demonstrators: Henry Bayon, H. S. Lewis, Isadore Dyer, J. D. Bloom, Luther Sexton, Edw. W. Jones, Rudolph Matas, A. McShane, P. E. Archinard, O. L. Pothier, A. L. Metz, T. A. Quayle, Warren S. Bickham.

UNIVERSITY OF BUFFALO, MEDICAL DEPARTMENT.

BUFFALO, N. Y.

The forty-ninth regular session opens Sept. 24, 1894, and continues thirty weeks. The lectures will be held in the large, new, three-story building, containing three amphitheatres and rooms for dispensary patients, chemic, pathologic, histologic, and pharmaceutical laboratories, thoroughly equipped with modern conveniences. Instruction by lectures, recitations, laboratory work, and clinics. Three-year graded course. Clinical advantages unexcelled.

Faculty: Matthew D. Mann, Dean; Edward M. Moore, William H. Mason, E. V. Stoddard, Charles Cary. Roswell Park, Julius Pohlman, Charles G. Stockton, John Parmenter, Herbert M. Hill, Wm. C. Phelps, DeLancey Rochester, P. W. Van Peyma, Eli H. Long, Herbert U. Williams, Fred B. Willard, Loren H. Staples.

Professors of Special Departments: Judson B. Andrews, Lucien Howe, Mahlon B. Folwell, Ansley Wilcox, D. W. Harrington, Henry R. Hopkins, Bernard Bartow, F. Whitehill Hinkel, Ernest Wende, W. E. Ford, James W. Putnam, Wm. H. Heath, Wm. C. Barrett, Willis G. Gregory, Arthur W. Hurd, Francis T. Metcalfe.

Instructors: Fred B. Willard, Allen A. Jones, A. L. Benedict, M. A. Crockett, Edward J. Meyer, Albert T. Lytle, Frank J. Thornbury, Dewitt H. Sherman, Ferdinand G. Moehlau, J. F. Whitwell, Francis T. Metcalfe.

Miss Emma Chappell, Louis Staffeldt.

Clinical Instructors: Drs. Allen A. Jones, Geo. Himmelsbach, Dewitt H. Sherman, Edward J. Meyer, J. Franklin Whitwell, M. A. Crockett, F. B. Willard, James W. Putnam, James A. Gibson, Irving M. Snow, Maud J. Frye, Ernest Wende, Grover Wende, Henry J. Mulford, Geo. F. Cott, Julius Pohlman, Elmer Starr, H. Y. Grant, Loren H. Staples, F. G. Moehlau.

Fees: Matriculation, \$5; Regular term, \$100; perpetual ticket, \$200; laboratory, \$40; dissection, \$20, (\$10 each year); examination fee, \$30, (\$10 each year). For further particulars address,

Dr. John Parmenter, Secretary, University of Buffalo, Buffalo, N. Y.

UNIVERSITY OF COLORADO, MEDICAL DEPARTMENT.

DENVER, COLO.

A three years' graded course of nine months each year. Commencing in 1895 the course will be lengthened to four years. Instruction during the first year is given in Boulder, and during the second and third years in Denver, owing to the superior clinical advantages of the latter city. The District Court has recently decided that the University of Colorado has a right to teach medicine wherever the best clinical advantages are obtainable. Practical laboratory work in chemistry, histology, and pathology. The session commenced the first week in September, 1894.

Tuition is free to residents of Colorado. Non-residents pay a nominal fee of \$20. Two post-graduate courses are held each year.

Faculty: James H. Barker, President; Jeremiah T. Eskridge, Dean; Herbert W. McLauthlin, Secretary; Luman M. Giffin, Treasurer; Charles Skeele Palmer, John Gardiner, A. Stewart Lobingier, Clayton Parkhill, G. Melville Black, John Chase, John W. O'Connor, Herbert B. Whitney, Lewis E. Lemen, George B. Packard, Thomas E. Taylor, Josiah N. Hall, John Vroom, H. C. Crouch, Walter A. Jayne, Samuel D. Hopkins, Francis H. McNaught, Emley B. Queal, Earl H. Fish.

UNIVERSITY OF CALIFORNIA, MEDICAL DEPARTMENT.*

SAN FRANCISCO, CAL.

The next session of the Medical Department of the University of California will begin Jan. 7, 1895, and continue six months. Thereafter, the session will begin September 1 and continue eight calendar months. Attendance is required upon four annual courses of medical lectures, except of those who are graduates of accredited literary or scientific colleges or have spent two years in the study of the natural sciences in a recognized university.

Fees: Matriculation, (paid but once) \$5; practical anatomy, (each of two years) \$10; tuition, (each year) \$100; graduation, \$25.

Students who do not present diplomas of accredited high schools or academies, are required to pass an entrance examination in the subjects usually embraced in a high school course.

The course of studies pursued at this school comprises clinical, didactic, and laboratory teaching. Special prominence is given to the first, although it is endeavored that the three methods shall be so blended as to form one harmonious whole.

The facilities for clinical studies open to the students of the University have been largely increased. Full access is given to the City and County Hospital, a complete and modern structure containing five hundred beds, and presenting for observation perhaps every known form of disease, including those peculiar to tropical and South America. The staff of the Hospital is largely drawn from the Faculty of the University, giving them unusual advantages for developing clinical material. The Professor of Clinical Surgery has charge of three surgical wards (thirty-two beds in each), the Professor of Clinical Medicine two wards, the Professor of Obstetrics and Gynecology and the Professor of Ophthalmology, one ward each. Autopsies are conducted three times a week in the Mortuary by the Pathologist. A large operating theater has been erected, where the major and minor operations of surgery are performed in view of the class.

The Dispensary clinic is located in the heart of a thickly populated district where clinical material of every description is extremely abundant. The clinical rooms are large and airy, and provided with every facility for the successful demonstration and treatment of disease.

A full staff of clinicians and assistants has been appointed and clinics are held daily throughout the year. Cases applying for treatment are classified according to their diseases and assigned to the different clinicians.

During the sessions of the College, every advanced student will have an opportunity to observe and personally attend a large number of cases, under the supervision of the clinical staff.

An obstetrical bureau has been established in conjunction with the clinic, where indigent women may make application for attendance at their homes, during confinement. The clinician in charge of this department will assign cases in rotation to students of the Senior class.

UNIVERSITY OF WOOSTER, MEDICAL DEPARTMENT.*
CLEVELAND, OHIO.

The College course opened September 19 and continues eight months. Students matriculating in 1895 will be required to take four courses of eight months each. New laboratories have been equipped in chemistry, bacteriology, histology, physiology and pathology. A new college and laboratory building will be completed in time for the session of 1895-96. A new hospital, amphitheater and dispensary building has just been completed. The hospital contains seventy-five beds which are under the *exclusive* control of the Faculty, and are used for bedside instruction. The City, St. Alexis and other hospitals in the city are available for chemical instruction. Our aim is to secure students with the best preliminary training and to furnish them with laboratory and clinical instructions equal to that of the best schools in the country.

Fees: Hospital and general tickets, \$100; examination, (\$10 annually) \$30; graduates of medicine, general ticket, \$20; perpetual ticket, (not transferable) \$250; matriculation fee the same to be credited on general ticket, \$5.

A laboratory fee of \$10 is required to be deposited to cover breakage.

Faculty of Medicine: Marcus Rosenwasser, Dean; H. W. Rogers, Secretary; Gustav C. E. Weber, B. B. Brashear, Andrew Squire, C. F. Dutton, Treas., Albert R. Baker, Clyde E. Cotton, G. W. Crile, W. E. Wirt, M. Stamm, H. C. Eyman; N. Stone Scott, Registrar; D. B. Smith, H. W. Kitchen C. B. Parker, Guy B. Case.

UNIVERSITY OF VIRGINIA, MEDICAL
DEPARTMENT.

CHARLOTTESVILLE, VA.

Session begins Sept. 15, 1894, and ends June 15, 1895. The course is graded, and extends over two full sessions of nine months, embracing laboratory and clinical work.

Wm. M. Thornton, Chairman of Faculty.

UNIVERSITY OF IOWA, MEDICAL DEPARTMENT.*
IOWA CITY, IOWA.

Medical Department of the University of Iowa is located at Iowa City, Iowa. The department was established by State authority in 1870. Classes have been graduated annually since that date. The Faculty embraces twelve professors, three instructors and seven demonstrators. The buildings belonging to the department, consist of the medical building proper—containing two lecture rooms, pathologic and histologic laboratories, a dissecting room, museum, and professors' private rooms. Two hospital buildings with accommodations for one hundred patients. As regards requirements for admission and graduation of students, the institution is governed by the rulings of the Association of American Medical Colleges and the Iowa State Board of Medical Examiners. Beginning with the session of 1895-96 the course will consist of a graded course of four years of six or eight months each. At present a graded course of three years of six months each is required.

Instruction is imparted by the usual methods. Clinics in surgery, practice of medicine, gynecology, eye and ear, laryngology and rhinology are held weekly. Special attention is devoted to laboratory work and branches of the Senior year, clinical cases being thoroughly utilized. Being a State institution the department is enabled to offer systematic and thorough instruction at very reasonable tuition, the fees being as follows: Freshman year, \$58; Junior year, \$48; Senior year, \$38.

J. C. Shrader, Dean. J. W. Harriman, Secretary.

UNIVERSITY OF MARYLAND.*

BALTIMORE.

The School of Medicine is one of the oldest institutions of medical education in America, ranking fifth in point of age among the medical colleges of the United States. Beginning with the modest number of five graduates, comprising the first graduating class in 1810, the list of graduates in medicine of the University of Maryland now numbers 4,574 names, among which are to be found some of the most noted names connected with the history of medicine in our country. While the policy of the Faculty of Physic has been one of wise conservatism, it has at the same time never been behindhand in the march of educational progress, and has often been the first and always among the first, in the adoption of measures tending to improvement in methods of medical teaching and to true elevation of the standard of medical education. One of the advantages of the University over other schools of that day was gained in 1823 by the erection of its own hospital, separated from the College by the width of the street and known as the University Hospital. Besides important additions and improvements to the University Hospital, the Faculty has in the last few years expended and is now expending large amounts in the establishment and equipment of its Lying-in Hospital, its laboratories of chemistry, histology, pathology and bacteriology, and is therefore in a position to offer to students of medicine and graduates, a course of combined didactic, clinical and laboratory instruction which will compare favorably with that offered by any medical school in the United States. The course of study embraces three annual graded courses of not less than six months each.

Fees for the three years' graded course: Matriculation (paid each year) \$5; practical anatomy (paid two years) \$10; full course of lectures (first year) \$100; full course of lectures (second year) \$100; full course of lectures (third year) \$100; graduation fee, \$30.

UNIVERSITY OF MINNESOTA, COLLEGES OF
MEDICINE AND SURGERY.*

MINNEAPOLIS, MINN.

The establishment of a College of Medicine and Surgery in connection with the University of Minnesota has met with approbation upon the part of the profession and generous financial support at the hands of the public. The Calendar of 1894 indicates a registration in all the departments of the University of 1,848 students, of which number 199 were matriculates in the College of Medicine and Surgery. The seventh annual course of instruction begins Oct. 9, 1894, and will close the first Thursday in June, 1895. The new buildings of the College of Medicine are located on the general University campus. Apart from the grounds the buildings and equipments have

cost the State approximately \$100,000. At the last meeting of the Board of Regents the four-year curriculum was adopted to become operative next year. Matriculates must furnish a diploma or matriculation certificate from a recognized college or undergo an examination in composition, algebra, Latin and physics. A thorough course of graded instruction is afforded the students of this University in all its departments. The expenses of conducting the College of Medicine is borne by the State. Ample clinical facilities are afforded in both the cities of Minneapolis and St. Paul.

Perry H. Millard, Dean.

UNIVERSITY OF THE STATE OF MISSOURI,
COLLEGE OF MEDICINE.
COLUMBIA, MO.

Organized in 1872. Three years' graded course.

First year: Anatomy (osteology and dissecting), physiology (chemical, nutritive and reproductive), chemistry (laboratory and class-room work), physics, normal histology, laboratory work in mounting and staining normal tissues; general therapeutics.

Second year: Anatomy (general and descriptive, and dissections); physiology (nervous system), chemistry, (laboratory work), microscopy, mounting and staining bacteria; therapeutics, theory and practice of medicine, surgery and obstetrics.

Third year: Theory and practice of medicine, clinical medicine, physical diagnosis, surgery, clinical surgery; anatomy, surgical and topographical; obstetrics, therapeutics, gynecology, diseases of children; diseases of eye, ear, nose and throat; sanitary science; toxicology and medical jurisprudence; work in bacteriologic laboratory.

Students must pass in the work of each class and year, before admission to the next class or year.

Instruction is given by lectures, recitations, clinical teaching and laboratory work.

The length of the session, nine months, renders it practicable to distribute the different branches among the teachers in the most satisfactory manner, and in their natural order and succession. The student is thoroughly drilled each day by examinations upon the lectures of the previous day, and by recitations from text-books.

By this method of teaching it is asserted that the process of cramming—a deleterious practice, too prevalent in the general system of medical education—is avoided. It is believed that the proposed method of teaching will do more to elevate the standard of medical education, and to exalt the dignity of the profession, than any other measure that could be adopted.

The students are taught the use of the microscope, in relation to both pathologic and physiologic studies. The methods of bacteriologic investigation are taught by practical work in the laboratory.

Among the advantages offered by this school is the privilege granted, without further cost, to all students who enter the medical department, of pursuing such studies as they may desire in the academic course. Academic students may take anatomy and physiology in the first year of the medical course, preparatory to entering on the full medical course after graduating in arts or science. Such students are admitted to the second year's medical class.

Conditions of admission: Candidates for admission to the medical department must possess a good

common-school education. This is the minimum requirement, and evidence that the candidate possesses the requisite knowledge must be attested by certificates of former instructors or must be shown by examinations conducted by the Faculty. Students are strongly urged to take degrees in arts or science before entering this department.

Fees: First year matriculation, \$20; second year matriculation, \$50; third year matriculation, \$50.

A preliminary course of nine months will be given after this year in chemistry, biology, physics and Latin.

A. W. McAlester, Dean. Woodson Moss, Secretary.

UNIVERSITY MEDICAL COLLEGE.

KANSAS CITY, MO.

This College is entering upon its fourteenth annual course of lectures. A course of study embraces four years' study of medicine, with three full courses of lectures, of twenty-six weeks each. Its matriculants are required to have a good English education, with a sufficient knowledge of Latin and the elementary sciences to enable them to thoroughly comprehend and assimilate the instruction which is given to them in the different departments of medicine. The fees are small, amounting to about \$60 for each course of lectures. The hospital facilities are ample. Clinical advantages being obtained from over two hundred beds in the different hospitals in the city, beside sixty beds contained in a hospital under the control of the College, immediately adjoining its building.

The University Medical College has made the subject of clinical instruction one of its chief aims and for this purpose has established a dispensary, in which more than 15,000 cases are treated yearly in the different departments. The small number of its students thus gives an unexceptional advantage to each individual student.

Chas. W. Adams, M.D., Dean.

UNIVERSITY OF NASHVILLE AND VANDERBILT
UNIVERSITY, MEDICAL DEPARTMENT.*

NASHVILLE, TENN.

Forty-fifth annual session, eight months' term, three years' course required for graduation. Twelve professors and nine special lecturers and laboratory assistants. One of the oldest and most successful medical schools south of the Ohio River. Ample clinical facilities afforded by the public hospitals. Fees \$75 first and second years; \$100 third year.

Faculty: J. H. Callender, President; Thomas Menees, Dean; Thomas L. Madden, W. L. Nichol, J. M. Safford, C. S. Briggs, G. C. Savage, Richard Douglas, C. R. Atchison, S. S. Crockett, Ambrose Morrison, S. S. Briggs, W. H. Witt, Larkin Smith, E. A. Ruddiman, O. H. Wilson, G. H. Price, M. H. Bonner, J. W. Waters, J. M. Bass. W. G. Ewing, Secretary.

UNIVERSITY OF THE CITY OF NEW YORK, MEDICAL DEPARTMENT.

Fifty-fourth year. The session of 1894-95 will begin Wednesday, Oct. 3, 1894. Attention is called to the fact that the curriculum has recently been entirely remodeled and greatly improved. It now consists of a three years' graded course as follows:

First Year: Lectures and recitations from text-books on anatomy, physiology and chemistry. Dissection and laboratory work in histology, materia medica and chemistry.

Second Year: Lectures on surgical and regional anatomy, experimental physiology, experimental

chemistry, physics and hygiene, and materia medica. Recitations from text-books on pathologic anatomy, practice of medicine, surgery, materia medica, obstetrics and demonstrations on the manikin, laboratory work, in pathology, clinics in Bellevue Hospital and the College building, on medicine, surgery and gynecology, and practical clinical work in sections in medicine and surgery.

Third Year: Lectures on practice of medicine, surgery, obstetrics, gynecology, therapeutics and pathology, with autopsies. Bedside teaching in small classes in the wards of Bellevue Hospital on medicine, surgery and gynecology. Clinics in Bellevue Hospital and the College building on medicine, surgery and gynecology.

Special clinics: Ophthalmology, otology, laryngology, orthopedy, pediatrics, skin diseases, venereal diseases, nervous diseases.

Examinations are held at the close of each year. The marks received for proficiency in practical work in the laboratory, dissecting room, etc., are added to the final examination marks in each corresponding subject.

Faculty of Medicine: Rev. H. M. McCracken, Chancellor; Chas. Inslee Pardee, Dean.

Professors: Alfred L. Loomis, W. H. Thomson, Wm. M. Polk, L. A. Stimson, R. A. Witthaus, Wm. G. Thompson, Geo. Woolsey, H. P. Loomis, Stephen Smith, A. E. Macdonald, J. C. Edgar, E. D. Fisher, C. S. Bull, H. G. Piffard, J. E. Winters.

Clinical Professors: P. A. Morrow, C. G. Coakley, A. M. Phelps, E. LeFevre.

Adjunct Professors: C. E. Quimby, F. W. Gwyer, Ivin Sickles, John B. Knapp, Justin L. Barnes, Irving S. Haynes.

The College possesses a corps of sixty-four professors and instructors in its various departments; and in addition to well-equipped laboratories and a dispensary where 20,000 visits are annually paid, it offers to students exceptional facilities for practical instruction at the bedside in Bellevue Hospital, which is directly opposite the College buildings.

Fees: For course of lectures, \$150; matriculation, \$5; demonstrators' fee, including material for dissection, \$10; final examination fee, \$30.

For further particulars and circulars, address the Dean, Prof. Chas. Inslee Pardee, University Medical College, 410 East Twenty-sixth Street, New York City.

UNIVERSITY OF OREGON, MEDICAL DEPARTMENT.

PORTLAND, ORE.

The Medical Department of the University of Oregon, located at Portland, requires four years' study of medicine including three courses of lectures (delivered in separate years). Commencing with October, 1895, it will enter upon a four course requirement. There is an entrance examination for matriculation.

The school occupies a well-equipped building where didactic and clinical lectures are delivered and laboratory work carried on. Clinics are also held three times a week at Good Samaritan and St. Vincent Hospitals. These hospitals drawing their patronage from Oregon, Washington and Idaho, present more than local phases of disease or injury and represent types of disease prevalent on the Pacific coast.

Fees are for matriculation, \$5; lecture ticket, \$120; demonstrators' ticket, \$10. Students having paid for two full courses are thereafter admitted free except graduation fee of \$30. Special rates are made

to graduates of other regular schools and to students of dental and pharmaceutical schools.

S. E. Josephi, M.D., Dean; Curtis C. Strong, M.D., Secretary.

UNIVERSITY OF PENNSYLVANIA, DEPARTMENT OF MEDICINE.*

The 129th annual session will begin Monday, Oct. 1, 1894, at 12 m., and will end at Commencement, June 4, 1895.

The curriculum is graded and attendance upon four annual sessions is required. College graduates in arts or science, who have pursued certain biologic studies are admitted to advanced standing. Practical instruction, including laboratory work in chemistry, histology, osteology and pathology, with bedside instruction in medicine, surgery, gynecology and obstetrics, are a part of the regular course and without additional expense.

Faculty: William Pepper, William Goodell, James Tyson, Horatio C. Wood, Theodore G. Wormley, John Ashhurst, Jr., Edward T. Reichert, William F. Norris, Barton Cooke Hirst, J. William White, John Guiteras, George A. Piersol, John Marshall, Louis A. Duhring, John S. Billings, Charles B. Penrose.

For catalogue and announcement containing particulars, apply to Dr. John Marshall, Dean, Thirty-sixth and Woodland Avenue, Philadelphia.

UNIVERSITY OF THE SOUTH, SEWANEE MEDICAL COLLEGE.

SEWANEE, TENN.

Closed its third annual course of lectures, Aug. 30, 1894, with a class of about fifty students and seventeen graduates.

The gradual and permanent growth of this College argues that a spring and summer school at this favored locality (2,300 feet above sea level) is an assured fact.

Next session will open March 7, 1895. For information address J. S. Cain, M.D., Dean.

UNIVERSITY OF TENNESSEE.

NASHVILLE MEDICAL COLLEGE, MEDICAL DEPARTMENT.

This institution, founded in 1876 as "Nashville Medical College," became in 1879 the "Medical Department of the University of Tennessee." The expectations set forth by the founders and promoters, among whom were the late Professors Paul F. Eve and William K. Bowling, have been completely fulfilled, and the circle of the College's influence has constantly been growing wider.

The City Hospital is one of the best equipped institutions of the kind in the South. It is perfect in all of its appointments.

St. Margaret's Hospital: This charitable institution is in a prosperous condition, being under the management of the Sisters of Charity.

College Dispensary: Our Free College Clinic and out-door service will enable us to offer at our College amphitheater, an abundance of practical clinical observation to the students, and our College surgical work is probably surpassed by but few schools in the country.

The medical department is located on Broad Street between Vine and High Streets. The instruction at this College consists of didactic lectures, clinical teaching, practical instruction, and examinations or quizzes.

From five to six lectures will be given daily by the Faculty during the session, on the following subjects,

viz: Anatomy; chemistry; physiology; materia medica; practice of medicine; obstetrics; gynecology; surgery; diseases of the eye, ear and throat; medical jurisprudence; diseases of children; State medicine; general pathology; physical diagnosis; dermatology; microscopy; dental and oral surgery; diseases of the genito-urinary organs, and venereal diseases.

Clinical teaching is ample at the New City Hospital, County Asylum, St. Margaret's Hospital and College Dispensary.

Faculty: Chas. W. Dabney, Prest.; Hon. Wm. P. Jones; Paul F. Eve, Dean; J. Ber. Lindsley, J. Bun Stevens, Wm. D. Haggard, J. S. Cain, Wm. E. McCampbell, Jno. A. Witherspoon, Ross Dunn, Hazle Padgett, Wood M. Vertrees, T. Hilliard Wood, Jno. G. Sinclair, Wm. G. Brien, James Y. Crawford, W. Frank Glenn, Haley P. Cartwright, J. Crid. Wharton, Charles Mitchell, James B. Neil, James W. Handley, James S. Ward, Thos. R. Newman, Wm. D. Haggard, Jr.

UNIVERSITY COLLEGE OF MEDICINE.
RICHMOND, VA.

The University College of Medicine was organized in 1893 under the name of the College of Physicians and Surgeons, but for good and sufficient reasons its corporate title was altered.

The location of the College in Richmond, the historic city of the South, is a fortunate one, on account not only of the clinical advantages, it being the largest manufacturing city in the South, but also on account of its superior climatic influences.

The University College of Medicine is a high-grade institution, requiring a three years' graded course. It has three distinct and independent departments, viz.: Medicine, dentistry and pharmacy. The system of instruction is a graded one, and consists of didactic lectures, clinical teaching, quizzes, recitations and laboratory work, so arranged that the work of each year does not conflict with the work of the other two years, the course of study being about equally divided between recitations and lecture work on the one hand and laboratory work and clinics on the other.

Personal work in the anatomic, chemic, histologic, pathologic, physiologic, dental and pharmaceutical laboratories is a prominent and most important feature and without additional expense.

The Virginia Hospital and its Out-Door Departments, and the Richmond Eye, Ear and Throat Infirmary, furnish ample facilities for genuine clinical instruction, and the professors of the different departments are allowed the use of this Hospital as a school of practical instruction.

The regular session began on Oct. 3, 1894, and will continue seven months.

Faculty of Medicine: Hunter McGuire, President; Joseph A. White, Secretary and Treasurer; Hugh M. Taylor, Stuart McGuire, Landon B. Edwards, Thomas J. Moore, Edward McGuire, George Ross, Paulus A. Irving, Lewis Wheat, John Dunn, M. D. Hoge, Jr., W. T. Oppenheimer, Jacob Michaux, William S. Gordon, J. Allison Hodges, Charles H. Chalkley.

Faculty of Dentistry: E. M. Cowardin, Charles L. Steel, Hugh M. Taylor, J. Allison Hodges, M. D. Hoge, Jr., Stuart McGuire, J. Michaux, W. S. Gordon, Charles H. Chalkley.

Faculty of Pharmacy: T. A. Miller, Andrew T. Snellings, T. Wilber Chelf.

UNIVERSITY OF VERMONT, MEDICAL DEPARTMENT.

The thirty-second annual course of lectures will begin Thursday, Jan. 17, 1895, and continue six months, ending July 8.

This extension of the term will increase the scope of the instruction, and prove of great advantage to

the student. The preliminary term has been abolished. No private courses by any of the professors will be tolerated by the Faculty.

Instruction will be given in the following branches: Anatomy, physiology, chemistry, materia medica and therapeutics, practice, obstetrics, surgery, diseases of children, medical jurisprudence, neurology, ophthalmology and otology, gynecology, dermatology, venereal diseases, pathology, and bacteriology, hygiene, sanitary science and examinations for life insurance.

Laboratory courses at this College in urinary analysis, histology, pathology and bacteriology, and practical work in physical diagnosis, surgery and demonstrative obstetrics, are now compulsory.

The instruction is given by scholastic and clinical lectures, by recitations and by practical manipulations by the student.

The clinical advantages are in many respects unsurpassed.

For further information address the Secretary, Dr. B. J. Andrews, Mary Fletcher Hospital, Burlington, Vt.

UNIVERSITY OF TORONTO MEDICAL FACULTY.

TORONTO, ONTARIO.

The eighth session since the reestablishment of the Medical Faculty of the University of Toronto will commence on Oct. 2, 1894. The opening lecture will be delivered by Prof. R. A. Reeve in the biologic department.

Distinct and separate courses of instructions are provided for each of the four years of the medical curriculum.

The course of instruction given by the Faculty prepares students primarily for the degree of M.B. of the University of Toronto, and for the license of the Ontario College of Physicians and Surgeons, but it fulfills the requirements of other Canadian Universities, and it aims at giving the student such a training in the sciences as is now exacted of all students who desire to obtain any British medical qualification in addition to a Canadian one.

Students intending to proceed to the degree of M.B. in the University of Toronto will find the requirements for matriculation to be as follows: Those who are graduates in Arts of any British or Canadian University, or who are undergraduates in the Faculty of Arts or of Law in the University of Toronto or have been registered as medical students in the College of Physicians and Surgeons of Ontario are exempt from this matriculation. A student desirous of obtaining a license to practice medicine in Ontario must pass the *July* matriculation examination of the University of Toronto, including the subjects of physics and chemistry, which entitles him to be registered as a medical student. If, however, he does not wish to obtain the Ontario license and yet intends to proceed to the degree of M.B., he may be registered as a matriculated medical student in the University on passing either the *July* or the *September* matriculation examination. He may delay presenting himself for this examination until any time before the second examination for the degree of M.B., but, if possible, he should matriculate before commencing his medical studies.

The degree of M.B., is given to candidates who have matriculated and who have attended during four winter sessions of at least six months each and one summer session the courses of instruction as required

by the curriculum, and who have passed three examinations taken in the following order: the first at the end of the first session; the second, at the end of the second session; and the final, at the end of the fourth session.

Subjects of the different examinations, first examination: Physics, chemistry (inorganic), biology.

Second examination: Anatomy, physiology, embryology and histology, materia medica and elementary therapeutics, chemistry (organic and physiologic).

Final examination: Medicine and clinical medicine, surgery and clinical surgery, obstetrics, pathology, therapeutics, gynecology, medical jurisprudence and toxicology, hygiene, medical psychology, topographical anatomy.

Fees: Registration (payable once only) \$5; the tuition fees for the first year amount to \$75; for the second year amount to \$75; for the third year amount to \$85; for the fourth year amount to \$85; supply fee for use of microscope and material in first year \$1.50; for second year \$2.75.

Students in the fourth year will be required, in addition, to pay a fee of \$5 for the extra-mural class in medical psychology.

Fees connected with examinations and the granting of degrees: For matriculation or registration of matriculation, \$5; for annual examination (each) \$10; for examination in practical chemistry, 50 cents; for admission *ad eundem statum*, \$6; for the degree of M.B., \$20; for the degree of M.D., \$20; for admission *ad eundem gradum*, \$20.

For all information not covered by this announcement, the intending student should apply to Prof. A. Primrose, Biological Department, University of Toronto.

UNIVERSITY OF BISHOP'S COLLEGE, FACULTY OF MEDICINE.

MONTREAL.

Medical course of study, four years of six months each, and one summer course at end of third year of three months. Fees for four years, including hospitals, etc., about \$400.

Special advantages offered in maternity and gynecological work.

The only University in this Province which admits students of both sexes.

Dental course of study leading to the degree of D.D.S. includes three years. Matriculation examination is identical in details for admission to either.

This Faculty is recognized by the Royal College of Surgeons, England, and the Royal College of Physicians, London. Class tickets for the various courses are accepted by those Colleges as qualifying candidates for examination. The Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, the Faculty of Physicians and Surgeons of Glasgow, and the University of London, also accept the class tickets of Bishop's College, and the diploma of this University exempts its holder from being examined on the subjects of the primary branches and matriculation. Such candidates are therefore only required to pass in the subjects of the final branches, including hygiene. The Scottish colleges acting conjointly grant only one examination, and therefore confer a triple qualification.

The degree of Medicine and Surgery of this University, being accepted by the licensing bodies of Great Britain, its possessor is entitled to the same

exemptions as are allowed all other recognized Colonial degrees. The College of Physicians and Surgeons of Quebec accepts the degree without further examination, provided the holder of such degree has, previous to beginning the study of medicine, passed the preliminary examination exacted by that Board.

The class tickets for the various courses are accepted as qualifying for the examination of the College of Physicians and Surgeons of Ontario, and the matriculation examination of this Faculty is recognized by the General Medical Council of Great Britain.

Geo. T. Ross, M.D. Registrar.

WASHINGTON UNIVERSITY, MEDICAL DEPARTMENT.

ST. LOUIS MEDICAL COLLEGE.

ST. LOUIS, MO.

The fifty-third annual session of St Louis Medical College commenced Sept. 27, 1894, and continues until April 26, 1895.

The building is commodious, capable of accommodating 400 students, and is modern in design and complete in equipment. It has large and thoroughly furnished laboratories for chemistry, histology, pathology, and bacteriology. Unusual facilities are furnished for the pursuit of these branches.

Its clinical opportunities are ample. The city institutions, City Hospital, Poor-House, Insane Asylum and Female Hospitals are open to the students.

The out-clinics of the College are fine and well provided with excellent quarters. The Mullanphy Hospital, the finest hospital in St. Louis, affords exclusive advantages to the students of this institution.

This College has for fifteen years enforced a three years course and has this extended course now thoroughly established and in good working order.

Fees for each year \$100.

Henry H. Mudd, M.D., Dean; E. E. Senseney, M.D., Secretary.

WESTERN RESERVE UNIVERSITY, MEDICAL DEPARTMENT.

CLEVELAND, OHIO.

Presents a three years' graded course, each year a term of eight months. Instruction by recitations, lectures, clinics, quizzes and practical training. Ample laboratory, dispensary and hospital facilities and equipments are provided for all students. Tickets for year, \$100; tickets for whole course, \$250. Special courses as desired, and advanced students given standing according to assured acquirements. Year begins middle of September.

Charles F. Thwing, President; Isaac N. Himes, Dean; G. C. Ashmun, Secretary.

YALE UNIVERSITY, DEPARTMENT OF MEDICINE.

YALE MEDICAL SCHOOL.

In the fall of 1810 a charter was granted to the President and Fellows of Yale College and the President and Fellows of the Connecticut Medical Society authorizing them to unite according to the terms of certain "Articles of Union," before agreed upon, for the establishment of a medical seminary, to be styled the Medical Institution of Yale College. Two years later the school was organized, and in the fall of 1813 instruction was begun. The Faculty consisted of four professors, appointed by the College Corporation from nominations by the Medical Society. Degrees were conferred by the College on the recom-

mendation of the Board of Examiners, consisting of the members of the Faculty and an equal number appointed by the Medical Society. The instruction consisted of didactic and clinical lectures and dissections during the short winter course. Later, instruction was given during the spring months also, and from time to time the number of instructors was increased.

That this dual nature of the school and the method of instruction were wisely planned is shown by the position which the school took at once in the medical instruction of the time. But changes gradually took place in the relations between practitioners and students of medicine, and even greater changes in medicine itself, which demanded a different kind of instruction. This school responded early to this demand, and in 1879 an entrance examination was imposed, and a graded course extending over three years of eight months each, and including considerable laboratory instruction, was adopted. In 1884 by an agreement with the Medical Society, the College authorities assumed the entire control of the school.

In re-organizing the school as an integral part of the University, the inherent defects in the older and still common method of instructing chiefly by didactic lectures, were recognized, and the methods now employed are similar to those in vogue in the other departments. Didactic lectures are still employed as best in some branches, but recitations from assigned readings, with explanatory lectures, laboratory work and personal instruction in the clinics, constitute the main portion of the curriculum. The school has well equipped laboratories for the study of anatomy, histology, chemistry, pharmacy, physiology, pathology, and bacteriology. A new building especially adapted to the requirements of laboratory work, has been added to the equipment recently, and is used for the first time this year.

While the attention of the student is particularly directed to those branches which can be studied to advantage only in a well equipped medical school, the value of clinical instruction is fully appreciated, and amply provided for. The course of instruction is graded to cover three years of thirty-four weeks each. The curriculum consists chiefly of recitations of assigned readings in text-books, systematic laboratory work, and personal instruction in clinics.

Terms of admission: Candidates for admission must be at least 18 years old, and must present satisfactory testimonials of moral character from former instructors or physicians in good standing. Each candidate must present proof that he has passed the matriculation examination of some scientific, literary, or professional college in good standing; or present testimonials from the proper officer that he has pursued the course at some high school, academy or preparatory school, approved by the Faculty; or he must pass an examination in the following subjects:

1. English: An essay of about two hundred and fifty words on some familiar subject to be announced at the time of the examination.

2. Mathematics: The metric system of weights and measures. Algebra, to quadratics. Plane geometry, to the extent included in Wentworth's Plane Geometry, Books I-III.

Physics: Gage's Element of Physics, or some equivalent work.

REQUIREMENTS FOR A DEGREE.

To be eligible for the degree of Doctor of Medicine,

every candidate must fulfill the following conditions:

1. He must be at least 21 years of age, and must sustain a good reputation for moral character.

2. He must have spent three years as a student in this school, or if but one or two years in this school, he must have pursued such studies in some other recognized institution, as are considered by the Faculty to be the equivalent of the remainder of the full term of study. The last year must have been in this school.

3. He must have passed to the satisfaction of the Faculty the prescribed examinations of the course; and he must have presented a satisfactory thesis on some subject relating to medicine. The thesis should be presented to the Dean on the third Wednesday before Commencement.

Fees and expenses first year: Matriculation (paid but once), \$5; tuition, \$140; practical anatomy (including instruction and material), \$10. Second year: Tuition, \$140; practical anatomy (including instruction and material), \$5; practical pharmacy, \$5. Third year: Tuition, \$80; Graduation, \$30.

Herbert E. Smith, M.D., Dean, New Haven, Conn.

Faculty: Rev. Timothy Dwight, President; Moses C. White, Charles A. Lindsley, William H. Carmalt, James Campbell, Thomas H. Russell, Louis S. DeForrest, Oliver T. Osborne, Harry B. Ferris, Graham Lusk.

Other instructors: William H. Brewer, Henry P. Stearns, Samuel B. St. John, Henry Fleischner, Frank H. Wheeler, Charles J. Foote, Henry L. Swain, Joseph H. Townsend, Arthur N. Alling, Louis B. Bishop.

SOCIETY PROCEEDINGS

American Association of Obstetricians and Gynecologists.

Abstract of the Proceedings of the Seventh Annual Meeting, held in Toronto, Sept. 19, 20, and 21, 1894.

FIRST DAY—MORNING SESSION.

The Association met in the Council Chamber of the College of Physicians and Surgeons at 10:15 A.M., and was called to order by the second Vice-President, DR. GEO. F. HULBERT, of St. Louis, Mo.

An Address of Welcome on behalf of the local medical profession was delivered by DR. JAMES THORBURN, which was responded to by DR. HULBERT.

The reading of papers was proceeded with, and the first paper was read by DR. J. HENRY CARSTENS, of Detroit, entitled THE INCISION IN ABDOMINAL SURGERY—METHODS AND RESULTS.

The author summarized as follows:

1. With a small, narrow-bladed, sharp knife make a clean incision through the skin of the necessary length, and with another sweep or two cut through the linea alba, muscle, etc. Lift the peritoneum with your fingers, open it, and enlarge the incision. The use of the forceps to lift the tissues, or the grooved director is unnecessary.

2. In closing the abdominal incision use animal ligature, kangaroo tendon and catgut. First carefully bring together the peritoneum in a running stitch, then the transversalis fascia, and the rectus if the incision is through this muscle. Then carefully bring together, edge to edge, the tendinous insertion of the oblique muscles. The fat and loose cellular tissue above, can be brought together in one or two tiers, according to thickness. Bring the skin together carefully with Marcy's cobbler stitch, thus burying all your sutures.

3. Then seal with collodion, and if everything connected with the operation has been carefully aseptic, absolute primary union will take place, and the different layers of the abdominal wall will have been brought together as near as

possible as they were in the first place, and no hernia will result.

4. In cases of extensive umbilical, ventral, or other hernias, it is best to bring the peritoneum together with an over-and-over stitch of kangaroo tendon or catgut; to make a flap splitting operation of the ring, which is brought together with silkworm gut, or silver wires which are buried, and then the fat and skin are united with the buried animal suture.

PLASTIC SURGERY IN GYNECOLOGY.

DR. JOSEPH PRICE, of Philadelphia, read a paper on this subject in which he said that the practice of surgery in all its branches required a mechanical trend and an ability to devise means to accomplish a given end. In order to mend a perineum intelligently, the mechanism of labor must be understood and the lines of fracture appreciated. In cases of serious pelvic invasion with accompanying lacerated cervix it is often better or imperative, first, to do the pelvic operation, and to follow this at another time with the cervical repair. The author condemns the plan advised by some to perform internal and external operations at one sitting. Perineal tears always occur at certain parts of the perineal structure. These tears are either lateral, under the ramus of the pubes, or central, extending from vagina toward the rectum. The tears toward the rectum tend to run around it rather than through it, owing to the differentiation of structure in these two tubes. The tears of the vagina are always from within outward, from above downward, and therefore the external or skin operations for perineal lacerations are essentially unscientific procedures. All operations for the restoring of the integrity of these parts should be done in the lines of their destruction, and therefore from within outward and from above downward. When the skin of the perineum is involved, mending of this is merely a cosmetic procedure. The cosmetic element too often predominates in many of the so-called perineal devices. The silkworm gut with shot is by far the most preferable material to be used for sutures. As little tissue as possible is to be included within the ligature, and strangulation is to be avoided.

DR. W. B. DEWEES, of Salina, Kansas, read a paper entitled "The Care of Pregnant Women." (See JOURNAL September 29.)

APPENDICITIS WITH REPORT OF CASES.

DR. GEO. S. PECK, of Youngstown, Ohio, read this paper.

Case 1.—Operation during interval of attacks; obstruction July 6; did second operation; recovery. Operation July 27. Appendix buried in mass of strong adhesions between ileum and cecum containing large fecal concretion. Appendix removed in segments. Ileum returned to abdominal cavity. During first six days highest temperature 100. August 4 re-opened incision, found about three feet from ileo-cecal valve complete obstruction by band of dense adhesions. Obstruction liberated, ileum brought out in the incision and abdominal cavity packed with gauze. From the thirteenth day to the present time patient has had from one to three daily passages per rectum; discharged from the hospital on the fifty-fifth day after first operation.

Case 2.—Operation during fourth day; first attack. Large appendix removed, containing two drachms of pus and fecal concretion. Adhesions broken up, incision packed with iodoform gauze. Uninterrupted recovery. Discharged from hospital twenty-eighth day after the operation.

Case 3.—Operation third day of the third attack. Peritoneal cavity opened, adhesions broken up; large appendix removed; uninterrupted recovery.

Case 4.—Operation during tenth day. Death from septic peritonitis in sixty-five hours. Large abscess cavity evacuated; appendix gangrenous and detached; washed out by irrigation. Autopsy revealed general septic peritonitis.

Case 5.—Perforating appendicitis. Operation during third day of attack. Death from septic peritonitis twenty-seven hours, or more, after operation. Case 6, similar to previous one, died from general septic peritonitis.

DR. W. G. McDONALD, of Albany, contributed a paper on APPENDICITIS; OBSERVATIONS BASED ON A CLINICAL STUDY OF EIGHTY-FOUR CASES.

Out of the great amount of literature, controversial and otherwise, three important landmarks are established: 1, that for all practical purposes all inflammatory processes in the right iliac fossa, arise from the appendix; 2, that practically the appendix is always intra-peritoneal, and that any operation undertaken for appendicitis that does not involve the entering of the peritoneum is false in its surgical conception; 3, that idiopathic peritonitis does not occur. That many cases diagnosed as such, are really cases of perforating appendicitis. The author classified the varieties as: 1, acute perforating, fulminating appendicitis with general peritonitis; 2, acute suppurating appendicitis with local plastic peritonitis and abscess; 3, subacute appendicitis, variously termed catarrhal, chronic, relapsing, or obliterating appendicitis, or appendicular colic.

DR. JOSEPH HOFFMAN, of Philadelphia, followed with a paper on "Surgical Appendicitis."

SECOND DAY—MORNING SESSION.

DR. W. B. DORSETT, of St. Louis, read a paper entitled LIGATION OF THE UTERINE ARTERIES FOR THE CURE OF FIBROID TUMORS AND CHECKING HEMORRHAGE.

The object of this paper was to establish the author's priority as well as originality of ligation of the uterine arteries for the cure of fibroids. He made observations during December, 1889, and January and February, 1890, and reported a case of atrophy of the genitalia and described the technique of the operation of ligation of the uterine arteries for the cure of fibromatous growths in a paper read before the St. Louis Medical Society, May 17, 1890, and which was published in the *St. Louis Courier of Medicine*.

DR. HENRY HOWITT, of Guelph, Ont., read a paper entitled REMARKS ON THE SURGICAL TREATMENT OF INTUSSUSCEPTION IN THE INFANT, BASED ON TWO SUCCESSFUL CASES.

In this paper he recommends early abdominal section as being the best method of treatment to reduce the high mortality rate of intussusception in early infancy. Of the two cases cited, one child was at the time of operation under 3, and the other under 6 months of age. In regard to the steps of the operation, among other things he advises a small median incision; evisceration; reduction by pressure on apex of intussusceptum, while the intussusciens is drawn in the opposite direction; and forcing the contents of ileum into colon before returning the intestines to abdomen.

DR. ROBERT T. MORRIS, of New York, demonstrated a method of intussusception in rabbits.

TREATMENT OF DISTENSION OF THE FALLOPIAN TUBES WITHOUT LAPAROTOMY AND REMOVAL.

By DR. FRANK A. GLASGOW, of St. Louis. This paper is intended to bring before the profession a method of curing tubal distension by means of intra-uterine treatment in contra-distinction to laparotomy and removal. By this means the uterine ends of the tubes are made more patulous, and a discharge takes place from the tube through the uterus. He called attention to the fact that the tubes, as far as his observation goes, are always pervious at the outer extremity of the cornu, hence when removing them we must always clamp them before cutting. The obstruction must be within the uterine wall, probably in the endometrium. Gonorrhoeal inflammation is not an adhesive inflammation, and hence it does not follow that the tubes have a true atresia following this inflammation. His opinion is that the closure is due to a swelling of the endometrium and hence a closure at the uterine end takes place. When this inflammation and swelling are overcome by pressure and antiseptic

sis the tubes become patulous again. The intra-abdominal pressure will cause fluid in any pendent portion of the tube to ascend into the uterus. The above procedure can be carried out in three different ways: 1, by gradually packing with gauze, without anesthesia; 2, by rapid dilatation of the cervix and packing with gauze after curetting. This is done under anesthesia; 3, his own method of dilating by means of antiseptic or sterilized elm bark tents. These tents are small strips of elm bark made just long enough to enter the cervix completely and not press on the fundus. They should be kept in an alcoholic solution or bichlorid of mercury, 1 to 4000, and have a strong string attached, by means of which they may be withdrawn. They are partially broken in a number of places for the purpose of making them more pliable. They may be dipped into glycerin or water just before introduction. These tents may be used when it would be impossible to pack with gauze. He had treated twenty or more cases during the past year, and does not recall one in which he did not get some discharge from the tent. All of these cases were either cured or very much benefited.

INFLAMMATORY DISEASE OF THE UTERUS AND APPENDAGES AND OF THE PELVIC PERITONEUM—INTRODUCTORY REMARKS.

By DR. WM. W. POTTER, of Buffalo. Dr. Potter began by recalling the well-known fact that the pathology of pelvic disease has been entirely reconstructed since 1860, and that now we had come to regard inflammation of the pelvic peritoneum as generally symptomatic of disease of the ovaries or Fallopian tubes or both. Mr. Tait within the last ten or twelve years, together with men who have worked abreast of him—some of whom are members of this Association—have driven out the theory of pelvic cellulitis that for so long held sway, and now peri- and parametritis have been dropped from the gynecologic vocabulary. The struggle has been a long one, but abdominal surgeons have demonstrated the truth of this proposition, viz., that pus originating outside of the tubes or ovaries in the non-puerperal state is a very rare condition, and that speaking generally pelvic abscesses are pus tubes. The largest number of women in the consulting rooms of gynecologists are those suffering from pelvic inflammation or its residues, hence the importance of the subject under discussion can not be over-estimated. But he asserted, it is only within the past seven or eight years that anything like uniformity of opinion as to the causes and proper treatment of pelvic inflammation have been adopted. Now, just as we are beginning to agree as to the essentials governing these cases, we are told by a number of agreeable gentlemen who call themselves conservatives that these diseases do not demand operation, but that they can be cured in most instances by tentative measures, such as diet, rest, electricity, and the like. By denouncing the work of abdominal surgeons as unnecessary mutilation, and stigmatizing it as castration or unsexing women, they have created a panic among the medical journals that is reaching far into the ranks of the profession. The effect of this is to turn back the wheels of time and stay the advance of progress with harmful results to suffering women. It must be admitted that these so-called conservative men are clever, which makes their subtle and dangerous doctrine all the more damaging in its results.

DR. C. A. L. REED, of Cincinnati, discussed the clinical history of inflammatory diseases of the uterus and appendages and of the pelvic peritoneum; Dr. L. S. McMurtry, of Louisville, the causation and pathology; Dr. James F. W. Ross, of Toronto, the diagnosis and prognosis; Dr. M. Rosenwasser, of Cleveland, the treatment, along with Drs. A. Vander Veer, J. Henry Carstens and Joseph Price.

DR. JOSEPH HOFFMAN, of Philadelphia, read a paper entitled,

PUS IN THE PELVIS AND ABDOMEN; ITS DIAGNOSIS AND TREATMENT.

He said that pus in the abdominal and pelvic cavities had been treated and considered with far more leniency than pus anywhere else in the human economy. It was the tramp manifestation of all disease. He considered briefly the various organs in which pus makes its appearance, and in the order of frequency he mentioned the kidneys, appendix vermiformis, tubes and ovaries, liver, pancreas and spleen. Each case should be treated according to the demands it makes and according to its complications. There was no rule in doing an ideal operation and have the patient die when it is over. Ideal work was that which gives the best result in the line for which it was done. Surgery of the abdomen was a work of self-denial, of trial, of unexpected complication, and lurking disaster. He best can rise to it who has for his motto "My Patient." Nothing but for the good of her who trusts me. Self-seeking carelessness of lives has its place in the carnage of internecine strife, not in the sorrows of suffering humanity, of dying women.

DR. E. W. CUSHING, of Boston, made some remarks on hysterectomy for cancer of the uterus.

DR. JAMES F. W. ROSS, of Toronto, read a paper entitled, "Personal Experience with Pus Tubes, When to Operate, How to Operate, and the Results of Operation."

DR. H. T. MACHELL, of Toronto, contributed a paper on "Congenital Diaphragmatic Hernia," in which he reported two interesting cases.

A NEW OPERATION FOR THE RADICAL CURE OF INGUINAL AND FEMORAL HERNIA.

This paper was read by DR. C. A. L. REED, of Cincinnati. The operation which the author devised is as follows: The incision in inguinal hernia is made from a point two inches above Poupart's ligament, midway between the anterior superior spinous process of the ileum and the spine of the pubes, obliquely downward and inward as nearly as possible consistent with the access of the inguinal canal to a point at the base of the scrotum. The dissection is then carried into both scrotal and pelvic cavities. The protruding viscera is then reduced and carefully inspected after being brought out above. The sac is then carefully dissected from its scrotal connections and reversed by invagination. It is then opened by two incisions; one toward the pubes, the other toward the ileum, being thus converted into an anterior and a posterior flap. The cord is now dissected loose and placed in the canal, and denuded of its peritoneum at its outer angle. The internal ring is closed by several interrupted sutures, animal or buried silk, these sutures being applied beneath the peritoneal flaps formed by splitting the sac, care being taken that in the closure of the ring undue pressure shall not be brought to bear upon the cord. The posterior peritoneal flap is now excised, the stump being ligated should there be any necessity for doing so. The anterior flap is carried across the now obliterated internal ring and stitched by interrupted sutures to the posterior parietal peritoneum. The external ring is now closed by passing a number of sutures through its pillars externally to the cord, which is now fixed in the internal (pubic) angle of the outlet of the canal. The incision into the abdomen is closed by an interrupted figure of eight suture, the internal loop embracing the peritoneum, the aponeurosis of the transversalis and of both oblique muscles and the external loop embracing the superficial fasciæ, fat and skin. These sutures should not be more than three-quarters of an inch apart. The incision into the scrotum may be closed in the ordinary way. Drainage should not be employed except in the presence of marked oozing or obvious infection.

OVARIOTOMY.

DR. A. VANDER VEER, of Albany, presented a report of

one hundred and forty-five operations done for removal of ovarian tumors and pathologic conditions associated with the ovaries and uterine appendages only. He gave a careful review of the subject of the preparation of patient, embodying all the strong points pertaining to the technique of such work, placing great stress upon the importance of the room in which the operation was to be done being put in a thoroughly aseptic condition, and thorough cleanliness of the patient herself. The operations comprise all the varieties of pathologic conditions met with in connection with the ovaries and tubes. The histories of the cases were somewhat interesting. Thirty-nine gave a history of phthisis, fifteen of cancer, fifty-seven of irregularity of menstruation. The mortality amounts to 11 per cent. While not criticising adversely the methods of other operators in closing the wound by means of different rows of sutures, kangaroo tendon, and other forms of sutures, yet he has no reason to give up his usual method of closing the wound by deep sutures of silkworm gut, placing them three or four to the inch, taking in carefully only a margin of the skin, a portion of the fascia and muscles, and not to exceed one quarter of an inch in width of the peritoneum itself, placing much stress upon the importance of careful, thorough, complete apposition. The causes of death in the seventeen cases were as follows: Obstruction of the bowels due to a coil of small intestines becoming attached to the stump of the pedicle, causing death on the fourth and fifth day, two cases. Septic peritonitis, two cases. Immediate hemorrhage from the pedicle, slipping of the knot, within six hours after the operation, though the wound was re-opened, the vessels secured, abdomen flushed, and hemorrhage controlled, one case. Undoubted hemorrhage from the pedicle, causing general peritonitis although no distension of the bowels was present, death on fourteenth day, one case. Shock within twelve hours after operation, one case. Shock within twenty-four hours after operation, one case. Autopsy in both cases revealed everything in good condition. Pulmonary infarction on sixth day, one case. Aggravated diabetes, one case. Exhaustion on the sixth day, no other apparent cause found, one case. Another case of exhaustion on the third day, symptoms in the last two cases, including an autopsy not revealing any other cause. Multilocular ovarian cyst, tapped twice, operation complicated with four months pregnancy, one case. Puerperal septicemia, one case. Intestinal obstruction one twenty-first day, one case. Advanced age complicated with the recent effect of an attack of la grippe, one case. Delayed operation in a case of extra-uterine pregnancy possibly four months, one case.

(To be concluded.)

American Public Health Association.

Twenty-second Annual Meeting, held at Montreal, Canada, Sept. 25-28, 1894.

The Association met with total membership of 225 present. The sessions were held in the Association Hall of the Y. M. C. A., opposite Dominion Square. The hall was appropriately decorated for the occasion with banners and coats of arms of the three countries which the Association represents, while the stage was decorated with escutcheons of the British Dominion, United States and Mexico.

The members were furnished with an orange and badge of red silk, artistically designed and surmounted with a gilt shield bearing the arms of the Province of Quebec which has the *fleur-de-lis*, and the British lion. The whole was encircled with a wreath of maple leaves surmounted by the imperial crown, while upon each little pennant were written in gilt letters respectively, A. P. H. A., 1894, and Montreal, P. Q. One of the French *confrères* present humorously suggested that the orange or yellow was indicative of quaran-

tine, while the red portion of the badge was indicative of medicine—red corpuscles, etc.

Tuesday or the first day's meeting began at 10:30 A.M., and was called to order by the President, DR. E. P. LA CHAPPELLE, of Montreal, who in a few well chosen words welcomed the visitors. His address was mostly of an informal character, as the formal opening of the Association did not occur until evening. The chairman of the Local Committee of Arrangements, Prof. Robert Craik, was then introduced and in a pleasant manner promulgated a number of important announcements besides expressing the cordial feeling that existed throughout the profession. The report of the Executive Committee through Secretary Watson, stated that about one hundred and fifty applications for membership had been received, and their election to membership was recommended. Dr. A. L. Gihon moved, duly seconded, that the Secretary be authorized to cast the vote of the Association for the list as presented, which was accordingly done.

The next order of business was the following resolution, offered by Dr. A. L. Gihon, of the United States, and seconded by Dr. Frederick Montizambert, of Canada, which was carried unanimously, and the Secretary ordered to telegraph the same to the gentlemen named therein:

Resolved, The American Public Health Association, in session at Montreal, regrets the enforced absence of its first Vice-President, Dr. Carmona Y. Valle, of Mexico, its late Vice-Presidents, Drs. Liceaga and Orvananos, and its other Mexican colleagues,¹ and sends them its fraternal greetings, good wishes, and hopes that we shall see them at the next annual meeting.

The first paper presented was entitled

HYGIENIC NOTES MADE ON A SHORT JOURNEY THROUGH ITALY IN 1894.

By DR. GEORGE H. F. NUTTALL, Associate Professor of Hygiene in Johns Hopkins University, which was in the absence of the author read by Dr. Gihon. The writer dwelt particularly upon the former and modern sanitary conditions of the cities of Naples, Rome, Florence, and Milan, and compared the modern hygienic environments and conditions of those cities even to 300 B. C., as was instanced by Rome's condition at that period, to those of the present day. The sewers, water supply and drainage systems of Naples were described. The aqueducts of ancient and modern Rome, her extensive hygienic laboratories, hospitals, etc., were also described, while Florence was denominated the cleanest city in Italy. Her slaughter houses are large and well kept. Chlorotic girls at the latter city frequently visit those, (at best apparently uninviting) places, and drink the fresh defibrinated blood from the slaughtered animals. There the hair from slaughtered pigs is removed by singeing. This is regarded as the best method but it injures the meat. A description of how the dog pounds are kept and how the unclaimed animals are put to death was minutely dwelt upon.

Cremation in that country has steadily increased. Comparisons were made in this respect with that of the burial of the dead. In 1876 the first crematory was built at Milan, while twenty-one towns in Italy to-day have official crematories. In Milan it costs 40 lire and upwards for each cremation, while in Rome a firstclass cremation costs 180 lire down to 60 lire. The indigent poor in both cities are cremated free.

The President announced that several papers bearing upon similar topics would be read, and suggested that discussion upon Dr. Nuttall's paper be deferred.

DR. FELIX FORMANTO formally moved that discussion upon the above and kindred topics be deferred until the end of the series had been reached. Carried.

¹ There were five members in attendance from Mexico, viz: Drs. Monjarras, Chico, Mendizábel, and the brothers Ramirez de Arellano.

THE CART BEFORE THE HORSE.

This paper was read by DR. BENJAMIN LEE, Secretary of the State Board of Health of Pennsylvania, who said in part: When those who speak the English language desire to characterize a line of thought or of procedure as being in the very highest degree ridiculous and absurd, they make use of the word, preposterous, a word which they have had handed down to them from the days of ancient Rome; for the Roman with his strictly logical mind could conceive of nothing more grotesque and idiotic than placing that which should properly and reasonably be *pro—before*, whether in relative position or in sequence of time, *postero—behind* or *after*. The Saxon, with his love for the concrete and his fondness for epigram, crystallized the thought into the proverbial expression, "the cart before the horse." I know of no more forcible exemplification of this trite but useful adage than the absolute reversal which we so constantly find of the appropriate relative positions in point of time of the introduction of water supplies and the provision of systems of drainage. The first thought of the citizen who proposes to build himself a country residence is beauty of location. The second, architectural adornment. The third, possibly, a copious and pure water supply, and, with this, modern plumbing follows as a necessary accompaniment. Last of all, he or his architect bethinks himself that it will be necessary to find a receptacle for this considerable stream which he is going to divert from its natural course and fill with the accumulated filth of his household. That which should have been most carefully considered first, before a line was drawn or a plan designed is left to be provided last, in some haphazard way, as if it were a trifling detail of no moment whatever. The problem may prove impossible of satisfactory solution to himself. Or if provision can be made in such a way as to relieve himself of annoyance, the chances are ten to one that his neighbor will begin to complain of the flooding of his yard or the pollution of his well; or, what is still worse, and unfortunately of undoubtedly frequent occurrence, sickness may be created in families more remote, the cause of which is unsuspected and therefore unremoved.

The little towns among the hills and mountains of Pennsylvania are peculiarly fortunately situated for the production of an abundance of pure water. The municipal authorities of these towns are besieged by water supply contractors, generally from New England, and therefore having no local interests in the town, with offers to introduce water on very advantageous terms. The temptation is great and is often yielded to before a single rod of sewer pipe is laid in the streets. Then the "practical" and "sanitary" plumbers get in their fine work. Every ambitious citizen must have water all over his house, with all the modern appliances. The kitchen water even though in greatly increased quantity may pass off over the surface and through the street gutters. But what shall be done with that discharged from the water closets? Happy thought! He no longer depends on the old family well for drinking water, so, into that, the soil pipe is incontinently discharged. So far so good. It does not annoy him. But he does not reflect that the same subterranean stream which supplies his well in all probability supplies those of the entire neighborhood. It can be readily understood how that which should have proved to be an inestimable blessing to the community may thus inadvertently be converted into a terrible calamity. Even in gravelly soils, where opportunity for filtration to a considerable degree exists between neighboring wells, this danger is a most serious one. It will easily be seen how much it is aggravated in limestone regions where the water courses along underground for great distances, almost unobstructed. And yet it is just under these circumstances that the temptation to avail one's self of this so called natural drainage is the greatest. The object of this paper may be briefly embodied in the two following propositions:

1. Copious water supplies, with the aid of what is known as modern plumbing, constitute a means of distributing fecal pollution over immense areas through the soil, through subterranean water courses and in surface streams, and can not therefore be regarded with unmodified approbation by the sanitarian.

2. The question of drainage and sewerage whether for individual residences or for communities should always precede that of water supply; and no water-closet should ever be allowed to be constructed until provision has been made for the disposition of its effluent in such a manner that it shall not constitute a nuisance prejudicial to the public health.

OBSERVATIONS UPON SEDIMENTATION IN WATER, WITH ILLUSTRATIONS BY CHARTS.

By DR. WYATT JOHNSON, bacteriologist to the Board of Health of the Province of Quebec. The author stated among other things: "That large natural bodies of water, standing, become purer and less free of bacteria, and water improves as the result of sedimentation. Improvement depends also upon the capacity of water for keeping. The Montreal city supply of water was carefully described. It is received from the St. Lawrence River through an aqueduct six miles long, connected with a reservoir that contains about 35,000,000 gallons, which undergoes a certain amount of change daily. About 23,000,000 gallons is used every twenty-four hours for the city. Relative to the number of bacteria in the reservoir and in the settling basin throughout the year, his observations showed in the Montreal supply the average number of bacteria, throughout the year, was 170 per cubic centimeter in the basin, and but 72 are to be found in each cubic centimeter of water taken from the reservoir. The writer submitted two sets of observations analyzed from water of the Ottawa River as well as that taken from the St. Lawrence.

"The recent theory that sunlight is a great agent to cause the disappearance of bacteria from water was referred to, although his observations and deductions, while not quite clear, do not show that sunlight penetrated into deep layers of water."

The fourth paper of this forenoon session was read by DR. A. N. BELL, of Brooklyn, editor of the *Sanitarian*, on

THE LONG ISLAND WATER BASIN—BROOKLYN'S RESERVOIR.

The author concluded by stating that the waste of streams is enormous; it is nevertheless easy to appreciate, from a knowledge of the conditions of the soil and the examples cited of the wells sunk into it, the inexhaustible adequacy of the Long Island water basin to supply water sufficient to meet the demands of Brooklyn for all time, and the folly of those who would in the face of such knowledge seek it elsewhere.

The fifth paper,

THE WELL WATERS OF OUR FARM HOMESTEADS,

was read by FRANK T. SHUTT, Chief Chemist Federal Experimental Farm, Ottawa. The subjoined is a brief synopsis:

The purest water is undoubtedly to be found in the country, and it is a necessity for farm animals as well as for man to have pure water. That milk from healthy milch cows may be wholesome, and that butter and cheese may be likewise. Clay soils are more or less impervious to the absorption of filth, and in this we should be careful from a hygienic standpoint. Regarding the qualitative tests for diagnosing water, the writer thought no correct inference could be drawn from the sugar, nitrate of silver, or permanganate of potash test. The remainder of the paper consisted in a cursory review of wells and their environments, and directed attention to the fact that much impure water is consumed in the country with serious and often fatal results, and pointed out the principal lines upon which corrections should be made and a reform brought about: "As the agriculturists form a very large proportion of the population, I think it well that we who take an active interest in the health of our people should endeavor to disseminate through the country knowledge regarding the injurious effects of impure water, and the precautions necessary to be taken if pollution of the well is to be avoided. I have no doubt that one of the beneficial results of this convention will be a keener and better and more intelligent understanding of this vital subject, an understanding that will lead to purer water and better health upon our farm homesteads."

The next paper announced, but which was not on the printed program, was entitled

SAND FILTRATION OF WATER WITH SPECIAL REFERENCE TO RECENT RESULTS OBTAINED AT LAWRENCE, MASSACHUSETTS.

By GEORGE W. FULLER, bacteriologist in charge of the Lawrence Experiment Station of the State Board of Health of Massachusetts.

The filter described by the author reduced the bacteria of the Merrimac River from 9,000 to 150 per cubic centimeter, a removal of 98.3 per cent. of the number.

During the five years preceding the use of the filter, the average annual death rate from typhoid fever in Lawrence was 1.27 per thousand inhabitants. The population of Lawrence is 50,000, and this average rate is equivalent to 63

actual deaths per year from the disease. During the past year there have been twenty-six deaths from typhoid fever in that city, a reduction of 60 per cent. Of the twenty-six who died, twelve were operatives in the mills, each of whom was known to have drunk infiltrated and polluted canal water, which is used in the factories at the sinks for washing. Among the operatives of one of the largest corporations where canal water is not used, there has not been a single case of typhoid fever during the past year.

The test of the efficiency of the filter during the past year has been a fair one, because at Lowell the sewage of which enters the Merrimac River nine miles above the intake of the Lawrence filter, there was during the past winter a severe epidemic of typhoid fever.

In conclusion, we may state that it has been found practicable to protect the consumers of infected water supply by means of sand filtration.

The last paper read during the forenoon session of the first day was on

SOME DEDUCTIONS FROM BACTERIOLOGIC WORK ON THE WATER OF LAKE ONTARIO,

By DR. E. B. SHUTTLEWORTH, Professor of Bacteriology Trinity Medical College, Toronto, and bacteriologist to the Toronto Board of Health. The paper dwelt upon the bacteriologic work done in connection with the water supply of Toronto. The city of Toronto is supplied from Lake Ontario through an intake located 2,200 feet from the shore of the Island. The mouth of the intake is eighteen feet from the bottom of the water which is there about seventy-five feet deep. The supply passes through a six-foot steel pipe and thence through a wooden pipe to the south shore of the island where it joins a steel pipe and is carried a distance of 6,000 feet across the land. It there reaches Toronto Bay, which at this point is about 4,500 feet wide, and is conveyed by a three-foot cast-iron pipe and a four-foot steel pipe, both of which terminate in a pumping well on the city side. The entire length of the conduit is nearly two and a half miles. The connections being made by cribs fitted with manholes, through which samples of water can be obtained. These cribs mark the extension of the pipes lakeward, as the intake was at intervals of years carried further out.

The paper contained a review of the normal bacteriologic character of the lake water, the effect of season and the number of bacteria as indicating sewage contamination, and the relation of bacteria to enteric fever. The statistics regarding the latter from December, 1892 to October, 1893, have been alluded to, the abscissæ being monthly periods of time throughout the year. The writer concluded that at the time the accident befell the pipe across the bay on Dec. 25, 1892, by which large quantities of sewage gained access to the supply, increased the number of bacteria per cubic centimeter and increased suddenly the enteric diseases, affording additional and conclusive evidence of the close relation which exists between sewage contamination and this class of maladies.

The succeeding two papers were read by title, as the authors were not present. "Pure Water vs. Purified Water for Public Water Supplies," by MR. DANIEL W. MEAD, of Rockford, Ill. "Water Supply of Towns," by DR. A. P. REID, Secretary of the Provincial Board of Health of Nova Scotia.

The Association convened Tuesday afternoon at 3 o'clock, DR. LA CHAPPELLE, presiding.

The first paper submitted was the

REPORT OF THE COMMITTEE ON THE POLLUTION OF WATER SUPPLIES.

By DR. CHARLES SMART, Major and Surgeon, U. S. Army. This report dealt chiefly with the subject of filtration. In a former formal report the Committee had taken the position that a water contaminated with sewage was unfit for use as a public water supply because neither aeration or sedimentation or filtration could be relied upon to remove the germs of typhoid fever if they chanced to be present in the sewage. Recent experiences had, however, led the Committee to recede from this position. The report of the Royal Commission on the water supply of London, England, published at this time last year was cited as showing the freedom of that city from typhoid fever by reason of its filtered water. The protection of Altona from cholera in 1892 by its filtered water, while Hamburg suffered on account of its unfiltered water, with the freedom of the latter city from the disease in 1893 after the completion of the filter beds for its water supply was also detailed.

The report then referred to filtration in this country, as carried out at Poughkeepsie, Hudson, Ilion and Mount Vernon, N. Y., and at Lawrence, Mass., showing the separation

from the water of 98 per cent. of its bacteria by infiltration through sand filter beds and a reduction of the typhoid fever death rate from 127 annually per 100,000 of the population where unfiltered water was used, to 24, after the filter beds were in successful operation. The Committee would not assert that filtration through sand at the rate of two million gallons daily per acre of superficies would protect from typhoid fever; but it is considered that the evidence so far pointed in this direction and was such as to induce water companies and municipalities to look earnestly into this subject. As to rapid or mechanical filtration processes the Committee allowed them to be capable of producing a clear water, but doubted the bacterial purity of the water. The patent companies have been for a long time before the public and have demonstrated nothing but the clearness of the water. The removal of bacteria from the water could easily be demonstrated, but this had not been done. The Committee then referred to a suggestion which it advocated to endeavor to bring the present chaotic condition of our knowledge of the water bacteria into system by cooperative investigation. The work was conceded to be too much for any one alone, but much good might be accomplished if in cooperative work one group of the bacteria were to be assigned for study and classification to one laboratory, another to another; one laboratory, for instance, dealing with the vibrios, another with the intestinal bacteria; another with the fluorescent forms, and so on. The report closed with a request for the sanction of the Association and such facilities as could be afforded to carry into practice this scheme of cooperative bacteriologic study.

DR. C. O. PROBST, of Ohio, submitted a resolution in accordance with the above suggestion, as follows:

Resolved, That this Association approves the suggestion of a cooperative investigation into the bacteriology of water, and commend the efforts of the Committee in carrying out this work to the officers of State and municipal Boards of Health, to the individual members of this Association, and to all persons interested in the purity of water supplies, for such special assistance as they may be able to render.

This was, under the rules, referred to the Executive Committee, DR. SWARTZ, of Providence, R. I., Chairman.

The report, as given by the Committee, is most thorough and can be read and re-read—each time with interest. The bacilli coli communis is not always present in typhoid fever cases. Mechanical filters have certain advantages over sand filters. Ptomaines may find their way, when filtered, through these. Mechanical filtration is the most expensive, but this may be due to certain conditions, as where sand may or may not be obtainable.

DR. J. H. GARDINER, of London, Ontario, spoke upon some of the subjects under discussion, and closed offering a resolution regarding "The Cart Before the Horse."

Resolved, That in view of the danger to the public health by the contamination of our fresh water lakes, rivers and streams, that this Association memorialize the different Federal governments as well as the State and Provisional governments, to pass laws prohibiting the contamination of these water supplies by sewage from cities, towns and villages, and compel them to provide some means for the treatment and oxidization of this sewage before emptying it into these places.

Also referred to Executive Committee.

(To be continued.)

Doctors' Fees and Lawyers' Fees.—Commenting upon the recent article on this subject in the *North American Review*, the *Pacific Medical Journal* cites some cases in point. "The daily papers," says our California contemporary, "are congratulating ex-President Harrison upon receiving a fee of \$25,000 for four hours work in court; had a medical man of equal or more ability than Mr. Harrison charged a many times millionaire \$5,000 for a month's constant attention, the whole press would be charging him with robbery—a man to be avoided when you are sick, etc. Another case in point. Judge Levy, of this city, (San Francisco) has just allowed a firm of attorneys a fee of \$80,000 for looking after the routine business of an estate for a few months, and yet this very same judge refused to allow a fee of \$30,000 which a medical man had presented for many months' attendance on a millionaire and his family. The actual work was probably a hundred times more than that performed by the attorney who received \$80,000; while the responsibility was probably five hundred times more, yet his Honor, Judge Levy, saw fit to cut the doctor's fee down to \$10,000. And why?" The only answer suggested is that the lawyer is that much more capable of taking care of his own interests.

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SATURDAY, OCTOBER 6, 1894.

MEDICAL EDUCATION IN THE UNITED STATES AND CANADA.

The JOURNAL in this number has undertaken to put before its readers a statement from the Medical Colleges showing the existing state of the medical teaching in this country. A few colleges have not responded to the circular sent from this office for information.

It is easily seen that a great advance has taken place in medical education in this western world since the formation of the AMERICAN MEDICAL ASSOCIATION in 1847, one of the great objects for which this ASSOCIATION was founded.

In the first volume of Transactions, 1848, we find that the Committee on Medical Education reported that:

"This ASSOCIATION considers defective and erroneous every system of medical instruction which does not rest on the basis of practical demonstration and clinical teaching, and that it is therefore the duty of medical schools to resort to every honorable means to obtain access for their students to the wards of a well regulated hospital.

"Resolved, That this ASSOCIATION earnestly and respectfully appeals to the trustees of hospitals to open their wards for the purposes of clinical instruction, satisfied that they will thereby more efficiently aid the cause of humanity, and more perfectly accomplish the benevolent intentions of the founders of the charity.

"Resolved, That the practice of appointing physicians and surgeons to the charge of hospitals on political or other grounds than those of professional or moral worth, is inconsistent with the welfare of its inmates, and, of consequence inhumane and unjust, subversive of the objects of its founders, and incompatible with a conscientious appreciation of the high responsibilities devolved on the appointing power.

"Resolved, That we reiterate and strongly recommend to the ASSOCIATION a practical observance of the resolution appended to the report of the Committees on "Preliminary Education," and on the requisites for graduation submitted to the Medical Convention which assembled in Philadelphia in May, 1847."

The three remaining resolutions were recommendations to the Faculties of the Schools to examine the students after the first course, to conduct final examinations publicly, and to require from each student before graduation a written clinical report of not fewer than five cases of disease, and upon which report the student was to be examined.

It will be seen that this ASSOCIATION from its foundation, has been constantly stimulating the schools in efforts for the higher medical education.

The Department of Bacteriology has been the one department of medicine that has created the demand in the present decade for the establishment of laboratories, and it is evident that all our metropolitan schools are now provided with excellent laboratory facilities. These have added very much to the burdens of the teaching faculties, for in very many instances the laboratories have been built by the teachers themselves, our civilization not having yet reached the point of equipment by patrons outside of the profession. There are a few exceptions, but the rule is that the school itself has built and equipped its own buildings.

Proper endowment of the chairs for our medical schools is yet in the future although a start has been made in that direction.

On the whole, it may be said that at no time in our history have the medical colleges been so well prepared to give a thorough medical education as at present, and we shall close this present century with a creditable standing in the eyes of medical men throughout the world. That there are too many colleges is probably true, that many of them are far behind the age is conceded, but they are in the minority, and such of them as deserve to live are annually growing better.

VENTILATION OF ISOLATION HOSPITALS.

From time to time the JOURNAL has taken occasion to chronicle the evidence going to show that the extent of the aerial diffusion of the smallpox contagium, especially from smallpox or isolation hospitals, has heretofore been under-estimated; and has suggested the query whether, in the light of this accumulating evidence, the courts would sustain the establishment of a smallpox hospital, as usually constructed, within at least 2,000 feet of human habitations. Coupled with this suggestion it was added that, "fortunately, it is not necessary—and it has not for many years, been justifiable—to adhere to the usual construction of the contagious-disease hospital," and it was pointed out that "the method of ventilation by aspiration through a furnace or sheet of flame, effectually destroys all possibility of the escape of disease germs into the surrounding atmosphere," so that "the construction of a hospital for

contagious diseases on any other plan should not be countenanced.¹”

In the current issue of the *British Medical Journal* is given an editorial summary of a recent Local Government Board memorandum on this subject. “Whatever may be its explanation,” says our contemporary; “the fact that residence in the immediate vicinity of a smallpox hospital involves some degree of increased exposure to infection is now generally accepted, and recent experience at Bradford and elsewhere has added to the number of those who believe with MR. POWER that the smallpox virus can be carried through the air for considerable distances.” DR. PRIESTLEY’S observations at Leicester, cited in the JOURNAL editorial above referred to, show that there were fifteen cases of smallpox within a circle of 2,000 feet radius around the hospital to every single case that occurred in the rest of the town; this, therefore, may be taken, for the present at least, as the measure of “considerable distances.”

These experiences have caused certain of the English isolation hospitals to be provided with means whereby the out-going air from the wards is cremated, or at least subjected to high temperature, with the object of destroying any disease germs it may contain, and it is with the results of these experiments that the memorandum deals. Gas jets in the outlet flues were found inefficient; the extraction thus caused was not only not sufficient to prevent occasional out-draughts into the open air through gratings intended for inlets only, “but the extracted air, after passing the gas jets, contained microbes capable of cultivation on agar gelatine.” Other devices, depending upon extraction alone, are described in the memorandum; but it is not worth while to enumerate these, since they are characterized as “still more conspicuously unsuccessful” as a means of sterilizing the out-going hospital air.

The only method of ventilation which, according to the *Journal*, “offers distinct advantages for the purpose,” is that adopted at the Victoria Institute at Glasgow, where the air is drawn down a glazed-brick shaft, is screened, washed and warmed *en route*, and is then forced by fans into the wards. It is to be inferred that there are no other sources of air supply, but that the outer air—other than as thus furnished—is excluded by stationary windows, baffledoors, etc., the outgoing air being exposed for the necessary time to a degree of heat sufficient to destroy all contagium and then discharged at a high level, in an upward direction, “thus minimizing whatever risk there may be of diffusing infection in the neighborhood of the hospital.”

The fact that isolation hospitals, with especial reference to smallpox, are being planned or are

already in process of construction, at a number of places in this country, lends timeliness to this reference to the results of the English experiments.

OF PERENNIAL INTEREST.

“Doctors’ fees,” as a topic for discussion, never lose their interest. Our namesake of the British Medical Association evidently believes this to be true, and, in its issue of the 22d ult., indignantly refutes a statement, which it finds in the columns of *Tit-Bits*, a comic paper of London, which, like its congener, our *New York Life*, seems to regard no vilification or misrepresentation of the profession too gross for its pages.

The statement, which the *Journal* mildly characterizes as “extraordinary,” is as follows: “It seems often to be lost sight of, or forgotten, that doctors’ fees are an important factor in sapping the earnings of the poor;” and to this is added that “doctors’ bills keep thousands poor and on the brink of starvation.”

Over here, such statement and assertion would simply strike us as “funny,” but the *Journal* deems it worth while to reply seriously by re-stating the fact that the profession “from time immemorial has been distinguished for the amount of its gratuitous work and for the immensity of its charitable establishments,” while doctors’ bills are notoriously the last to be paid, “and it would not be departing very widely from the truth to say that where there was much difficulty in settling them, in a large majority of cases they are never settled at all, that is, to the satisfaction of the doctor.”

MR. HART also finds time—as he surveys the world from China to Peru—to pay his attention to cis-Atlantic writers and, in his current issue, according to a cable dispatch of the 29th ult., he flatly contradicts DR. GEORGE F. SHRADY’S assertions in the September *Forum*, as to the fees of famous physicians. MR. HART says: “The fees attributed to SIR WILLIAM GULL and SIR ANDREW CLARK for country attendances are multiplied by ten [by DR. SHRADY]. The total fees earned by SIR MORELL MACKENZIE for attendance on the German Emperor, extending over months, are doubled; and no such fee as £50,000 was ever earned by any surgeon in India.”

Thus is it again demonstrated that the doctor, neither saps the earnings of the poor nor extorts from the coffers of the rich.

A GENERAL PRACTITIONER’S ENTERPRISE.

A general practitioner of our acquaintance lives in a country village of less than a thousand inhabitants. The surrounding country is in a state of high cultivation, and the farmers mostly own their farms. To save his time, and for the convenience of his patients, the doctor has at his own expense

¹ “Hospital Spread of Smallpox.” JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, June 16, 1894.

erected a telephone line eight miles in length. The different farm houses along the line have made connections with it, and the doctor's office in the village is the "central office." He thus has all the advantage of a city telephone connection, and at little expense, except for original construction.

He has the advantage of his city *confrères* in being able to converse directly with his clientelage without a wordy struggle with the "hello girl," and does not have to pay a round sum from his hard-earned dollars to a soulless and grinding monopoly.

The plan has worked so well that the Doctor has been urged to construct a new line, in another direction, in order to give his other patients an equal advantage.

From a financial standpoint, although the doctor has made no charge for telephone service, he considers it very successful in an indirect way.

The Doctor's name is A. L. BROBECK, and his village is Wellington, Illinois. He is a member of the ASSOCIATION, as all progressive physicians should be, and we believe that he has invented a plan whereby the life of the country doctor may be made comfortable, and at the same time render himself more useful to the community in which he lives.

TO OUR EXCHANGES.

Our exchanges will please note the change of address of this JOURNAL to 86 Fifth Avenue, and kindly change the mailing wrappers accordingly.

TO VISITORS.

Medical gentlemen visiting the JOURNAL office will please take notice that the passenger elevator is at 96 Fifth Avenue, *Times* Building.

CORRESPONDENCE.

Emasculation for Ovariotomy.

OCTOBER, 1894.

To the Editor:—In your issue of September 22, I find a criticism on the paper entitled "Emasculation and Ovariotomy as a Penalty for Crime and the Reformation of Criminals," by Dr. Mark Millikin, of Hamilton, Ohio. In my opinion the Doctor is in error in some of his statements and has misapprehension of the purport of the paper in others. In the beginning of his article, the Doctor says he is heterodox on the proposed penalty for crime and that a belief in castration is the orthodox doctrine of the medical profession. I am sorry for the Doctor's heresy but glad to hear from him that the medical profession adheres to the true faith. Throughout his entire article he seems to ignore the rights and welfare of society and all of his expressions are in sympathy with the criminal who has forfeited many of those rights. He says: "It is doubtful whether the American eunuch would be the docile, useful thing that his Asiatic prototype is." Why not? Admit that "the Oriental is fat and lazy and has no conception of his rights," do you not think that the same law which we find operative in the Asiatic as well as in the lower animals, in changing their purposes and propensities, would not apply equally well to

the Caucasian? I fail to see upon what ground you base your assertion that the castrated individual would become a "dispenser of dynamite," and that "there seems to be some causal relation between over government and explosives; at least they are found together." Does it not occur to you, that coincidences are often confounded and mistaken for causes and effects?

The question is asked: "If castration and ovariectomy are begun where will be the stopping place?" I reply, there will be no stopping place, until the criminal classes who incur the penalty cease to beget and train succeeding generations of criminals. I do not propose to "unsex the morally weak and undeveloped," or "the physically deranged, the puny, the weak, the tuberculous," but to punish those who are convicted after a fair trial in a court of justice of crimes, the result of heredity, vicious environment and constitutional depravity. In the paper which the Doctor criticises so sharply, I wished to bring out two prominent points:

I. That castration for certain crimes, especially sexual crimes, as well as some other classes of crime, may be neither cruel nor vindictive; that is, may be more effectual in punishing and deterring from crime than any other mode, not excepting the death penalty. The second proposition (the most important of all) was that it limited production and reproduction, and while the process was slow, it would in time accomplish the desired result, the improvement of the race.

Dr. Daniel, editor of the *Texas Medical Journal*, in an admirable paper upon the "Castration of Sexual Perverts," read before the World's Columbian Auxiliary Congress, Section of Medical Jurisprudence, has treated this question in a scientific, logical and humane manner. In this connection I quote from him the following pertinent sentence: "But with the civilized man the procreative function and the right to exercise it *ad libitum* seems to be something sacred; it is respected even in those who have by their misconduct outraged society and forfeited all other rights, civil, religious and political. Is it not a remarkable civilization that will break a criminal's neck, but will respect his testicles?" If you have not read this paper, I recommend its perusal. In a special report made to ("that much maligned man" as you call him) the Governor of this State, by the Superintendent of the Illinois Asylum for the Feeble-Minded, he states that at the close of 1893, in twenty-two State institutions for the care and training of the idiotic and feeble-minded there was a total of 6,044 persons. Taking the country as a whole he remarks that "it is safe to say there are two feeble-minded persons to every 1,000 of the people." In less than two decades, the inmates of the asylum at Lincoln, Ill., have increased from 81 to 544, up to and a little over the full capacity of the institution. I suppose nearly the same increase is found in the other institutions. The census of 1890 gives a total of 95,571. It is certain that does not include the whole number which is probably 100,000 or over. Now this is only one class of the defective population, and if the same ratio of increase obtains in the others, (to quote again from Dr. Daniel): "The wealth of all the Czars would not be adequate to provide asylum and medical treatment for the progeny of these people in fifty years from now." It would require too much of your space to comment at greater length upon the Doctor's article. Let me say, however, this is a practical question—one that is pressing for a solution, and it seems to me to be wiser and better to consider how to humanely and effectually punish the wrong-doer, repress crime and reform the criminal than to descant upon the rights which they have forfeited by their assaults upon the rights and wellbeing of society. When you speak of the ultimate reformation of the criminal without the destruction of a faculty, may I inquire how you propose to do it? Parol

ing, moral instruction and repeated terms of imprisonment have accomplished little in that respect. If you can devise any other mode of punishment and reformation that would be more effectual than the one you criticise, I would be glad to know it, and no one would hail it with greater pleasure than myself. "The congenital criminal is a moral imbecile; no amount of punishment will ever evolve in his brain any idea of morality. This is an established fact and can not be gainsaid. He is dangerous. What shall we do with him?" I have long since passed the allotted limit of human life and have served continuously in the ranks of the profession for over sixty-five years. I have retired from it to seek the rest and quiet which age usually demands. If you desire to pursue this subject I trust you will meet with a younger and better equipped antagonist than myself, as I have neither the time or the inclination to engage in further controversy.

ROBERT BOAL, M.D.

The Relief of Abdominal Pains.

ELKHART, IND., October 1, 1894.

To the Editor:—In answer to J. Lue Sutherland's case reported in the JOURNAL of September 29, the Doctor asks? Was it a case of subacute peritonitis? It may have become so; for, nearly five weeks intervened from time of first attack of pain until death ensued; giving ample time for inflammation to occur, if the first cause of trouble was not promptly removed. Too often the physician's sympathy is enlisted by the entreaties of the patient for relief of pain, so that the proper means to remove the cause is not employed at once. And this is the suggestion I would make in this class of cases: If pain and distress is in gastric region give an emetic; if in lower abdomen, thoroughly empty the rectum and colon by a warm water enema, and then if there is no relief, give a quick active purgative of sulph-mag., castor oil, senna, or seidlitz powder followed within two hours by an enema, and thus remove the cause, or at least satisfy yourself that the contents of the *primæ viæ* is not the cause of the mischief. One may ask, But while removing cause how can you relieve suffering? I answer, If pain is due to acidity of contents, dilution of same by emetic, enema, or physic will often relieve pain. We can also add a few grains of bi. carb. potass. or soda in solution to the agent used to relieve; also we can use well known external applications; such as warmth to feet, cold to head, sinaprisms, warm or hot baths, hot packs or steeps. Employ these until the evacuants act. *In no case give an opiate or astringent anodyne until we are convinced that the alimentary canal is empty:* Then we may not need an anodyne. Follow the foregoing procedure by carefully selected ingesta and we will realize a happy result in nearly all such cases.

Respectfully, J. A. WORK, M.D.

The Blessings of Co-operation.

ST. LIBORV, ILL., Sept. 28, 1894.

To the Editor:—I congratulate you and the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION upon entering your new quarters on Fifth Avenue, where room, conveniences and surroundings will be much more desirable. I would like to see the day when every worthy physician of America shall become a member of the AMERICAN MEDICAL ASSOCIATION, and the JOURNAL making weekly visits to each office. If there is any good reason why any member of the fraternity should withhold his name, himself and his skill, knowledge and influence from the ASSOCIATION I can not imagine what it is.

The one thing above all others, so much needed in the profession is coöperation. If the faculty throughout the country will come into the ASSOCIATION, the long felt need

of coöperation will be established, and the means of communication through the JOURNAL will be perfect. Thus once united, it will be quite within the reach of the ASSOCIATION to classify the membership for the duties of careful and thorough scientific work.

If once united and properly classified, the work that could be accomplished within the six remaining years of this century would eclipse the achievements of the past ages.

Will the day ever dawn when men can and will rise above selfishness and self-interest—above their pocket-books, and like true men labor for the true and best interests of the medical profession, and the people at large?

Is it possible that ignorance and prejudice can not be expunged from our midst? Away with them, and let the sunlight of confidence reign throughout the profession.

Invoking for you and the ASSOCIATION all possible success, and the blessings of Heaven, I am,

Very truly,

JAS. OSBOURNE DE COURCY, M.D.

The Mechanical Appearance of the Journal of the American Medical Association.

AUSTIN, TEXAS, Sept. 25, 1894.

To the Editor:—Our JOURNAL of September 22 tells the good news—of permanent advantages in publication. Allow me to congratulate you, and all the good doctors of the United States. When Dr. Hart came to the United States, some time ago, and gave us much—esoteric and exoteric—valuable information, on the momentous question, "just how to run a journal," he forgot the mechanical part. His small print, on poor thin paper, is a great trial to doctors eyes, and a punishment they do not merit; they pay him for something far better. The (Wakele's) *Lancet*, is just a little better; but it too is abominably bad print; its "export" edition specially bad, with its very thin paper and small print, Our JOURNAL shows them the superior larger print, and better paper, and has the appreciative thanks of American doctors.

Is it not strange, that these two great metropolitan English journals, with their princely incomes, able management, large circulation and long experience, should continue to issue such miserable print? Even the trade journals, and cheapest periodicals, of the United States, are far better printed than the *British Medical Journal*, and the London *Lancet*. Can't you prod them up?

Yours truly,

Q. C. SMITH, M.D.

PUBLIC HEALTH.

Taxes for Disinfection.—*Progres Medical* reports that a tax has been voted in Paris to defray the expenses of cremating infected clothing, etc., and of disinfecting houses during an epidemic or the occurrence of a contagious disease. The tax is progressive and graded according to the furnishings of the house, the minimum value being 800 francs—below that being exempt—and the maximum 20,000 francs. The tax ranges from 5 to 200 francs and defrays the expenses for the whole course of the epidemic or disease, no matter how many cases require disinfection.

Typhoid Fever.—Aside from the increase of diphtheria, elsewhere noted, and the prevalence of typhoid fever in many sections, the public health conditions remain favorable. Thus far smallpox has not increased to the extent that was apprehended on the approach of cold weather. There has been a brisk outbreak of typhoid in the garrison at Fort Sheridan, the disease supposed to have been contracted by the troops while on duty during recent labor disturbances.

The typhoid incidence, attributed to increased density of pollution of water supplies caused by the prolonged dry weather, seems to be more pronounced in the Eastern States; localities in Maine, Massachusetts, Connecticut, Rhode Island, New York and Pennsylvania are the chief sufferers thus far reported. So far as returns have been received the disease seems to be of a very mild type with an unusually low death rate.

Cholera.—There is little of interest, with respect to the cholera epidemic, in the current news of the week. It has continued to extend in Russia and the Austrian territory heretofore invaded; cases are also reported to have appeared at Pressburg in Hungary; and, notwithstanding that the Turkish Government had forbidden communication with Constantinople from Broussa—on account of the recent outbreak at this latter place—a cablegram of the 2d inst., from Consul-General Short to the State Department, announces that the disease has again appeared in the Turkish capital. This occurrence is likely to lead to trouble with the foreign members of the Turkish Sanitary Board, who opposed the desire of the Porte, expressed in the early part of September, to impose a quarantine of ten days on all arrivals from Broussa. A four-line dispatch from Hamburg, October 2, announces that Dr. Oertel of the Hygienic Institute of that city, is dead from Asiatic cholera, resulting from an experiment made with water taken from the river Vistula; no other details are given.

Compulsory Vaccination of School Children.—The Rochester, N. Y., school board, having opposed the enforcement of the rule of the City Board of Health requiring the vaccination of all public school pupils, Dr. Wallace Sibley, Health Officer of Rochester, appealed to the State Board of Health for instructions. Dr. F. O. Donohue, President of the Board, replies that the rule, which is based on a State law, is strictly enforced in other cities and there is no reason why Rochester should be an exception. "While boards of education have, in some instances, arrogated to themselves the right to make their own regulations in health matters pertaining to the public schools and have come into collision with the health authorities of their localities, such conflicts have always been settled by the boards of education receding from their positions." The Attorney-General of the State says it is not discretionary with the school authorities as to whether they will allow unvaccinated children to attend school, but the law is mandatory upon them to refuse admittance to any person or child not properly vaccinated.

Diphtheria.—Reports to the JOURNAL from local health officers and from State Boards of Health indicate an unusual increase of diphtheria throughout the northern States generally; in some localities the incidence is reported as bordering on the epidemic, and in a number of cases the public schools have been closed in consequence. There is a curious contrast exhibited at the present time in the respective attitudes of the profession towards this disease in the United States and in the Old World. Here much attention is paid to the early detection of the true character of throat ailments by biologic examination of the morbid secretions, and the establishment of agencies for the prompt bacteriologic diagnosis of diphtheria, in connection with the usual municipal sanitary machinery, is spreading even to the smaller cities and towns; the curative treatment of the disease, or its prophylaxis, by the antitoxin serum has, as yet, made little headway. The reverse is true of Europe and especially of Great Britain. Our Continental exchanges devote pages to the record of most successful results in the serum therapeutics of the disease, and Prof. Roux, *Chéf de Service* of the Pasteur Institute and President of the French Com-

mittee for the Study of Diphtheria, presented, at the recent Buda-Pesth Congress, the summary of a year's experience with the Behring antitoxin treatment which shows successes never before equalled on similar lines. But the bacteriologic diagnosis of the disease, as well in England as in France, Germany and Austria, seems to have been thus far confined to test experiments, mainly in hospital practice, and undertaken chiefly for the purpose of verifying the claims of the serum treatment. It is fully time that the two methods were used in conjunction, and that the American practice—by which the physician, in an increasing number of communities can obtain a positive diagnosis of any suspicious throat disease in a few hours, without expense—shall be combined with the therapeutic treatment of Behring, which, in the words of the *Lancet*, "has yielded results never hitherto obtained by any other plan." Notwithstanding urgent appeals, notably those of the *British Medical Journal*, the adoption of the American method is still delayed.

Tenement-House Mortality.—Considerable surprise was expressed at the results of Commissioner Carroll D. Wright's census of the "slum" districts of New York, Chicago, Philadelphia and Baltimore, when made public last July. The agents and experts employed in the investigation were nearly unanimous in the opinion they expressed relative to the health of those living in the "slums." Statistics drawn from the schedule replies show no greater sickness prevailing in the districts canvassed than in other parts of the respective cities; and, while the most wretched conditions of life were found here and there, the canvassers uniformly comment upon the small number of sick persons discovered. Dr. Roger S. Tracy, Deputy Register of Vital Statistics of the New York City Health Department, has just submitted to the City Board of Health his report based upon the census taken last year by the sanitary police, in which the results of the "slum"-district census are, for so much, corroborated by the lower rate of mortality among the tenement-house population as compared with the mortality of the total population the former being only 22.75 per 1000 as against 23.52 per 1000 of the total population of the city.

When the conditions of overcrowding—and consequent uncleanness of person, clothing and surroundings; of unfit food—and especially the food of infants and children; and of irregular and intemperate habits of life, which obtain so largely among the tenement-house and "slum" populations are considered, these facts, if they be facts, may well give sanitarians pause. Of what use sanitary effort and sanitary expenditure if they result in, even comparatively, increased sickness and increased death rates?

The only refutation of this implied charge, thus far offered, is that "many persons die in hospitals whose homes are unknown, but were most likely in a tenement district." This should not be a matter of conjecture; it is positively known in certain cities that from 10 to 12 per cent. of the total mortality occurs in hospitals and other public institutions whose inmates are drawn, in vast majority, from the tenement-house and "slum" districts. Were this hospital mortality distributed to its respective sources it would be found that the discrepancy between the tenement-house district and the general death rate would very largely disappear.

Dr. Tracy, however, incidentally furnishes another clue to the resolution of the apparent paradox; he says that the death rate in New York tenement houses is smaller than in any of the European cities. This should be so and in direct proportion to the proportion of adult immigrants in the tenement-house population. This population is largely composed of immigrants over 10 years of age—a life period of the greatest vitality; there is in it a less proportion of infants and children than in the native population and that of the single dwelling and well-to-do residence districts

What this means may be better appreciated by considering the following mortality rates of ages in a group of the large American cities aggregating over 6,500,000 population: Deaths per 1,000 of infants under 1 year of age, 267.5; of all children under 5 years of age, 88.4; of those between 5 and 10 years, 8.9; between 10 and 20 years, 4.6; between 20 and 30 years, 9.4. The newly-arrived immigrants are mainly between the ages of 10 and 40 years, a period when the death rate is about 8 per 1,000. Naturally there will be found less sickness and a lower death rate among these than among the total population. It is not that the tenement-house district is more conducive to health and long life, but that its present population in this country is of the age which has the greatest "expectation of life." When the same proportion of infants and children obtains among the immigrants as among other classes of the population, not even the efforts of so efficient a Health Department as that of the city of New York will suffice to keep the tenement-house mortality proper lower than that of the total population.

It should be added, further, that Dr. Tracy does not use the term "tenement-house population" in its ordinary acceptance; but classes as tenements every building occupied by three or more families living independently of each other and doing their own cooking. This necessarily includes the large number of young married people living in flats or apartment houses in comfortable circumstances and under good if not the best, modern sanitary conditions. This accounts for the enormous figures of the New York "tenement-house population," as returned by Dr. Tracy—1,333,773 persons of all ages, or nearly 70 per cent. of the total population.

On the whole, it will be seen that sanitarians need not yet abandon their vocation, either on account of Mr. Wright's census of the "slum" districts nor of the census of New York "tenement houses," as defined by Dr. Tracy.

BOOK NOTICES.

The Story of Rodman Heath, or Mugwumps by One of Them. Boston Arena Publishing Company, Copley Square. 1894.

This novel has a curious reason for being published, namely, the desire of the author to apologize for mugwump-ery. The story turns upon an alleged injury to the hero, Rodman Heath, who has received a wound on the head while passing the batteries at New Orleans. The blow causes a depression of the skull and loss of memory of what transpired during the action. Years after he is trephined and regains the memory of an order, the garbling of which by an enemy lost him many friends. He finally marries his trained nurse, and everybody is happy. The plot is weak, and the use of English mediocre, but the book has nevertheless a certain interest and the author will doubtless improve his English with practice and with the passing of time.

A Manual of Human Physiology, prepared with special reference to Students of Medicine. By JOSEPH H. RAYMOND, A.M., M.D., Professor of Physiology and Hygiene in the Long Island College Hospital, and Director of Physiology in the Hoagland Laboratory. With one hundred and two illustrations and four full page colored plates. Cl., pp. 382. Philadelphia: W. B. Saunders. 1894. Price, \$1.25.

This book is an epitome of human physiology as taught in the text-books. It is a pretty successful attempt to compress the essence of the subject into the small space it occupies here, and the student who masters this book will be prepared to understand and better estimate the value of the more exhaustive discussions in the larger works.

Essentials of the Diseases of the Ear, arranged in the form of questions and answers, prepared especially for students of medicine and post-graduate schools. By G. B. GLEASON, S.B., M.D., Clinical Professor of Otolaryngology, Medico-Chirurgical College, Philadelphia, Cl., pp. 147. Philadelphia: W. B. Saunders. 1894. Price, \$1.

This is No. 24 of Saunders' question-compends, and like all of its class, contains a limited amount of information on the subject of which it treats. What is in the book is correctly stated, and according to the best methods of the day.

Publications du Progres Medical, Paris, 14 Rue des Carmes. Recherches cliniques et Thérapeutiques sur l'épilepsie, l'hystérie, l'idiotie et l'hydrocéphalie. Compte rendu du service des enfants, idiots, épileptiques et avriérés de Bicêtre pendant l'année 1893. Par BOURNEVILLE, avec la collaboration de M.M. Boncourt, Cornet, Lenoir, T. Noir et P. Sollier. Tome xiv. Un beau volume de lxxiv-384 pages, avec 88 figures et un plan. Price, 7 fr.

"Clinical and Therapeutical Researches on Epilepsy, Hysteria, Idiocy and Hydrocephalus." The report of the service at the Bicêtre during the year 1893, by BOURNEVILLE, etc.

The Bicêtre Alms-house (*hospice*) has long been considered one of the most interesting of its class in the world. It is situated on an elevation about two miles from the Barrière de Fontainebleau, and is said originally to have been a castle built by the Bishop of Winchester in 1204, (Stewart). The Bicêtre during the Revolution was used as a prison, and some fifty years ago was used as a temporary detention prison for convicts. The old well at Bicêtre was said to be more than two hundred feet deep and had a diameter of twenty feet. Fifty years ago its surgeon was Malgaigne and its physicians Voisin, Rochoux, Leuret, Horteloup, Moreau and Archambault.

The Bicêtre of to-day has much enlarged scope. The department for the insane is divided into four sections: The first and second sections are assigned to adult insane, the third to epileptics, and the fourth to children. The children's section is subdivided in three groups. 1, idiot children, paralytic, whether epileptic or not, but invalid; 2, idiot children whether or not paralytic, but healthy; 3, children otherwise healthy, whether or not imbecile, dwarfed, erratic, perverts, epileptics, hysterics.

The first group, says the report, is subdivided in two categories; the first is composed of idiots, paralyzed, neither speaking nor walking, and generally regarded as incurables, but they are nevertheless susceptible of amelioration in a very notable degree. The second group comprises the idiots altogether incurable, (a much smaller number than is generally believed), and the epileptics becoming demented and paralyzed under the influence of the congestions which complicate their cases. They are the subjects of hygienic care and they finally form a special group.

The details of the methods employed by Bourneville and his collaborators are interesting, and the year's work is completely set forth. The bulk of the book is taken up with an exhaustive article on chronic hydrocephalus. The writers consider that surgical interference is useless and sometimes harmful, and the advice is given to rely upon: compression; 2, revulsives; and 3, internal administration of calomel; exercise; massage of extremities; saline baths; douches and tonics. "Time, patience and ingenuity are absolutely necessary."

The work should be read by every physician interested in the care of this class of cases.

Transactions of the American Gynecological Society, for the year 1894. Volume xix. Philadelphia: W. J. Dornan. 1894.

This volume contains the minutes of the proceedings at the nineteenth annual meeting of the Society, and the papers read during the session. Prof. W. T. Lusk of New York presided and there were twenty-five Fellows present on the opening day. This number increased to forty-eight on the second day (p. 35), and the total attendance shows that there were fifty-seven Fellows of this American Society present. The papers are excellent, and have, we believe, been published elsewhere.

The book contains an obituary notice of the late John M. Keating, M.D., LL.D., by Dr. E. P. Davis, of Philadelphia, and of the late Alexander Dunlap, A.M., M.D., by Dr. J. C. Reeve, of Dayton, Ohio. The portraits of Drs. Keating and Dunlap are especially fine.

The book is handsomely printed, and the paper the best quality. The Society will next year meet in Baltimore.

Prescribing and Treatment in Diseases of Infants and Children. By PHILIP E. MUSKETT, Late Surgeon to the Sydney Hospital, etc., etc. Third edition. Edinburgh and London. Young J. Pentland. 1894.

This is a handy book that may be carried in the pocket. Its formulæ are excellent, and the book is a useful one.

Transactions of the Medical Society of the State of New York, for the year 1894. Published by the Society. Pp. 507.

This volume contains the minutes of the eighty-eighth annual session held at Albany, Feb. 6, 1894, under the Presidency of Dr. Herman Bendell, of Albany, and the papers read at the meeting.

The book is handsomely printed and well edited by the Secretary, Frederick C. Curtis, M.D., of Albany.

Dr. George Henry Fox, of New York, was elected President.

Abbott's Bacteriology. The Principles of Bacteriology: A Practical Manual for Students and Physicians. By A. C. ABBOTT, M.D., First Assistant, Laboratory of Hygiene, University of Pennsylvania, Philadelphia. New (2d) Edition. In one 12mo. volume of 472 pp., with 94 illustrations, of which 17 are colored. Cloth, \$2.75. Philadelphia: Lea Brothers & Co. 1894.

This book is considerably larger than its predecessor, and much new matter has been added. It is in every way worthy of the success which it has met with, and is destined to become a general favorite.

NECROLOGY.

J. B. HARDING, M.D., of Washington, D. C., September 21. He was a Virginian by birth, and removed from Roanoke County, Va., to this city in 1875, where he resided up to the time of his death. He was 75 years of age.—J. M. McKay, M.D., of Ticonic, Iowa, September 13.—Wilbur F. Crutchley, M.D., of Brooklyn, N. Y., September 18, at Lord's Valley, Pa. He was born in 1842, at Harper's Ferry, W. Va., and was graduated at the Columbian University, Washington, in 1868.—James G. Jewell, M.D., of San Francisco, September 17. He was for many years Superintendent and Resident Physician of the Home for Inebriates in that city. He was born in Allegheny County, Pa., in 1830, and his early education was received in that county. He was graduated at Georgetown Medical College, D. C., in 1854. When the war broke out he helped to raise the First Regiment of the District of Columbia, and retired with the rank of Major. He was U. S. Consul to Singapore during the administration of President Grant. On his return, he practiced medicine in New York for a few years and in 1874 he went to California, where he has since resided.—P. S. Moser, of Boone, Iowa, September 26. He was born in Charleston, S. C., in 1829, and was graduated at the Philadelphia Medical College in 1852. In 1854 he moved to Boone, formerly known as Boonsboro, where he resided up to the time of his death. He was a member of the Iowa State Medical Society, the Central Iowa District Medical Association, of which he was the first president, and the AMERICAN MEDICAL ASSOCIATION.—B. Y. Herndon, M.D., of Sanford, Fla., September 26.—Hiram S. Griswold, of Syracuse, N. Y., September 25, aged 74 years.—Hanbury Smith, M.D., of New York, September 13, aged 84 years. He was born in Staffordshire, England, and studied medicine in a London college. He was graduated in 1831, and then went to Stockholm, Sweden, to continue his studies. During the cholera epidemic there in 1834 he was senior physician of the cholera hospital. He came to this country in 1837 and went to Cincinnati, where he was afterward a health inspector and superintendent of the Ohio State Lunatic Asylum. In 1859 he came to New York, and was among the first to introduce mineral water treatment for chronic diseases.—Theodore Kern, M.D., of Kokomo, Ind., September 21, aged 39 years.—Wm. Barney Mix, M. D., of Milwaukee, September 17, aged 52 years.—C. W. Hall, M.D., of Amherst, N. H., September 18. Dr. Hall was born in Sudbury, Vt., March 29, 1825. He matriculated under the eminent Dr. Horton, whose office he entered at the

age of 17 and graduated from the medical college, then located at Castleton, Vt., in 1846. After graduation he located in Ticonderoga, N. Y. He removed to California for his health, but was compelled to give up practice there owing to the high winds. He removed to New York City. A reverse of circumstances led him to again return to his profession and he located in Amherst in October, 1879.—C. W. Coleman, M.D., of Williamsburg, Va., September 15. He was born in Williamsburg, Va., July 18, 1827, and was educated at the College of William and Mary. He studied medicine at the Medical College of the University of Pennsylvania. After graduation, he began the practice of his profession in Richmond, but shortly removed to his native town, with which place he remained intimately identified professionally and socially. During the war he served as a surgeon in the Confederate Army, and was for some time in charge of a hospital in Richmond.—Charles E. Ives, M.D., of Savannah, Ga., September 19, aged 63 years.—Levi W. Clapp, M. D., of Pawtucket, R. I., was instantly killed September 19, by falling down the bank wall in the rear of his residence, a distance of twenty feet. He was a graduate of Brown University and Harvard Medical School, graduating from the latter institution in 1873. He had been in practice twenty-one years, two years of which was spent in Baltimore and Washington. He leaves a widow and three children.—John R. Thornberry, M.D., of Crawfordsville, Ind., September 19, aged 44 years.—H. A. Bolles, M.D., of Cortland, N. Y., September 16, aged sixty-eight.—J. J. Hofstetter, M.D., of Sabula, Iowa, September 20, aged 74 years. He had practiced medicine in that city for fifty years.

SOCIETY NEWS.

Tri-State Medical Association.—The annual meeting of the Tri-State Medical Association of Iowa, Illinois and Missouri was held in Jacksonville October 2 and 3. The meeting was called to order by the President, Dr. Brockman, of Ottumwa, Iowa, who spoke of the aims of the Association. The Address of Welcome was delivered by Dr. T. J. Pitner, of Jacksonville, and was responded to by Dr. F. B. Dorsey. The following doctors presented papers: F. B. Dorsey, of Keokuk, Iowa; James H. Etheridge, of Chicago; C. E. Black, of Jacksonville, Ill.; Ellet Orrin Sisson, of Keokuk, Iowa; F. Herrotin, of Chicago; Bayard Holmes, of Chicago; F. P. Norbury, of Jacksonville, Ill. In the evening Dr. N. S. Davis, Jr., of Chicago, delivered an address in the State Street Presbyterian Church. Addresses by Dr. John Punton, of Kansas City, and Dr. Bayard Holmes, of Chicago, were also delivered. Several musical numbers were rendered, and at the close of the evening meeting all were invited to the Jacksonville Sanitarium, where they were entertained with a lunch and reception by Dr. C. E. Black. Papers read on the second day were by Drs. Robert H. Babcock, of Chicago; J. H. Kellogg, of Battle Creek, Mich.; James A. Close, of St. Louis; James M. Ball, of St. Louis; Emory Lanphear, of St. Louis; W. M. Catto, of Decatur, Ill.; D. C. Brockman, of Ottumwa, Iowa; and Adolph Myer, of Chicago.

Officers for the ensuing year were chosen as follows: President, Dr. James M. Ball, of St. Louis. Senior Vice-President, Dr. Bayard Holmes, of Chicago. Junior Vice-President, Dr. L. A. Malone, of Jacksonville, Ill. Treasurer, Dr. C. S. Chase, of Waterloo, Iowa. Secretary, Dr. F. P. Norbury, of Jacksonville. St. Louis was chosen as the next place of meeting, in April, 1895.

MISCELLANY.

Change of Address.—Dr. I. S. Stone to 1449 Rhode Island Avenue, Washington, D. C.

Dr. J. S. B. Alleyne, for so many years Professor of Materia Medica in St. Louis Medical College has taken the chair of the History of Medicine in the Barnes Medical College.

Treatment of Equine Rheumatism by Sulphur Baths.—The *British Weekly* states that the town council of Baden, near Vienna, has voted some £2,000 to be expended in the installation of sulphur baths for the use of rheumatic horses. The

proposed establishment will, it is believed, be the first of its kind in existence.

Personal.—Medical Director Albert L. Gihon, the senior officer of the Naval Surgeons' Corps, was ordered as a delegate to represent the Navy Department at the meeting of the American Public Health Association at Montreal, September 24.

First Russian Graduate and Diploma.—In August, 1694, Dr. Peter Vassilevitch Postnikoff, the first Russian to enter the ranks of the healing art, received his diploma from the University of Padua. A century later the Medical Faculty of Moscow granted its first diploma to Dr. Thomas Barsvuk Moisseieff.

International Congress of Chemists Adopt the Metric Measure.—At the recent Antwerp International Congress of Chemists the French liter was adopted as a standard of capacity for graduating chemical apparatus and the Centigrade scale instead of the Reaumur or Fahrenheit for temperature. More than four hundred chemists, representing the countries of the whole civilized world, and representatives of a large number of scientific societies were present. The next congress will be held in Paris in 1896.

The Medical Mirror for September is given up largely to California and its wonders. The illustrations are excellent, and the running commentaries inimitable. Our contemporary has evidently made good use of his time while in California; the readers of the *Mirror* are gainers and our California friends have reason to be glad that the distinguished editor of the *Mirror* was one of the members of the Association who crossed the Rockies to attend the last meeting.

A Certain Determination of Sex.—Dr. X., of Paris, has discovered an infallible method of determining the sex of the child *in utero*. After a conscientious auscultation and palpation of Madame Z., he announces that "It will be a boy," and at the same time notes on his tablets: "Madame Z.—a girl." When the accouchement takes place if the new-comer is a boy, well and good; if it is a girl he exhibits his tablets and assures the mother that she must have misunderstood him. It is not noted what his method is in multiple births.

First Help for the Wounded.—The Minister of War for France has issued regulations for the packet of antiseptic dressings which every officer and enlisted man is obliged to be provided with. The packet is 12 centimeters long by 10½ wide and 1½ thick and weighs 50 grammes. It consists of a pledget of oakum in a gauze compress and a cotton bandage soaked in bichlorid 3-1000, a piece of protective tissue and two safety pins. These are contained in a waterproof sack, wrapped in an outer cover of gray cotton, on which is a label telling how to open the package and apply the dressings.

An English Physician in Morocco, North Africa.—A London publisher announces that an illustrated book by Dr. Robert Kerr, formerly of Rabat, will soon appear, under the title "In the Palace and the Hut." The book will be devoted to this physician's experience as a missionary to the Jews, from one of the English religious bodies, during a period of seven years. Dr. Kerr was for a time the pioneer English physician for that little known and irregularly governed African community. We have read some of Dr. Kerr's writings and know him to be capable of composing an interesting book.

Hearing and Speech Recovered After a Lightning-Stroke.—At Winfield, N. Y., a child aged 13 years, recovered her lost faculties of hearing and speech during one of our September thunder storms. She had been deaf and dumb since her fifth year. The house wherein she was visiting was struck, and she herself was, with others in the house, rendered un-

conscious by the stroke. On her recovery from the stunning effects of the lightning, she raised her hand to her ear, and said: "Mamma, I heard that. Let us go home;" the first words she had uttered in eight years. Her deaf and dumb condition is said to have been the sequel of a severe intermittent fever in her fifth year.

Microbe of Yellow Fever.—It is announced that the indefatigable Dr. Domingos Freire, of Rio Janeiro, has again discovered the yellow fever microbe, has produced a yellow fever antitoxin and is inoculating "with wonderful results." It is to be hoped that the announcement may prove correct; but those of us who recall that Dr. Freire was said to have done the same thing some fifteen years ago; that Sternberg, Woodward, Schmidt and other competent bacteriologists failed to corroborate the discovery, after prolonged and painstaking search; and that, with a much more promising field, the success of Haffkine's anti-cholera inoculation is still *sub judice*—will take the present claims with a little salt.

A Pasteur Institute for Vienna.—An imperial decree announces the opening of a Pasteur Institute in the Rudolphspital in Vienna, under the supervision of Prof. Paltanuf. It is to be available for foreigners as well as Austrian subjects. The treatment by Pasteur's method will last from twelve to fourteen days; inoculations are to be made from 10 to 12 o'clock every morning, and are gratuitous for the present. Admissions, in all cases on physicians' certificates, will be granted only when the wounds are severe enough to require hospital treatment; all other cases must find lodgings outside the Institute.

A Successful Warfare.—In the *JOURNAL* of the 15th ult., it was announced that the Illinois State Board of Health had begun a vigorous warfare on the itinerant nostrum vendors "who annually fleece the people of the State out of a sum estimated at more than \$300,000, by means of brass bands, concert troupes, alleged Indians and other mountebank attractions." At the recent meeting of the Board, October 1-2 inst., the Secretary, Dr. J. W. Scott, reported that there was not a single one of these concerns now doing business in the State; prosecutions had been begun simultaneously in every one of the 102 counties where these itinerants were found, some half dozen convictions were secured, and the rest folded their tents and stole away—not silently, but with loud and picturesque profanity directed against the Illinois law and its enforcement.

Improved Homes in Dublin.—Sir Charles Cameron, M.D., in a recent address, has shown that the sanitary authorities of Dublin have caused 2,700 houses of the poor to be detenanted and closed as unfit for human habitation. One thousand of these houses have not been re-opened, and this has been without compensation to owners. Not a few of these houses had been "fever nests" for typhus, resisting all ordinary measures of disinfection and isolation. The houses that have been allowed to be re-occupied have been put into a good sanitary condition at the charges of their landlords. These radical measures have had the result of "stamping out" typhus fever in localities where it has been entrenched for years. They have also had an appreciable effect in lowering the death rate of the city, although the comparative figures are not given for the improved localities. The vacation of unsanitary buildings in this country is not as a rule readily accomplished, although the occasion for it is constantly coming up in all our cities. The Dublin lesson is a good one for our own sanitarians, teaching the necessity for ampler powers for the management of the chronic greed and resistance to orders on the part of landlords, who claim that they "only get rent enough to pay taxes with." There are far too many landlords who squeeze their dilapidated tenant property for all that it is worth, and evade the expenditure of any part of their receipts for the betterment of the lot of their tenants. The laws of most of our States are wholly inadequate to deal with this scurvy class.

Tippling.—The Catholic School Commissioner for the Province of Quebec, Prof. Brennan, of the Laval University and a prominent practitioner of Montreal, in an address before the American Public Health Association last week, said that from his medical experience he was in a position to say that in women the habit of tippling was far more prevalent and disastrous than is imagined; within the last four months he had seen four women, each the mother of several children and moving in good society, die from the effects of chronic alcoholism. Dr. Brennan's experience can be duplicated by, probably, four out of every five general practitioners in the United States,—not among women alone, but far more frequently among men. And no wonder when, as shown by the figures of the Internal Revenue Commissioner for the year 1893, the sixty-five odd millions, comprising the population of this country, consumed 88,777,187 gallons of alcoholic spirits and 1,054,785, 376 gallons of beer during the year. These gallons would make more than 6,000,000,000 drinks of whisky and nearly 13,000,000,000 glasses of beer, for which there was paid to the barkeeper \$1,226,258,000. The naked figures are sufficiently eloquent of the resultant amounts of misery, disease and premature death.

London Ambulance System for Street Accidents.—There are sixty street ambulance stations for the metropolitan area of London. At each of these, wheeled stretchers with first-aid appliances are maintained. These stations are administered by the Street Ambulance Branch of the Hospitals' Association, inaugurated in the latter part of the year 1889. The number of stations were fifty in 1891; ten others were added in 1892. Their object primarily is to provide prompt service for street accident cases, of which there are about six thousand per annum. Of these cases, about four thousand, five hundred are suitable for removal to hospital, but they do not all require removal by ambulance. Prior to 1880, nearly all removals of these cases were made by cabs. Since that time about one-third of the street cases have been transported by this ambulance system; the cabs being still used for the remainder. The total removals by ambulances in 1892 were 1,267. The report for the year 1893 has not yet been published. As the stations become better known the use of cabs has been superseded, so that the time is not far distant, it is believed, when the conveyance of the wounded will be as adequately provided for as is their treatment at the hospitals and infirmaries of that great city. The funds for the establishment of this system, and for its present annual maintenance, have been given by Mr. H. L. Bischoffsheim, the Treasurer of the Branch. The first cost of the stations was about \$5,000, while the running expenses are about \$1,000 per annum. The Chairman of the Association is Sir Sidney H. Waterlow; office at 428 Strand, London, W. C. Officers of American Ambulance Associations are requested to send copies of their annual reports to their London colleagues.

A Sick Man and an Eccentric Doctor.—Owing to the momentous results which may follow his death, the illness of Alexander, Emperor of Russia, is attracting an amount of attention similar to that given to the cases of Gen. Grant, President Garfield and the German Crown Prince Frederick. Like this latter, also, are the conflicting accounts of the true nature of the malady. He has been, successively, the victim of neurasthenia supervening upon "Russian influenza," of tuberculosis—of the brain, according to one set of physicians; of the kidneys, according to another; of Bright's disease; of cerebral apoplexy; of paresis; of organic disease of the heart; of hereditary insanity, etc. Only one thing is certain—he is a very sick man, and all Europe hangs upon the utterances of the court physician, Prof. Sacharjin, who with Prof. Leyden, of Berlin, is in immediate attendance upon the imperial invalid, and concerning whom many more or less apocryphal stories are being told. Sacharjin, or Zakharin, is undoubtedly an eccentric. A native of Moscow, he adheres to the uncouth costume of the Russian peasant and insists on visiting the Emperor in a dressing-gown and big boots. On arriving at the palace he refused to occupy the

apartments provided for him on the third story, because at home he lived on the ground floor, and required apartments to be provided for him there; he declined to lunch with the Czarina at the imperial table on the ground that he was not in the habit of eating with women; and one day, when the Czarina asked him to visit his patient whose temperature alarmed her, he replied that he was tired but would send his assistant; on the return of the latter with a reassuring report, Sacharjin turned to the anxious wife and said: "You see I was right not to fuss; there is no danger." The sort of doctor thus portrayed would have suited the first Napoleon, who wanted the Empress to be treated in her accouchement as the wife of the veriest bourgeois.

Medical Opinion as to the Use of Opium Among the Chinese.—Dr. Duncan Main, Physician-in-chief of the large Mission Hospital and Opium Refuge at Hang-Chow, gives in his annual report, lately published, his adverse opinion of the evils of Chinese opium smoking in very clear terms. The paragraph here quoted refers chiefly to his observations at the Refuge for opium users who apply for treatment: "During the year ninety-seven who came to us seeking to be relieved of the debasing habit received our kindly help. The number included all grades of society and all classes of men. My opinion about the evil effects of opium smoking is unaltered. No one in his sober senses can say anything in its favor, unless he talks nonsense. We never come across an opium smoker or a non-opium smoker who has anything to say in favor of the habit, and if it were such an innocent affair as some advocates of it try to make us believe, surely we who live among the people from year to year would find it out. I think far too little is made of this most important fact—Surely the voice of the people should be listened to, and the testimony of those who have paid flying visits to opium smoking countries and gathered their information through interpreters should be discounted. Many, I fear, are influenced by pecuniary or personal motives, and some, no doubt, take up the cudgels for it, because missionaries are its chief opponents. To me it seems an utter impossibility for any one who lives among the Chinese, speaks their language, knows their lives, and mixes with them from day to day, to do anything else but condemn the base, cruel and demoralizing habit. It affects the Chinaman's person, principle, and purse, damages his constitution, degrades his conduct and drains his cash, and in many cases leads to ruin and destruction of body and soul.

Spinal Drainage for Tubercular Meningitis.—Stephen Paget reported in the *Lancet*, October, 1893, that he performed a resection of the arches of the fourth and fifth cervical vertebræ, the dura mater bulged, without pulsation, and following a puncture, a jet flowed of about four or five ounces of fluid; incision was then made in the dura mater, and horsehair drainage established. Four days afterward the child died, and the necropsy showed that the veins of the dura mater were distended; in the middle cerebral fossa, there was about a teaspoonful of sero-purulent fluid, and in the posterior cerebral fossa about two teaspoonfuls of clear serum; the convolutions were flattened on the superior portion of both hemispheres, and the brain appeared to the touch more than normally resistant, the third and fourth ventricles were dilated, the lateral ventricles were full of fluid but very little dilated. At the base of the brain the pia mater was infiltrated with sero-purulent lymph and there were found miliary tubercles.

The operation gave relief for a single day, and the drainage had diminished neither the collection of liquid in the cerebral fossæ, nor the inflammatory swelling of the brain. The author is of opinion that perhaps a large opening of the cranium itself might have afforded relief. The *Lancet* of March 10 contains the history of a case diagnosed as tubercular meningitis by Walter Ord and Waterhouse, which recovered after trephining and drainage of the subarachnoid space. Parkin, *Lancet*, November 18, cured a case of hydrocephalus by occipital trephining, and horsehair drainage.

Medical College Notes.

RUSH MEDICAL COLLEGE, CHICAGO, held its opening exercises September 25, with a class of 500 in attendance—The opening exercises of the new College of Physicians and Surgeons of Kansas City, Kan., were held September 18. There were twenty matriculates.

THE TOLEDO MEDICAL COLLEGE has purchased grounds for a new college building, which will cost between \$15,000 and \$20,000. The ground will be broken next spring and it is the intention of the directors to build one of the most complete institutions in Ohio.

UNIVERSITY OF PENNSYLVANIA.—A four-year course in biology has been arranged at the University of Pennsylvania, leading up to the degree of Bachelor of Science. This course will be open to both sexes. A two-year course in this department has been in vogue since 1884, and women students have largely availed themselves of its opportunities; thirty-two out of the class of eighty-six students in 1893-94 were females. The new course will be a full one, suitable for those desiring to become teachers in this specialty, or for those seeking preparation for original research.

Boston Notes.

NEW ENGLAND WOMEN'S HOSPITAL.—The summer season at the New England Women's Hospital, for women and children, has been characterized by the admission and treatment of a smaller percentage of children than usual, although the total number of patients has been as large as in former seasons. The decrease in the number of juvenile patients is due to the prevalence of whooping cough, which has prevented the admission of many applicants. The hard times have resulted in an increased demand for free treatment, but the Hospital has succeeded in meeting all demands made upon it.

WEST END NURSERY AND INFANTS' HOSPITAL.—One of the oldest institutions for the benefit of the children of the poor is the West End Nursery and Infants' Hospital, which was founded by H. C. Haven. It is now in its twelfth year, and is situated on Blossom Street, which is a district abounding in cases which demand the attention of the Hospital.

THE CHILDREN'S ISLAND SANITARIUM is now in its ninth year and supplements the work of the Infants' Hospital quite successfully. It is situated in Salem Harbor. Children between the ages of 4 and 10 are admitted in classes of twenty-five each week. During the season, from July to September, there were 218 children treated; the usual stay of each child extends over two weeks.

DR. JOHN J. MORAN, of Dorchester, died of typhoid fever September 22. He was born in Boston, Sept. 22, 1865, and was a graduate of the grammar and high schools of this city. He also graduated from the Bridgewater State Normal School and from Harvard College. He was head House Physician at the Carney Hospital in 1891 and for a number of years had been the physician of the Free Home for Consumptives and St. Mary's Infant Asylum. He was unmarried.

DEATHS FOR THE WEEK.—The total number of deaths for the week, ending September 22 is 239, as against 197 the corresponding week last year, showing an increase of 42 deaths, and making the rate for the week 24.8. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, fifty-eight cases and fourteen deaths; scarlatina, thirty-six cases and two deaths; typhoid fever, forty-five cases and eight deaths; measles, seven cases. The deaths from consumption were thirty-six; pneumonia, ten; whooping cough, three; heart disease, thirteen; bronchitis, four, and marasmus, thirteen. There were eight deaths from violent causes, including two railroad accidents. The number of children who died under 1 year

was sixty-eight; the number under 5 years ninety-five. The number of persons who died over 60 years of age was thirty-six, the oldest being 92 years. The deaths in public institutions were fifty. There were twenty-five deaths from cholera infantum.

St. Louis Notes.

THE HEALTH of St. Louis during the summer has been really alarming to physicians. It is not too much to say that the majority of St. Louis physicians have had to accommodate themselves to an income reduced one-half; and it is possible that the collection of the income tax in January will show even a greater reduction than this.

BODIES OF CITY PAUPERS.—The question of the disposal of the bodies of city paupers is causing much discussion. Complaints have been many of the crowded condition of the potter's field and the methods of burial in vogue, but there has as yet been no change. A committee has been appointed to investigate and recommend some method of relief, and to examine the feasibility of cremation of the bodies of paupers. Sentiment steps in to oppose this highly sanitary reform, and religious influence will probably prevent its adoption as a general measure; but the cremation of the bodies of those dying of infectious disease should be made invariable. Probably this step in sanitation will be accomplished.

THE CITY GOVERNMENT is accused of indifference to the possible contamination of the water supply of the city through the Chicago drainage canal and the Illinois River. However, Mayor Walbridge has asked the Assembly to appoint a commission of competent experts to examine whether or not the water supply is likely to become contaminated in this way; and there is a prospect that such a commission will be authorized. In case the water supply is found to be in danger, legal measures will be invoked; and in case of failure in this direction it is suggested that the water be taken directly from the Missouri. As is well known, the water at present furnished is not above reproach, though all loyal St. Louisians resent such an imputation and uncomplainingly drink water the color and consistency of which would do credit to a well stirred mud-puddle.

New Orleans Notes.

On Friday September 28, the Faculty of the Medical Department, Tulane University of Louisiana, submitted the following recommendations to the Board of Administration for their approval:

Dr. Rudolph Matas, Demonstrator of Anatomy, for Professor of Surgery, *vice* Dr. Albert B. Miles, deceased. Dr. Henry Bayon, Lecturer on Physical Diagnosis, for Demonstrator of Anatomy, *vice* Dr. Matas; and the following assistants to the Demonstrator of Anatomy were named: Dr. Albert J. Bloch, Chief of Clinic to Dr. Lewis, Chair of Diseases of Women. Dr. Sidney P. Delaup, Resident Physician New Orleans Sanitarium, and Dr. Marion Souchon, son of the Professor of Anatomy. Dr. John B. Elliott, Jr., son of the Professor of Theory and Practice of Medicine, Lecturer on Physical Diagnosis *vice* Dr. Bayon promoted to the Demonstratorship.

Dr. Rudolph Matas, the recent appointee *pro tem* to the Chair of Surgery, Medical Department Tulane University of Louisiana, although born in Louisiana is a full-blooded Spaniard. His early childhood was spent in Paris and Barcelona, Spain, where he familiarized himself with French and Spanish. Later he removed with his parents to Brownsville, Texas, and came to New Orleans to complete his literary education. In 1876 he matriculated in the Medical Department University of Louisiana (now Tulane), graduating with distinction in March, 1880. While he was still a student he was selected as clerk of the commission sent out by the National Board of Health, to study yellow fever in Cuba. His experience in the great epidemic of 1878, rendered his service of great value to that body.

In 1881 he was appointed Medical Inspector by the National Board of Health and stationed at Vicksburg. He was in Brownsville, Texas, during its terrible epidemic of yellow fever, and afterwards in Mier, Mexico. In 1886 he was appointed Demonstrator of Anatomy, Tulane University, and the same year was elected Professor of Clinical and Operative Surgery at the New Orleans Polyclinic. From 1890 to 1893 he was Professor of Anatomy at the New Orleans Training School, and has been Consulting Surgeon of the Eye, Ear, Nose and Throat Hospital since 1890. Although quite a young man, 34 years of age, his literary works have been extensive. For years he was connected with the *New Orleans Medical and Surgical Journal*, and in 1889, was elected associate editor of *Sajous' Annual*. In 1892 he was elected Vice-President of the Louisiana State Medical Association, and its President in 1894.

Washington Notes.

DR. LEON'S CASE.—Judge Cole sets the verdict aside and grants a new (third) trial in the case of Dr. Leon charged with abortion and murder. After a preliminary examination before the coroner, Dr. Leon was committed to jail and an indictment returned Dec. 8, 1893, for murder. The demurrer was argued before Judge Cole December 26 and overruled, and the trial began January 24, lasting till January 30, when a verdict of guilty as indicted was returned.

A motion for a new trial was entered and argued by Dr. Leon's counsel and on March 24 this was granted by Judge Cole on the ground that he had not sufficiently defined the distinction between murder and manslaughter. The conviction was, with possibly one exception, the first ever obtained at common law. The second trial was begun June 19 last, and July 23 the jury returned a verdict of guilty of manslaughter and not of murder.

A motion for a third trial was entered and granted by Judge Cole on the ground that the defendant can not be convicted on the uncorroborated testimony of an accomplice. The harmless prescription did not tend to corroborate by showing that Dr. Leon and Miss B. had acted in concert for the commission of the crime of abortion and that the possession of the prescription had no probative force in establishing the fact that an operation had been performed. "Undoubtedly the character of the crime charged in this indictment is of frequent occurrence, and the efforts of the officers of the law to detect and punish it are commendable. But neither the prevalence of the crime nor the great difficulty in proving it can justify the court in sustaining a conviction upon evidence which long experience has shown to be dangerous and unreliable.

"The conclusion is that the verdict of manslaughter rendered by the jury against the defendant must be set aside and a new trial granted on that charge." The District Attorney says he proposes to bring Dr. Leon to a third trial, either for murder or manslaughter as the court should decide. He said he believed it a blow to public morals to let such an offender escape, and that nothing could be left undone to secure the punishment the law provides.

Large Military Garrisons Hereafter.—A long stride has just been taken by the War Department in carrying out its policy of breaking up small military posts and consolidating the troops into larger garrisons at strategic points. Railroads and the altered condition of the West, consequent upon the rapid growth of settlements have rendered unnecessary the many small posts that were formerly essential for local defense against hostile Indians. A new phase of military service is opening to the view of the United States Army, one which will be highly appreciated by those officers who have spent twenty years of life in one or two company posts many dreary miles by stage to the nearest railway station. Many of the new points of aggregation are in the neighborhood of large cities, but even where this is not the case the mere fact of aggregation gives facilities for amusement, social intercourse and intellectual improvement that are not to be found in the small military garrisons.

The first move recently taken in the redistribution of the troops was the issuance of an order, August 16 last, breaking up the recruiting depots, and thereby vacating the large barracks buildings at Jefferson Barracks, Missouri, Columbus

Barracks, Ohio, and Davids' Island, New York, for use as garrisoned posts. For many years past all recruits enlisted by recruiting officers stationed in various cities were forwarded to one or other of the depots, where they were drilled and disciplined for several months and then drafted off in detachments to fill vacancies in regiments and posts. The order announced that by Oct. 1, 1894, or as soon thereafter as practicable, the depots mentioned would be garrisoned by troops of the line, Jefferson Barracks being absorbed into the Department of the Missouri, and the others into the Department of the East. These posts and also the post of Fort Sheridan, Illinois, although garrisoned by troops of the line would continue to be recruiting rendezvous on account of their proximity to large cities. Recruits received at each would constitute a recruiting detachment to be instructed by officers and non-commissioned officers of the recruiting detail stationed at the post, or, for lack of them, by officers and non-commissioned officers of the garrison detailed by the commanding officer for the duty, the immediate command of the detail being vested in the senior officer on duty with it. The strength of these detachments will be kept by assignments and transfers to regiments so as not to exceed that of a company of infantry. Recruits enlisted at recruiting stations will be assigned directly to military posts to be drilled with their companies. In fact, the object of the order of August 16 was to send recruits to military posts for their military education instead of aggregating them at recruiting depots, and thereby to permit the use of the buildings at these depots as barracks for a regular garrison.

To carry out the provisions of the order mentioned, a second order, of date Sept. 15, 1894, assigns troops to garrison the abandoned depots. It makes many other assignments which when the required movements are effected will lead to the abandonment of no less than nine of the present military posts, to-wit: Fort Marcy, New Mexico; Fort Bowie, Arizona; Fort McKinney, Wyoming; Fort Sully, South Dakota; Fort Supply, Oklahoma Territory; Fort Mackinac, Michigan; Fort Ontario, New York; Newport Barracks, Kentucky, and Mount Vernon Barracks, Alabama. This is the most extensive transfer in the stations of troops that has occurred since war times. Three-fifths of the regiments are concerned in the movements, as follows:

CAVALRY.

I.—First Regiment.—Troop A, from Fort Myer, Virginia, Department of the East, to the Department of the Colorado. The movement to commence upon the arrival of the incoming garrison for Fort Myer.

Second Regiment.—The Junior Major and three troops (to be designated by the department commander) from the Department of the Colorado to Fort Riley, Kansas, Department of the Missouri; and Troop F from Fort Leavenworth, Kansas, to Fort Riley; the movements to take place without unnecessary delay. The Lieutenant Colonel, and Troops B and I from Fort Bowie, Arizona, to Fort Logan, Colorado, the latter to move upon the abandonment of Fort Bowie.

Third Regiment.—The Senior Major, and Troops C, E, F, and G, now temporarily at Fort Sheridan, Illinois, from the Department of the Missouri to Fort Ethan Allen, Vermont, Department of the East.

Headquarters and two troops—one of them Troop D—from Oklahoma Territory by October 1, and the Junior Major, when relieved in Texas, Jefferson Barracks, Missouri. The remaining troops will move to that post so soon as accommodations thereat are in readiness.

Sixth Regiment.—From the Department of the Platte to the Departments of the Missouri and East: Headquarters, Junior Major, and Troops A, E, G, and H, now temporarily at Fort Sheridan, Illinois, to Fort Myer, Virginia; the Lieutenant Colonel, from Jefferson Barracks, and three remaining troops to Fort Leavenworth, Kansas. Indian Troop L will remain at Fort Niobrara. The Senior and Second Majors will, until further orders, continue on duty in the Department of the Platte.

Seventh Regiment.—Senior Major and Troop F from Fort Myer, Virginia, Department of the East, to Fort Stanton, New Mexico, Department of the Colorado. The Lieutenant Colonel to Fort Riley, Kansas.

Eighth Regiment.—Troop H from Fort Myer, Department of the East, and Troop D from Fort Leavenworth, Department of the Missouri, to the Department of Dakota.

Ninth Regiment.—Troop K from Fort Myer, Department of the East, to the Department of the Platte.

Tenth Regiment.—Troop I from Fort Leavenworth, Department of the Missouri, to the Department of Dakota; to move without unnecessary delay.

The troops of the Seventh, Eighth and Ninth Regiments, as in the foregoing, will move upon the arrival of the incoming garrison for Fort Myer.

ARTILLERY.

II.—First Regiment.—The Second Major and Batteries B, H, and M, from Fort Columbus, New York, to Davids Island, New York.

Third Regiment.—From Fort McPherson, Georgia: Headquarters, Lieutenant Colonel, and two batteries to St. Francis Barracks, Florida; the Junior Major and two batteries to Jackson Barracks, Louisiana. The movements to take place under future orders through the Adjutant General's Office.

INFANTRY.

III.—First Regiment.—One company from San Francisco Harbor, California, to San Diego Barracks, California, to relieve Company C, Tenth Infantry, without unnecessary delay.

Fifth Regiment.—To be concentrated at Fort McPherson, Georgia. The companies A, at Forts Leavenworth, Kansas, and F, San Houston, Texas, to move without unnecessary delay; headquarters and remaining companies to move under future orders through the Adjutant General's Office.

Sixth Regiment.—Companies A, from Fort Wood, New York and E, from Newport Barracks, Kentucky, to Fort Thomas, Kentucky; to move with the least practicable delay.

Seventh Regiment.—The companies H, now at Fort Leavenworth, Kansas, and G, at Camp Pilot Butte, Wyoming, to Fort Logan, Colorado; to move without unnecessary delay.

Eighth Regiment.—Headquarters and three companies from Fort McKinney, Wyoming, to Fort D. A. Russell, Wyoming; the movement to take place without unnecessary delay.

Ninth Regiment.—Company G from Fort Ontario, New York, to Madison Barracks, New York; to move at a date to be fixed by the department commander.

Tenth Regiment.—From the Departments of the Colorado, and California, to the Department of the Missouri; headquarters and four companies to Fort Reno; four companies to Fort Sill—the distribution to include the two companies now at Fort Leavenworth. The Lieutenant Colonel and Major will be assigned to posts by the Commanding General Department of Missouri. The movements to take place without unnecessary delay.

Twelfth Regiment.—Headquarters and Companies E and G from Fort Leavenworth, Department of Missouri, and Companies B, C, and D, from Fort Sully, Department of Dakota, to Fort Niobrara, Department of the Platte. The movements: From Fort Leavenworth to take place upon the arrival of the incoming Twentieth Regiment; from Fort Sully upon the abandonment of that post. Colonel E. F. Townsend will be relieved from the command of the Infantry and Cavalry School, and of the post of Fort Leavenworth, by Colonel H. S. Hawkins of the incoming regiment.

Thirteenth Regiment.—From the Department of the Missouri to the Department of the East; headquarters and three companies to Fort Niagara, New York; Major and two companies to Fort Porter, New York; Lieutenant Colonel and three companies to Fort Columbus, New York Harbor. The movements to take place without unnecessary delay.

Fourteenth Regiment.—Company H from Fort Leavenworth, Department of the Missouri, to Vancouver Barracks, Department of the Columbia.

Seventeenth Regiment.—From Fort D. A. Russell, Department of the Platte, to the Department of the East; Headquarters and Companies A, C, D, E, and G, to Columbus Barracks, Ohio; the Lieutenant Colonel, Major, and remaining three companies to the same station, as soon as accommodations thereat are in readiness.

Nineteenth Regiment.—Company C from Fort Mackinac to Fort Brady, Michigan. The movement to take place upon the abandonment of the former post. One officer and ten enlisted men to be continued thereafter at Fort Mackinac, in charge of the military reservation thereat.

Twentieth Regiment.—From the Department of Dakota, to Fort Leavenworth, Department of the Missouri; the movement to commence October 10. Indian Company I will remain at Fort Assiniboine, Montana.

Twenty-first Regiment.—From Forts Niagara and Porter, New York, to Plattsburg Barracks, New York; the movements to take place upon the arrival of the incoming regiment.

PROGRESSIVE HYPOCHONDRIASIS.

(By a rural hypochondriac.)

I'm feelin' kinder peart t'day,
The sky's so clear n' bright
I'd like to go 'n' fly away,
My feelin's air so light.
But then again I I should go
While yet the grass is wet
Perhaps I might repent with woe:
Fer I ain't well just yet.

I've taken ponnds o' quinine pills
'N' thought they did the biz.
They drove away the quakin' chillis
'N' cured my rheumatiz.
I'm sartin that there's somethin' wrong
'N' soon my eyes 'll shet,
If I don't keep on gettin' strong;
Fer I ain't well just yet.

My head is feelin' mighty queer,
At night I get no rest,
My pneumogastric's out o' gear
'N' onions won't digest.
There's a shrinkin' of my eye
'T is atrophy I'll bet.
I fear that I will surely die;
Fer I ain't well just yet.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Sept. 22, 1894, to Sept. 28, 1894.

First Lieut. BENJAMIN BROOKE, Asst. Surgeon, is relieved from duty at Camp Pilot Butte, Wyo., and ordered to Ft. Canby, Wash., for duty.

First Lieut. THOMAS N. RAYMOND, Asst. Surgeon, is relieved from duty at Ft. Canby, Wash., and ordered to Ft. Riley, Kan., for duty.

Capt. JOHN L. PHILLIPS, Asst. Surgeon, ordered to report in person to commanding officer, Ft. Walla Walla, Wash., for duty at that station, the assignment to duty at Ft. McKinney, Wyo., being revoked.

Capt. CHARLES E. WOODRUFF, Asst. Surgeon, is relieved from duty at Ft. Assiniboine, Mont., and ordered to Ft. Sheridan, Ill., for duty, relieving Capt. FRANCIS J. IVES, Asst. Surgeon. Capt. Ives, on being relieved by Capt. WOODRUFF, is ordered to Plattsburg Bks., N. Y., for duty, relieving Capt. HARAY O. PERLEY, Asst. Surgeon. Capt. PERLEY, on being relieved by Capt. Ives, ordered to Baltimore, Md., for duty as attending surgeon and examiner of recruits, relieving Capt. LOUIS W. CRAMPTON, Asst. Surgeon. Capt. CRAMPTON, on being relieved by Capt. PERLEY, is ordered to Ft. Meade, S. Dakota, for duty.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending September 29, 1894.

P. A. Surgeon N. J. BLACKWOOD, detached from Naval Hospital Norfolk, and to the U. S. R. S. "Independence."

Surgeon J. B. PARKER, detached from U. S. R. S. "Independence," home and wait orders.

P. A. Surgeon L. W. ATLEE, detached from the U. S. S. "Pinta," home and one month's leave.

Surgeon HOWARD WELLS, detached from the U. S. S. "Detroit," and to the U. S. S. "Montgomery."

Surgeon HOWARD E. ARES, detached from the U. S. S. "Detroit," and to the U. S. S. "Detroit."

P. A. Surgeon GEORGE B. WILSON, detached from the Naval Hospital, Norfolk, and to the U. S. S. "Castine."

Asst. Surgeon C. D. W. BROWNELL, detached from the U. S. R. S. "Vermont," and to the Naval Proving Ground, Indian Head, Md.

Asst. Surgeon L. H. STONE, detached from Naval Proving Ground, and to the U. S. R. S. "Vermont."

Marine-Hospital Changes.—Official list of changes of stations and duties of medical officers of the U. S. Marine-Hospital Service, for the four weeks ending Sept. 22, 1894.

Surgeon C. S. D. FESSENDEN, granted leave of absence for thirty days Sept. 12, 1894.

Surgeon R. D. MURRAY, to proceed to Beaufort, S. C., on special duty, Sept. 20, 1894.

Surgeon P. H. BAILLACHE, detailed to represent service at meeting of American Public Health Association, Sept. 21, 1894.

Surgeon JOHN VANSANT, granted leave of absence for thirty days, Aug. 30, 1894.

Surgeon W. H. H. HUTTON, relieved from quarantine inspection duty, and ordered to rejoin Station Detroit, Mich., Sept. 12, 1894. Granted leave of absence for thirty days, Sept. 20, 1894.

Surgeon H. W. SAWTELLE, granted leave of absence for five days, Sept. 14, 1894.

Surgeon J. M. GASSAWAY, granted leave of absence for one day, Sept. 17, 1894.

P. A. Surgeon C. E. BANKS, to report at Bureau for temporary duty Sept. 10, 1894. Detailed to represent service at meeting of American Public Health Association, Sept. 21, 1894. Relieved from temporary duty at Bureau, and directed to rejoin station, (Portland, Maine) Sept. 22, 1894.

P. A. Surgeon CARMICHAEL, granted leave of absence for thirty days without pay, Sept. 6, 1894.

P. A. Surgeon J. H. WHITE, detailed as Chairman of Board to locate Quarantine Station, South Port, N. C., Sept. 13, 1894.

P. A. Surgeon W. D. BRATTON, to proceed to Wilmington, N. C., for duty, Aug. 27, 1894.

P. A. Surgeon C. P. WERTENBAKER, to assume command of Delaware Breakwater Quarantine Station, Aug. 27, 1894.

P. A. Surgeon W. G. STIMPSON, to proceed to Port Townsend, Wash., and assume command of Quarantine Station, Sept. 10, 1894. Granted leave of absence for five days, Sept. 15, 1894.

P. A. Surgeon B. W. BROWN, to report at Washington, D. C., for duty Aug. 31, 1894. Detailed as Acting Chief Clerk Marine-Hospital Bureau, Sept. 21, 1894.

P. A. Surgeon E. R. HOUGHTON, granted leave of absence for seven days, Sept. 19, 1894.

Asst. Surgeon J. M. EAGER, to proceed to Mobile, Ala., for temporary duty, Sept. 11, 1894.

Asst. Surgeon EDGAR STRAYER, to proceed to Pittsburg, Pa., for duty Aug. 31, 1894.

Asst. Surgeon EMIL PROCHAZKA, to proceed to Detroit, Mich., for duty, Sept. 10, 1894.

PROMOTION.

M. J. ROSENAU, Assistant Surgeon commissioned as Passed Assistant Surgeon, Sept. 4, 1894.

LETTERS RECEIVED.

(A) Ayres, Douglas, Fort Plain, N. Y.; Anderson, Olive, Andover, Ill.; Alma Sanitarium Co., Alma, Mich.; Ayer, N. W. & Son, Philadelphia, Pa.; Allyn, Geo. W., Pittsburg, Pa.

(B) Bassett, J. N., Jr., Canton, N. Y.; Bernd, Henry & Co., St. Louis, Mo.; Bates & Morse Adv. Agency, New York, N. Y.; Breedlove, J. W. Ft. Smith, Ark.

(C) Chambers, J. H. & Co., (4) St. Louis, Mo.; Chase, C. S., Waterloo Iowa; Cosmopolitan Advertising Bureau, New York, N. Y.; Cleaves, M. A., New York, N. Y.; Columbia Chemical Co., Washington, D. C.

(D) Davison, J. H., Los Angeles, Cal.; Davis, W. E. B., Birmingham Ala.; Doliber-Goodale Co., Boston, Mass.

(E) Eaton, F. B., Portland, Ore.; Eastman, Joseph, Indianapolis, Ind.

(F) Fuller's C. A. Advertising Agency, Chicago, Ill.

(G) Gallup, Benj. E., Chicago, Ill.

(H) Hummel, A. L., (2) Philadelphia, Pa.; Haldenstein, J., (2) New York, N. Y.; Hay, Lyman T., Hot Springs, Ark.; Haughton, R. E., Midland, Texas; Hall, E. A., McCook, Neb.; Hobby, C. M., Iowa City Iowa; Hooper, F. H., New Bedford, Mass.

(J) Jenkins, J. F., Tecumseh, Mich.

(K) Kanl, Wm. M., Frankfort, S. D.; Kennedy, S., Shelbyville, Ind.

(L) Kerrik, H. C., Brocton, Ill.; Knowlton, Chas. D., Philadelphia, Pa.

(M) Lee, Augustus, New York, N. Y.

(N) Marsh, Geo. S., Whitewater, Wis.; Marshall, J. S., Blossom, Texas

(O) Mann, E. C., New York, N. Y.

(P) New York Medical Times, New York, N. Y.; Nutt, G. D., Williamsport, Pa.

(Q) Powell, H. H., Cleveland, Ohio; Powell, David, Marysville, Cal.

(R) Randall, B. A., Philadelphia, Pa.; Rhu, A., Marion, Ohio; Repeth F. E., Washington, D. C.; Roberts, John B., Philadelphia, Pa.; Roedel H. H., Lebanon, Pa.; Raymond, J. H., Brooklyn, N. Y.; Ross, C. C., Columbus, Ohio.

(S) Scott, X. Z., Cleveland, Ohio; Small, E. H., Pittsburg, Pa.; St. Louis Medical Era, St. Louis, Mo.; Stephens, J. S., Jr., Natchitoches, La.

(T) Steiger, E. & Co., New York, N. Y.; Scheffelin, W. H., New York, N. Y.

(U) Stuver, E., (2) Rawlins, Wyo.; Sweltzer, J., New York, N. Y.; Sternberg Geo. M., Washington, D. C.; Solly, E., Colorado Springs, Colo.

(V) Thompson, J. E., Galveston, Texas; Truax, Chas., Greene & Co. Chicago; Todd, F. Walton, Lamanda Park P. O., Cal.; Thornton, Wm. M. Charlottesville, Va.; Tipton, J. S., Allsonia, Va.; Taylor, Lewis F. Wilkes-Barre, Pa.; Tillier, F., St. Paul, Minn.

(W) Wallace, J. S., St. Louis, Mo.; Woodbridge, J. E., Youngstown, Ohio; Wilder, W. H., Chicago; White, S. K., Chicago; Winbaugh, G. W. Ft. Wayne, Ind.; Westernman, B., New York City; Wilson, R. Wayne C. New York City; Whitehead & Hoag Co., Newark, N. J.; West Baden Springs Co., West Baden, Ind.; Woodruff, E. H., Palo Alto, Cal.; Woodruff, Timothy L., New York City.

The Journal of the American Medical Association

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CHICAGO, OCTOBER 13, 1894.

No. 15.

ORIGINAL ARTICLES.

INTRA-TYMPANIC MASSAGE AND VAPORS IN THE TREATMENT OF CHRONIC AURAL CATARRH.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1894.

BY H. V. WÜRDEMANN, M.D.

DIRECTOR WISCONSIN GENERAL HOSPITAL; OCULIST AND AURIST TO THE CHILDREN'S HOSPITAL; AND TO THE MILWAUKEE COUNTY HOSPITAL FOR CHRONIC INSANE; INSTRUCTOR IN EYE, EAR AND THROAT, ELMS HOSPITAL; AND TO THE MILWAUKEE COUNTY TRAINING SCHOOLS, ETC.
MILWAUKEE, WIS.

In the light of our present knowledge it seems that the conservative treatment for chronic catarrh in the middle ear is most generally applicable and that radical surgical procedures should be confined to the cases in which simple measures have been of no avail, where on account of decided sclerosis with distressing tinnitus, vertigo or stenosis of the Eustachian tube it may be necessary to immediately relieve tension or obtain drainage. It must ever be borne in mind that treatment applied directly to the tympanum and tube is but a minor part, and that the chief efforts of the surgeon should be directed to removal of the cause, which usually lies in intra-nasal or pharyngeal disease in these cases. Besides local attention to these cavities, the patient generally needs instruction as to his methods of living, clothing, ventilation of living rooms, etc.; frequently internal medication is of much service.

The routine treatment of the middle ear and Eustachian tube most in vogue is by inflation with the Politzer bag. Some surgeons use medicated vapors and nebulized fluids of various kinds, forced into the middle ear through the catheter by a hand bulb. A few have the compressed air apparatus. Others use passive motion or massage, by the Siegel otoscope, or directly by the cotton tipped probe. The electro-vibrator, the phonograph and the ordinary hearing tube have their advocates. All these act in much the same way by loosening or breaking down adhesions and increasing the nutrition of the membranes.

Among other measures I have found for the majority of cases a combination of massage and the vapor treatment to be best, and for a number of years have been using vibratory massage through the catheter and Eustachian tube in the following simple manner, obtaining thereby the effects claimed by advocates of other forms of treatment: A compressed air apparatus is necessary. (I get great satisfaction from a plant consisting of an air receiver and automatic pump run by city water pressure, which I have used three years, during which period it has required practically no attention.) Either a regulating water valve allowing the pressure to remain at a certain point or a regulating air valve (such as is manufactured

by the Owens Brass & Copper Works of Chicago) must be used, as accurate dosage of the air-pressure is necessary. The compressed air passes through the medicating apparatus (nebulizer or vaporizer) and is conducted to the mouth of the catheter by an ordinary five millimeter diameter pure gum tubing. The air valve is turned on at the required pressure and the tubing at the catheter compressed about every second by the thumb and forefinger, producing an interrupted current, which gently and thoroughly massages or vibrates the lining of the Eustachian tube, the drum head and the ossicles, loosening the joints, breaking up adhesions and increasing the nutrition of the lining membrane, at the same time that the medicated vapor is brought thoroughly in contact with all parts of the tube and tympanum. At first this process is repeated daily for five to ten minutes at each sitting for either ear, and afterwards every other day until no further improvement in the hearing or subjective symptoms results; occasional after sittings being indicated and in many instances the patient being taught the use of the Politzer bag. The course of treatment involves a dozen to a score or more of sittings.

The air pressure at the meter is usually fifteen to twenty-five pounds; it being my experience that such is as much as it is safe to use through the catheter. By the time it reaches the tympanum this pressure can not be more than a couple of pounds. Bishop,¹ of Chicago, and others claim to use an air pressure of sixty to eighty pounds, and that this may be safely borne by a drum head. I shall not forget the fact that I have personally ruptured a tympanic membrane by simple inflation with the Politzer bag, which in my hands does not afford an air pressure of over ten or twelve pounds. In the discussion of Dr. Bishop's paper,¹ read before this esteemed gathering two years ago in Detroit, Dr. Richardson of Washington related two cases in which he had seen the same result from Politzeration. Others, no doubt, have had a similar experience. But Dr. Bishop uses an extremely small quantity of air at a very high pressure and distinctly states that *the higher the pressure the less the dosage* of the amount of air. It stands to reason that a small quantity of air at a high pressure would produce less of a mechanical effect than a large quantity at the same pressure; also that a large quantity of air at a low pressure would produce a similar effect to a smaller quantity at a high pressure. For by the time that the little puff of highly compressed air that Dr. Bishop lets out of his receiver reaches the middle ear, its volume has increased and the consequent pressure diminished to but a few pounds. He expressly states that without a meter to guide the accurate dosage of the air the "high pressure apparatus would not be safely reliable for ear treatment."¹

¹ Bishop, S. S. Compressed Air and Sprays in Diseases of the Nose, Throat and Ear. Trans. Amer. Med. Assn., Sec. Laryngol. and Otol., June, 1892.

A continuous stream of ten to twelve pounds (not more than fifteen pounds) may be safely passed through the catheter into the middle ear, provided that the beak of the catheter be not impacted in the orifice of the Eustachian tube, preventing a free return of the vaporized air. We must remember that shortly after the introduction of the Eustachian catheter, away back in 1838, one Dr. Turnbull of London had an "accident" from a compressed air apparatus resulting in an autopsy and a coroner's investigation upon the body of his patient.² Others have since occurred. Interrupted currents of slightly greater pressure and only minute quantities at a high pressure can be safely given.

A recent article³ by Dr. G. F. Hawley speaks of forcible dilatation. The high pressures claimed to be used in his cases are naturally made much less by the manner of administration and the effects of the "shunt" current and the drum head must certainly be less than ten pounds to the square inch. He gets massage of the Eustachian tube and middle ear and the interrupted current by vibration of the soft palate. This vibration is extremely disagreeable to the patient, and the pressure in such cases as have atrophied palates may be enough to strain them, with natural consequences.

As regards the various vapors⁴ I still adhere to the camphor-iodin mixture for the majority of cases requiring stimulating treatment; have practically given up the nascent muriate of ammonia so highly advocated by Politzer⁵; get good results where there is tinnitus aurium by mentholized air, (in connection with freezing the mastoid by rhigoline spray as advised by Seiss⁶), all used in the Owens vaporizing apparatus or in the Globe inhaler, or in a bottle similar to the ordinary powder blower (ten or twelve pounds pressure) the compressed air being charged by being first passed through the medicament. Camphor-menthol in albolene or benzoinol is used in the modification of Buttle's inhaler (this being useful for mentholizing or iodizing air also) at high pressure, twenty-five to thirty pounds, or in the "Globe nebulizer" at a lower pressure, ten to twenty pounds. Nitrate of silver solution in water may be used in any of the three. (A newly made silver solution in alcohol can be best used although it soon decomposes.) Any soluble medicament may be used in the nebulizer or in the Bishop inhaler. Personally I use but the camphor-iodin, mentholized air, or thymol with eucalyptol and camphor-menthol in benzoinol. Nitrate of silver is used only to the Eustachian tube and is preferably injected through the fenestrated catheter and blown in by the Politzer bag.⁷

² Editorial, London Lancet. Vol. ii, p. 558, 1838.

³ Hawley, G. F. A New Apparatus for Nebulizing Non-volatile Medicaments. Jour. Amer. Med. Assn., May 12, 1894.

⁴ At the request of several hearers of this paper the formulas commonly used in connection with this treatment are here appended.

1. For simple aural catarrh or Eustachian salpingitis:

| | |
|--------------------------------|------|
| R Benzoinol (W. H. S. & Co's.) | 100. |
| or | |
| R Thymol | 50. |
| Eucalyptol (Mereck's limpid) | 1. |
| Benzoinol (W. H. S. & Co's.) | 100. |

2. Where attended by much tinnitis aurium the above, or:

| | |
|-----------------|-------|
| R Camphore res. | 2.50. |
| Menthol cryst. | 2.50. |

M. Triturate until clear oil forms; add benzoinol ad. q. s. 100.

3. In sclerosis:

| | |
|----------------------|------|
| R Met. cryst. iodine | 1. |
| Kalii iod. | 3. |
| Glycerinae | 30. |
| Aq. camph. ad. q. s. | 100. |
| M. Add lump camphor | 4. |

⁵ Politzer, Adam. Ohrenheilkunde, 1889.

⁶ Seiss, R. W. Treatment of Tinnitus in Aural Sclerosis. Annals Ophth. and Otol., Jan., 1894.

In conclusion, I will state that in about one thousand cases of chronic aural catarrh on my books for the last five years I have been able to cure nearly all in those instances where the patient submitted to the required number of sittings, in which the disease had not advanced beyond slight diminution of hearing; to apparently stop the process where sclerosis had set in, and to improve but not entirely restore the hearing; while in advanced cases the subjective sounds have been mitigated and slight permanent improvement in hearing afforded in the majority of instances. There have been some total failures as regards medical treatment and in some of these surgical procedures were tried but with a like result.⁸

805 Grand Avenue.

DISCUSSION.

DR. BISHOP—While the essayist and I do not use the same compressed air apparatus we probably both arrive at nearly the same results. I have tried the hydraulic pump in my office which is on the fifth floor of a six-story building containing water tanks above; but we could not obtain over ten pounds pressure, which is not sufficient for otologic purposes.

I use the rotary air pump which keeps the pressure in my air reservoir at a hundred pounds to the square inch. However, I desire to emphasize the fact that I do not exert that amount of force in applying compressed air to the middle ear. By means of the compressed air meter mentioned by Dr. Würdemann, and that which I invented and brought to your attention about two years ago, one is able to so regulate the volume and force of the column of air as to use any amount desired. You can employ one pound of pressure or ten, twenty, forty or any number of pounds up to one hundred. With the small volume of air used through my cut off there is no danger of rupturing the drum head; but I have discussed this subject to such an extent in my paper before this Section in our meeting for 1892, that I will not dilate upon it further.

In the use of my air meter and improved inflator bulbs, containing volatilizable medicaments, it is not often necessary to use Eustachian catheter. In the class of cases under consideration, I usually saturate the sponges in my inflator with lavolin, or, when a more stimulating medicine is needed, with a 3 per cent. solution of camphor-menthol in lavolin. This is thrown in the form of a spray through the Eustachian tube into the middle ear, on the same principle that we follow in medicating catarrhal conditions of the nasal cavities. I follow this treatment with the pneumatic otoscope. For years I employed iodine, but have obtained far better results since I abandoned it. Where there is partial impaction of the foot plate of the stapes, I have obtained marked results from the application of my ossicle vibrator, by means of which I obtain decided movements in the chain of bones, sufficient to produce dizziness, or even faintness of a transitory character. On the subject of excision of the ossicles for dry catarrh of the tympanum, I am very conservative, and I am glad to see that those who were the most enthusiastic advocates of this procedure two years ago are assuming a more cautious attitude. Within the past few days I have had under treatment a patient upon whom this operation was performed about three years ago, by a well known exponent of surgical enthusiasm, and the deplorable results in this and other cases of which I know, and some of which I detailed to you two years ago in Detroit, deter me from courting a like fate.

⁷ Würdemann, H. V. Remarks on the Treatment of Proliferous Inflammation of the Middle Ear. Jour. Amer. Med. Assn., April 18, 1891.

⁸ Würdemann, H. V. The Operation for Excision of the Ossicle in Chronic Aural Catarrh with Instance of a Failure. Trans. Amer. Med. Assn., Sec. of Laryngol. and Otol., 1892. Jour. Amer. Med. Assn., Oct. 22, 1892.

It is but fair to state, however, that I have known patients to hear better after I had removed the mallet and anvil, either through the external canal, or incidentally to an operation on the mastoid process. Neither do I deny that there are certain cases that may be benefited by this operation, but I insist that the utmost patient care must be observed in selecting them, for carelessness is fatal to the welfare of the patient, our piece of mind and the good of our art.

DR. FULTON, of St. Paul, referred to the lessened use of the catheter in his hands.

DR. WURDEMANN—in closing the discussion. The difference between the use of high and low pressures has been sufficiently well pointed out in the body of my paper, but I can not but help again calling attention to the dangers attendant upon the high pressure apparatus in hands less skilled than those of our friend, Dr. Bishop. I do not think that we may do away with the Eustachian catheter and esteem it as yet one of our most useful instruments. The method of treatment advocated in my essay is supposed to be done by the catheter. If we use metal instruments and sterilize by boiling there is no danger from septic infection and for specific cases surely we can afford to have separate instruments.

In regard to the vapors used, one must decide whether the membranes need stimulating or antiseptic treatment, just as in nasal catarrh. Select the remedy accordingly.

SURGICAL TREATMENT OF CHRONIC OTORRHEA.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY CHARLES HENRY BURNETT, A.M., M.D.

AURAL SURGEON, PRESBYTERIAN HOSPITAL, ETC., PHILADELPHIA, PA.

Surgical treatment of chronic purulent otitis media consists in the excision of necrotic tissue from the tympanic cavity. Instillation, insufflation or mopping of medicaments upon the diseased parts in the drum cavity in many cases result in a cure, but there are many instances in which all these forms signally fail after a long and fair trial. In these unyielding cases it will be found that one or more of the auditory bonelets are necrosed, and in some instances that the tympanic wall in apposition to the necrosed bonelets is itself carious. Manifestly in such cases the plain surgical indication is to excise the diseased bonelets or their remnants, in order to remove septic material from the drum cavity. This improves the drainage of this space, promotes a free application of antiseptics to the tympanum and favors the healing of its muco-periosteal lining. Under such treatment, in most cases, *after the operation* the diseased mucous membrane heals and carious spots in the tympanic walls are covered over without resort to curetting.

There are some forms of chronic purulent otitis media, in which excision of the remnants of the membrana and ossicles, is especially indicated. These are the so-called attic suppurations, in which necrosis of one or more ossicles is always present, and in which the sole perforation is in the membrana flaccida. Unless the necrotic tissue is excised there can be no permanent cure in such cases.

The operation of excision in chronic suppurative otitis media, is like the removal of a polypus in similar conditions. It is the *first* step in the antiseptic treatment of the ear. In many instances, not until the operation has it been possible to thoroughly ap-

ply antiseptics to the ear nor to maintain antiseptic conditions in the suppurating space.

The length of time which may elapse between the operation of excision and the cessation of the chronic discharge of pus from the drum cavity varies greatly. The quickest permanent cessation in the writer's practice occurred in eight weeks, in an attic suppuration of six years' duration. In another attic case, permanent cessation occurred at the end of two and one half years. In some cases it has not occurred after the lapse of even three years. But after the operation of excision, a chronic purulent otitis media has a better chance of being healed than before the operation. It also runs less chance of extending to the brain cavity or causing pyemia than it did before the drum cavity was freed from septic matter, and better drained by the removal of carious bonelets and obstructive synechiæ. The patient to be operated upon must be under the influence of a general anesthetic, preferably of ether. Cocainization of the membrana and drum cavity does not produce sufficient anesthesia, and furthermore the risks of cocain poisoning are very great when this drug is applied to the drum cavity.

After etherization has been accomplished the ear may be thoroughly and safely illuminated by a six-volt electric lamp held on the operator's forehead, and supplied by a small portable battery. Now a thorough exploration of the drum cavity may be made by means of probes of various curves, for the first time, especially in children, where before anesthesia, the sensibility of the parts forbade such exploration. All carious ossicles excepting the stapes, must be removed from the drum cavity. The stapes is rarely found to be carious anywhere excepting in its head. In no case should more than this of this bone be removed, as the removal of its foot-plate in a case of chronic suppuration opens the way for the entrance of pus into the labyrinth and cranial cavity. All diseased membrane should be excised, especially from the region of the attic, and if polypi are discovered by such excision, as they often are, they are to be carefully removed. Then the seat of the operation should be gently mopped with a solution of bichlorid of mercury, 1 to 6000, and the ear left open, so as to promote the escape of oozing blood or pus. The ear after this must be treated like any other suppurating ear, by means of antiseptics until the entire cessation of the discharge. The improved drainage and the more direct treatment of the suppurating cavity now give hope of a cure, unattainable without excision of necrotic tissue.

It has been urged against excision of the remnants of the membrana and carious ossicles in chronic purulent otitis media, that it is sometimes followed by facial paralysis. When this unfortunate sequel of the operation occurs, it will be found that curetting the cavity of the drum has been done. I have performed seventy-five intra-tympanic operations of late, but curetting has been applied in *no* instance and I have not had a case of facial paralysis to mar the result. I rest content with excision of diseased ossicles and membrana and the removal of polypi. If carious spots are detected on the tympanic walls I know they will soon be covered in by the healing of the ulcerated muco-periosteum, under antiseptic treatment, after the removal of carious and septic matter.

The hearing usually improves as the discharge

diminishes. Sometimes it is improved greatly and immediately by the operation, as the removal of diseased bonelets, synechial bands and infiltrated membrana admits sound directly to the oval window.

The operation of excision in suppurative otitis media furthermore greatly diminishes and in many cases entirely removes the risks of cerebral and general infection.

If the tympanic cavity has become practically the outward opening of a sinus, clearing it of septic and obstructive matter at least favors drainage from deeper parts, and ought to be done before resort to cranial operations. If the suppurative disease is limited to the tympanum then the excision of carious tissue practically removes the disease which is threatening to produce brain-abscess, sinus-thrombosis and pyemia, and mastoid and cranial operations are not necessary and never may be. *Were excision of necrotic tissue from the drum cavity more frequently and promptly performed there would be less need of mastoid and deeper cranial operations.*

DISCUSSION.

DR. WURDEMAN, of Milwaukee—I am pleased with the moderate tone with which the author has dealt with his topic, and especially with his present conservative views in regard to the selection of cases for operation, as he has been known heretofore as one of the most ardent exponents of radical aural procedures.

While my experience (I have done more than fifty of these operations) is not quite as great as Dr. Burnett's (he having done about a third more than I), it is quite sufficient to substantiate the statements made in the author's paper. Such operations for chronic suppurative otitis media should be done only on those cases that have resisted antiseptic treatment for a sufficient length of time to warrant the assumption that they are incurable by simple means. Despite the fact that considerable literature has appeared in recent years, all observers agreeing upon the necessity for operative procedures, the public generally has not been educated up to this point and even some of the profession are opposed to it. They are those who either have not tried it or who have scored failures in the first attempt. The operation done through the canal is in no sense an easy undertaking. General anesthesia is necessary and the canal and middle ear becomes filled with blood, rendering inspection difficult, so that often the greater part of the operation has to be done by the sense of touch. It is almost needless to warn those who are not properly versed in the anatomy of this small locality (and its dangerous surroundings) from attempting the operation.

LARYNGEAL TUBERCLE TREATED BY TUBERCULIN.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY A. J. ERWIN, M.D.
MANSFIELD, OHIO.

At the Detroit meeting of this Association, I read before the Section on Laryngology a paper on the tuberculin treatment of laryngeal tubercle, in which I gave the history of seven cases treated in 1891. Three of the patients were still living. This paper is a continuance of that report. All have since died, but the results of the treatment seem to me to be of enough importance to deserve mention. I will briefly recapitulate the history of the three cases then living, in connection with their sequelæ:

Wm. Beiterbuecher, age 20 years; Lowdonville, Ohio. Cough,

fever, and night sweats began in January, 1891; had several hemorrhages in April. Consumption hereditary on each side. Examined April 23, 1891; reduced twenty pounds. Pulse 132, respiration 30, temperature 102. Cough frequent; some expectoration containing bacilli; râles and obstruction in apex of left lung. A deep ulcer on inner surface of the left arytenoid about five millimeters in diameter, also a tubercle on the first tracheal ring. I treated him with tuberculin exclusively from April 23 to August 15, making in all fifty-four injections of one-twentieth to 1 minim each. The tubercle in the trachea and the râles had disappeared by May 20, but the ulcer did not entirely close until about August 1. Two months later, cough and expectoration had ceased and he had gained twenty pounds in weight. About April 1, 1892, a catarrhal attack seemed to start afresh symptoms of tuberculosis, especially of the heart, which soon showed valvular infiltration and insufficiency, and consequent engorgement of the lungs, finally broncho-pneumonia, and death three months later, but without any return of the disease of the larynx, and with but little if any increase of tubercles in the lungs. The tuberculin treatment was not repeated.

Case 2.—Mrs. George McMullen, age 25 years, Mansfield, Ohio. Cough, fever and night sweats began in December, 1890; had two hemorrhages. Consumption hereditary on each side. Examined May 13, 1891; had lost over twenty pounds in weight. Pulse 92, temperature 100, respiration 22; râles throughout left lung, free expectoration containing bacilli. The left arytenoid was a little thickened but not ulcerated. I gave her thirty-two injections of tuberculin one-twentieth to 1 minim each, between May 14 and July 21. By June 1 the entire anterior surface of the left arytenoid had ulcerated; by June 15 the fever and night sweats had ceased. When dismissed, July 21, the arytenoid thickening had disappeared and the ulcer was about one-third of its former diameter, her appetite and digestion were restored and she had gained five pounds in weight. The cough and expectoration continued with but little abatement, but her general health had considerably improved. In March of 1892 she had a return of fever and night sweats with increased cough, probably of a catarrhal character, but did not return to me for examination until July 1, when I found her free of fever. Cough and expectoration about as at date of dismissal a year before. Weight and general health not changed. The ulcer of the larynx had entirely healed, leaving a little contraction of the left fold as the only evidence of former disease. The tuberculin treatment was not repeated, she varied but little in health until February, 1893, from which date the lung disease advanced rapidly and she died in April following without any reappearance of laryngeal disease.

Case 3.—Mrs. Albert Vaughn, age 28, Mansfield, Ohio. Cough, fever, night sweats and indigestion began July, 1890. Father and sisters died of consumption. Examination May 7, 1891. Weight reduced twenty-six pounds. Pulse 130, respiration 30, temperature 103. Obstruction and râles in apices of lungs. Left arytenoid twice as thick as the right; a deep ulcer about seven millimeters in diameter on its interior surface, from which pain extends to the ear; cough frequent, some expectoration containing bacilli. Began injections of tuberculin May 8, which were continued for one month daily one-tenth to 2 minims each, and for some months afterward at irregular intervals; by July 1, the fever, expectoration, obstruction and râles had disappeared; by September 1 the thickening had left the arytenoid but the ulcer did not entirely heal until about November 1. It left the cartilage considerably deformed but not irritable. She passed the winter without fever or cough of any consequence, with a good appetite and digestion, and a gain in weight of fifteen pounds. In March, 1892, she had an attack of the grip, during which râles re-appeared in the apex of the right lung, followed by some infiltration of the previously diseased arytenoid and a degree or two of fever. She returned to the tuberculin injections of 1 minim twice a week. Within three weeks the laryngeal thickening disappeared entirely without ulceration, and the fever, râles, and cough ceased a week or two later. In September, 1892, there was a little fever with cough and râles, but no thickening of the larynx, which was relieved again by three weeks' treatment with the tuberculin. In January, 1893, without any recurrence of fever, râles, expectoration or laryngeal irritation, cough and prostration began to follow slight exercise. Examination showed the heart to be weak and irritable with very dull valve sounds. These symptoms gradually increased and were followed by frequent attacks of that form of congestion of the lungs which we recognize as due to heart disease. At first

they were readily relieved by rest and the tincture of ammonia valerianate. These attacks became more frequent and more severe until she died in March.

I have thought it worth while on two accounts to bring these cases before you: 1, we have the unprecedented cure of three out of seven cases of laryngeal tubercle; 2, we have apparently the tubercular disease diverted from its original seats in the lungs and larynx to the heart, probably by the tuberculin.

SYPHILITIC DISEASES OF THE EYE.

Read to the Kentucky State Medical Society at Shelbyville, June 7, 1894.

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The syphilitic diseases of the eye should be divided into three classes, and for the sake of convenience, I should prefer to consider them as of the acquired and inherited. Then I should divide the inherited types: 1, those in whom the disease has been so recently acquired by the mother as that the secondary roseola appears some time after birth, or, about that time; 2, those in whom the syphilitic evolution has been apparently completed in the mother before pregnancy. Just how to reach that class of the third and fourth generations of syphilitic patients it is difficult to formulate rules, and I prefer making my third division embrace victims of *remote inheritance*.

If the syphilized mother has apparently recovered, and gives birth to a child with certain structural defects, such for example, as those imperfect developments of the lymphatic system described by Dr. Formad in his report on the anatomical peculiarities of struma, the muscular deficiencies, and the thin and imperfect development of the arterial walls, then how shall we expect to find marks of inheritance in those of the third generation?

It is distinctly and emphatically stated by nearly every recent writer on syphilis, that none of the normal secretions of the body contain the virus. It is manifestly clear, therefore, the spermatic fluid can never be accompanied by the virus of syphilis, excepting where abrasions, ulcerations, or gummatous deposits exist, either in some part of the testicle, or the walls of the excretory ducts. Since the period of incubation of syphilis has been fixed at from twelve to forty days, it is clear that abortion must necessarily follow in cases where the virus of syphilis reaches the ovum before placental attachment has been established, and every one knows that syphilized women can not bear children conceived during the periods of activity of syphilitic infection. It is an equally common observation that men in the most active periods of syphilitic infection actually beget perfectly normal, sound and vigorous children. It is already an exploded superstition that the father may communicate syphilis to his offspring, without first infecting the mother. I have many times seen children born of syphilized women about the time of the appearance of the secondary eruption, and more frequently before that period. Every obstetrician will testify that a pregnant woman seldom goes two months with a secondary eruption of syphilis, without discharging the contents of the uterus. Who has not observed the miscarriages and abortions of syphilitic women?

Mr. Jonathan Hutchinson in his great "Clinical Memoir on certain Diseases of the Eye and Ear, consequent on Inherited Syphilis," publishes at page 25, the following aphorisms respecting iritis in infants:

"1. The subjects of infantile iritis are much more frequently of the female than of the male sex:

"2. The age of five months is the period of life at, or about which, syphilitic infants are most liable to suffer from iritis.

"3. Syphilitic iritis in infants, is often symmetrical, but quite as frequently not so.

"4. Iritis, as it occurs in infants, is seldom complicated, and is attended by but few of the more severe symptoms which characterize the disease in an adult.

"5. Notwithstanding the ill-characterized phenomena of acute inflammation, the effusion of lymph is usually very free, and the danger of occlusion of the pupil great.

"6. Mercurial treatment is most signally efficacious in curing the disease and, if recent, in procuring the complete absorption of the effused lymph.

"7. Mercurial treatment previously adopted does not prevent the occurrence of this form of iritis.

"8. The subjects of infantile iritis, though often puny and cachectic, are also often apparently in good condition.

"9. Infants suffering from iritis almost always show one or the other of the well-recognized symptoms of hereditary taint.

"10. Most of those who suffer from syphilitic iritis are infants born within a short period of the date of the primary disease in their parents."

In the foot notes, Mr. Hutchinson says he has known the second eye attacked in a patient already under the influence of mercury for the treatment of the first eye affected. He has in a number of instances observed acute iritis occurring during the period of actual pyalism. I have seen a number of such cases myself. It is a well established fact that the poorly nourished subjects of inherited syphilis are not those most likely to suffer local lesions in the eye. This class of subjects seem to suffer in the digestive and assimilating organs, and have those artistic decorations of the skin which the Dermatologist delights to parade as brilliant illustrations of his diagnostic skill.

Syphilitic iritis notoriously occurs most frequently in the periods of the advancing secondary eruption, while inflammations of the optic nerve and retina are vastly more common in the later stages of the disease.

Keratitis is, however, a more remote manifestation of syphilitic infection than iritis and, although interstitial keratitis occurs in the subjects of acquired syphilis, it is by no means commonly due to syphilitic infection in this class of subjects; per contra, interstitial keratitis of syphilitic origin is accompanied by disturbances of the corneal epithelium, which presents the appearance of ground glass, and this is never seen in the subjects of acquired syphilis. Now, I feel like asking the question, Is it ever seen in the subjects of inherited syphilis, where the child was born before, or about the time of the secondary evolution of syphilization? It seems to me this distinction must be made. Mucous patches in the conjunctiva and on the surface of the cornea, are often seen as early manifestations of the tertiary period of syphilization, and especially in those who have been

born with the disease, yet in young adults in the same period of syphilization where the disease was acquired, these mucous patches are occasionally seen. I have known a number of instances where great injury resulted to the eye from local treatment for the relief of clearly defined and unmistakable mucous patches in persons who, at the time, had no other manifestation of syphilitic infection, excepting a small patch or two in the mouth. It is, therefore, of great importance that a diagnosis should be made in the outset, in order that the proper constitutional treatment may be commenced at once, and that no local interference with the mucous patches in the eye shall be attempted.

Gummatous formations in the cornea are not infrequently observed at the termination of the vessels in the limbus of the conjunctiva. Gummatous abrasions are vastly more frequent in advanced syphilis than in the early periods of infection; these gummatous formations at the periphery of the cornea are, therefore, observed more frequently in children of 5 or 6 years of age, than in younger persons. Interstitial keratitis seldom occurs as early as the fourth year, although Mr. Hutchinson reports several cases occurring at the age of one year. It is seldom delayed beyond the twelfth year, yet it is occasionally seen, as in one of Mr. Hutchinson's cases, as late as the twenty-sixth year of age, the patient having the characteristic teeth.

Many of the best writers believe inherited syphilis tends to run a milder course, and offers less protection against subsequent liability to syphilitic infection. Latent syphilis may be aroused into activity after long periods of time, by influences which diminish the *vis conservatrix* of the general system; hence, it is not rare to observe syphilitic affections in people of advanced age who have not been suspected even of syphilitic contamination since early manhood. Mr. Hutchinson believes the degree of severity of the inherited taint is proportioned to the short period which elapsed after the primary infection of the mother. The progeny of the subjects of inherited syphilis are often found with optic neuritis, neuro-retinitis, and choroiditis, early in life.

It is but natural the subjects of inherited syphilis should exhibit faulty bone formations, and faulty development of the teeth; indeed, it would appear from extended observation that the cornea and teeth, in particular, are more sensitive to the action of syphilis in those who inherit the disease, than any other parts of the organism. I have seen keratitis which presented the appearance of suppuration, and in one instance I saw paracentesis of the cornea practiced for the evacuation of what appeared to be pus in the anterior chamber, but which turned out to be a mass of pale gumma adhering both to the cornea and iris. A course of iodid of potassium wrought the miracle of complete recovery. Under its influence the gumma melted completely away, and the eye not only recovered so far as appearances go, but there was no appreciable impairment of the sight. Many eyes are lost from syphilitic inflammation of the iris extending into the ciliary body, which might have been saved by early and vigorous constitutional treatment, but for the fact of the misapprehension on the part of the medical attendant concerning the origin of the disease.

Prof. Noyes, of New York, is the author of the chapter on "Syphilitic Diseases of the Eye," in the

celebrated work of Prof. Keyes. I, therefore, find it difficult to obtain any valuable information from the observations of this great teacher, excepting his apparent endorsement of what Noyes has written.

The late Prof. Bumstead, whose "Clinical Treatise on Venereal Diseases," won him so much fame, was himself an experienced ophthalmic surgeon. He directs attention to the fact that the absence of severe pain and photophobia in syphilitic iritis offers valuable evidence in support of the suspicion of its syphilitic origin. The history of the case is seldom of value, and there are many persons in whom no cutaneous eruption or other sign of syphilitic disease may be discovered, and yet tubercular elevations of a brownish pink tint, sometimes light gray, and sometimes cream-colored, appear in the substance of the iris, or, upon its surface, the eye being but slightly sensitive to light, and often not at all painfully affected. A few doses of iodide of potassium serves not only to dissipate the gumma in the iris, but to bring out the characteristic cutaneous eruption. The stimulating effect of the iodide of potassium on the skin of syphilitic subjects has been often observed, and may often be employed to clear up the obscure symptoms and make clear the diagnosis.

Mr. Swanzy, of Dublin, and Mr. Hutchinson, of London, have both reported cases of retinitis pigmentosa in subjects of inherited syphilis. Prof. McNamara concludes this to be a peculiar form of pigmentary degeneration of the retina, in which the spots, although beginning in the periphery and accompanied by commencing choroidal changes, do not follow the vessels of the retina. Prof. Gradle says, in an article in the supplement to the "Reference Handbook of Medicine," page 300, that, "accompanying late syphilis, the retina is involved, beginning in the periphery, and extending gradually toward the center of the field, resembling retinitis pigmentosa in appearance, yet the etiologic data we possess regarding the origin of retinitis pigmentosa is consanguinity of parents in one-fourth to one-third of the cases." This in no wise impairs the laws of hereditary transmission, and it is by no means established that families having retinitis pigmentosa, although intermarrying with each other, were not themselves, or their parents the subjects of syphilis.

Sydenham, 1670, in his celebrated "History and Cure of the French Pox," says: "The disease first came to Europe from the West Indies in the year 1493," and that it was already at the time of his writing, languishing daily, and the phenomena growing milder. He considers that, whereas it was very malignant when first introduced into Europe, two hundred years dissipated its malignancy so completely that reason and experience dictated the disease might be cured by any sort of purge, given often and a long while. In another place he says: "Mercurial salivation will generally do the business of cure;" and on page 257, he says: "I think no instances can be produced where this disease was eradicated in any other way than by salivation with mercury, whatever some learned and unlearned men say of the cure of it by other means."

The incredulous student reading the history of the treatment of syphilis, through the publications of the great teachers in medicine, from Sydenham to Keyes, naturally wonder why, if mercury or anything else suffices for the cure, we have any such disease as hereditary syphilis.

Mr. Jonathan Hutchinson considers the distinction can be drawn in the character of the teeth and bone of those who inherited syphilis from the parents long subjected to mercurial treatment, and those who inherited it from parents who acquired the disease but a short time before the birth of the offspring. Upon sound pathological researches, rational systems of therapeutics may alone be based.

Neither Mr. Gascoyne, who reported a large number of cases of iritis successfully treated by the local use of atropine alone, nor Prof. Henry W. Williams, who employed no mercury in the treatment of his sixty-four cases of iritis, have been any more successful in their exclusive methods of treatment than Sydenham with his mercurial ptyalism.

Materia medica has so far yielded no specific antidote to syphilis, the local phenomena of which yield to a great variety of medication in a very prompt and satisfactory manner. To say that mercury cures syphilis is just as absurd and untrue as to say that all manifestations of syphilis can be cured without mercury.

Inflammations of the iris without accompanying lymphatic obstructions not only require no mercurial treatment but yield uniformly, in the painless cases, to the action of the iodids; while those cases accompanied by severe pain are promptly relieved by the alternating or occasional use of salicylates and iodides.

It is notoriously true that very emaciated subjects rarely have iritis, yet the ulcerative inflammations of the cornea and conjunctiva of syphilitic origin occur almost constantly in the emaciated subjects of syphilis. And, paradoxical as it may seem, my own experience leads me to believe that syphilitic emaciation is seldom overcome without at least the occasional use of mercury.

I think a combination of mercury with sulphate of quinine in doses of one-twelfth or one-sixteenth of a grain of quinine with one-fiftieth grain of bichloride of mercury, every three or four hours, for a child under 5 years of age, with a careful exclusion of all indigestible ferments such as cooked fruits, syrups, confectionery and pastry, with judicious bathing, outdoor exercise, and regular administration of nutriment in definite quantities such for example as one ounce of beef tea, or two ounces of prepared beef peptonoids, or malted milk, with each dose of medicine, yields wonderful results in apparently hopeless cases.

Now, as to local treatment in syphilitic diseases of the eye, two great principles must be constantly borne in mind. In all forms of iritis, sulphate of atropine, or the hydro-bromate of homatropine should be instilled every two or three hours, to thoroughly dilate and maintain constant dilatation of the pupil. This is absolutely essential to the ultimate recovery of the eye, no matter what constitutional agencies may be employed to check the advances of the infection upon which the local disease of the eye depends. In cases of abrasion or ulceration of the cornea or conjunctiva, some sort of mild antiseptic should be frequently applied to prevent local infection of the abraded surface, for it is well known that even syphilitic ulcers afford a good medium for the colonization and growth of those microorganisms which beget suppurative processes. The best applications are an ointment of the yellow oxide of mercury, carefully prepared, or an ointment of boric acid. Great care

is necessary in the preparation of the yellow oxide of mercury, as it is liable to contain caustic lime, potassium, sodium, or ammonium as foreign ingredients.

The officinal petrolatum is a better excipient for an ointment than vaseline, cosmoline, or any of the other preparations of petroleum. If this is not at hand, a combination of glycerine and starch, known as glycamil, should be used. Lanoline is sure to irritate the eye, and should never be employed in affections of this kind.

WHAT THE DOCTOR SHOULD KNOW, AND
WHAT THE SPECTACLE PEDDLER, DRUG-
GIST, JEWELER AND OPTICIAN
SHOULD NOT DO, ABOUT
AFFECTIONS OF
THE EYE.

Read to the Bond County, (Ill.) Medical Society, Sept. 6, 1894.

BY A. C. CORR, M.D.

CARLINVILLE, ILL.

I take the theme of what the doctor should know about diseases and affections of the eye, because it is one that I think should be better elucidated and more clearly defined in our minds, and more especially as it has been discussed more or less of late in the *National Medical Journal* by two eminent gentlemen, somewhat to the disparagement of the general practitioner. The two gentlemen who have so discussed the subject—the one, Dr. W. A. Fisher, of Chicago; the other Dr. F. T. Smith, of Chattanooga, Tenn., have agreed—the one that the general practitioner should not attempt to use the ophthalmoscope, and the other that he should not attempt to “fit glasses,” and that his conduct shall be reprehensible if he does not readily diagnose glaucoma and cataract, nervous atrophy and the general ophthalmia, inflammation of the conjunctiva and cornea—then they both forget their prey, the general practitioner, and go off in a scrap as to whether glaucoma and cataract may be satisfactorily diagnosed without the ophthalmoscope, and soon return with this precious bit of advice that you ought not to operate for strabismus unless you know how to determine and correct the error of refraction on which it depends.

Do not be awed by the “thus far” of the ophthalmic specialist, especially if he has just returned from his buncombe trip to Europe, for they have the same kinds of sore eyes over the pond that are met, and treated as successfully, in this country. We have cataract, glaucoma, and all the known errors of refraction and disassociation of ocular muscles that are met over there. We have the ophthalmia varieties of conjunctival with inflammations and ulcerations of the cornea, just the same. I repeat, do not be awed, for the gynecologist will say “thus far,” the neurologist will say “thus far,” the surgeon will say “thus far,” the official surgeon will say “thus far,” the aurist and the throat and nose specialist will say “thus far,” the dermatologist will say “thus far,” the thoracic auscultator and percussor will say “thus far,” the cylopoetic inspector will say “thus far,” the obstetrician and pediatric fellow will say “thus far,” and there will be nothing for you to do except to parade yourselves as some of the peripatetics are doing in our State—as specialists in everything. Rather assert yourselves in the face of specialists

and hurl at them a quotation from the centennial article of the late Samuel D. Gross, that, "I would rather trust the well informed general practitioner, for he is the only one who is competent to take in the whole situation;" and I believe that the well informed general practitioner is the best exponent of the intelligence and usefulness of the practice of medicine. If you do not so re-assert yourselves there will be nothing left for young physicians to do but to marry rich, join the "A." "M."—Master of Arts—Medical Association and devote much time to the discussion of very "polite literature." Rather make a religion of medicine, let your text-book be your prayer-book, the medical society your prayer-meeting, and always be present with your experience and inquiry. Familiarize yourselves with the literature of ophthalmology, not by reading many books, but study well some one or two good text-books, like Berry, Noyes, Juler, Smid-Rimpler, Fuchs, Nettleship. Learn all you can from the experience and observation of your fellows, but above all, learn to utilize your own observations. When you are asked to see a conjunctivitis or corneal ulcer do not become awed by what the specialists say, and feel that it is beyond your ken. If any specialist write you saying "thus far," write him what he ought to know about general practice. Tell him that well nourished, well fed people who have well developed muscular systems and well poised nervous apparatus and are used to out-doors and sunlight and not too much specialized labor, do not have much asthenopia, nor do they need their ocular muscles cut. That Dr. J. L. Thompson, of Indianapolis, in the Section on Ophthalmology, at the meeting of the AMERICAN MEDICAL ASSOCIATION, June, 1893, in discussing heterophoria, said: "It is bad to be picking at one muscle so often;" and, "I do not believe that a partial tenotomy ever benefited a case on this earth;" and Dr. H. Gradle said: "Patients complaining of asthenopia were relieved about as satisfactorily in as large proportion of cases before the subject of heterophoria was ever brought out;" and that Dr. M. Gould, in discussing the same subject in the Ophthalmic Section of the Pan-American Medical Congress, September, 1893, said: "This to me seems to be a true tenotomania and one illustration of the general surgical debauch of these days which has also been so well illustrated in gynecology." These three gentlemen are personally known to me. I heard them utter these words. They are eminently and well qualified to wield a bright and shining lance in discussion of these subjects.

I say do not become awed, but maintain your composure, investigate it as you would a pneumonia or a brain disease, nervous or renal affection. Use your usual tact and caution and analysis. Do not strive to think of a specific, for there are none any more than in general medicine.

The diseases of the eyes that most frequently come under the observation of the general practitioner, and constitute a large part of the ophthalmic practice, are the inflammations of the conjunctiva and cornea with corneal abrasions and ulcerations, and they, in their varied forms and results, will tax the patience and ingenuity of the physician fully as much as any other diseases of this important organ.

The etiology and pathology of inflammations of the tissues of the eye are, in common with those of other organs of the body, modified by the variety of tissue involved and the functional activity of the

part, subject to the laws of bacteriology and infection.

The nature and causes of the inflammations of the cornea and conjunctiva are sometimes functional, most times infectious, many times traumatic and not a few times symptomatic. These relations need to be well differentiated in diagnosis as a basis for rational treatment. Inflammations in these tissues tend to recovery when the causing conditions are stopped and the intercurrent aggravating conditions are removed. To determine what the aggravating and causing conditions are that tend to perpetuate a corneal or conjunctival inflammation, will many times test severely the tact and ingenuity of the practitioner, and will not a few times prove well-nigh inscrutable. Absolute cleanliness, not only from microbes and infectious microorganism, but acrid secretions and dirty dirt, is of prime importance, and should be maintained as long as the inflammation lasts.

When a case of corneal or conjunctival inflammation presents itself, inspect the whole conjunctiva and cornea very closely, in order to learn as much of the extent of the disease and of the causing and aggravating conditions as possible, removing all foreign bodies and every suspicious substance. Keep constantly at your command a disinfecting solution, or improvise when needed; in the proportion of

| | |
|-------------------------|----------------|
| R Aqua pura | ʒi. |
| Acid carbolic | gtt. i. |
| Acid boracic | gr. xv. or xx. |
| Mix and ft. collyr. | |

Wash out the eye thoroughly with this remedy by squirting it into the opened eyes or everted lids copiously, and with sufficient force to dislodge everything desirable. This should be done with a dental bulb syringe that will hold from one-half to one ounce so the current may be copious all over, or held long in one spot. Roll a bit of absorbent cotton on a toothpick, and after dipping it into the solution, swab out the superior and inferior cul-de-sac and the canthi. If not contra-indicated order this, except the swabbing, repeated several times daily as a necessary part of the treatment. This is applicable to all corneal and conjunctival inflammations and all grades of the same, and in many cases of the latter will be all that is necessary. Other astringent and tonic remedies may suggest themselves.

Purulent ophthalmia—gonorrhœal—or neonatorum, the pathognomonic symptoms of which are suddenness and severity of attack, great swelling and copious purulent discharge, will require more thorough cleansing with the disinfecting collyria referred to, twice or many times daily, and the use of from gr. ij. to ʒij. to the ounce nitrate of silver once or twice daily. I regard the thoroughness in the cleansing and the application of the solution of the nitrate of silver of more importance than the strength of the dose of the latter. This injunction needs to be reiterated, for the infectious and aggravating material is reproduced very rapidly and by every part of the conjunctiva, and it must be remembered that this is one of the most severe and rapidly destructive diseases to which the eye is subject. If the cornea becomes involved, atropia should be added to keep the pupil dilated, if possible, and more vigor used in the cleansing and disinfection.

If there are corneal ulcers or abrasions, wash, scrape or cauterize their surfaces till they are clean,

clear of microorganisms—infiltrated tissue—or what not, and keep them so. Keep the pupil dilated and the ciliary muscle relaxed, the eye passive; the circulation and enervation free with atropia, so nutrition and repair are not interfered with.

I often pack the ulcerated excavation in the cornea with iodoform daily, till the glazed surface of healing is manifest, keeping the ciliary muscle relaxed with atropia, which I regard as the *rudder* in the treatment of ulceration and abrasion of the cornea. The ease with which the atropia dilates the pupil and keeps it so is something of an indication of the manageableness of the case. If the pupil is easily dilated it indicates tractableness in the corneal disease, and if it becomes gradually more easily kept so it indicates favorable progress in the disease. If the pupil and ciliary muscle be allowed to contract the eye becomes at once irritable and aggravated. The atropia is more certainly indicated where there is anesthesia of the cornea, which may be tested with the tip of a moistened camel's hair pencil or brush, or a bit of unsized paper moistened and twisted. In 1865 in the United States Des Marr's Eye and Ear Hospital, in Chicago, I saw the ciliary muscle cut to relieve this condition of corneal anesthesia. Little white specks of infiltration in the marginal area of corneal ulcers may recur from time to time during its treatment, which must be diligently sought for and subjected to the same treatment as the original ulcer. In some cases the ulcerative process may be so rapid and painful as to require the application of hot fomentations, and paracentesis of the cornea or perforation of the base of the ulcer to stop its progress. Tonics and other constitutional remedies may be required, and in hypopyon ulcer it may be necessary to evacuate the hypostatic infiltration. A bandage should be usually worn in cases of corneal ulcer, and the conjunctival cul-de-sac kept clean.

Irrespective of varieties of infectious material that may determine the type of conjunctival inflammation as functional, catarrhal, purulent, trachomatous or diphtheritic, I have observed three varieties of granular condition of the conjunctiva—the pathology of which is not yet clearly settled—that tend to perpetuate a conjunctivitis and to aggravate a keratitis or ulceration of the cornea. They are mostly confined to the palpebral conjunctiva and the superior and inferior cul-de-sacs. The one a fine, almost miliary vesicle, probably follicular; the other a larger semi-transparent mass, light in color—the sago-grain granule—few in number, probably lymphatic. These two are confounded as true trachoma, and are both susceptible of being bursted and obliterated and their viscid semi-transparent contents squeezed out. The third is a seedy-looking granule with solid structure only amenable to atrophy or absorption. The first two varieties should be burst and obliterated at first sitting after the parts are cocainized, or at subsequent ones till all are destroyed; best done with ring or roller trachoma forceps devised by Prince or Knapp. I know of no specific treatment for the third variety of granulations, more than the rational treatment of the conjunctival inflammation in which they are involved. I resort to squeezing, crushing, scarifying and curetting them, but have not been quite satisfied with the results. I think the sanguineous depletion produced by squeezing them with the forceps referred to, with thorough cleansing and the application once or twice

daily of a strong solution of tannin in glycerin—grs. xx to xl to the ounce will probably give best results. The treatment of this variety seems to be the sphere of usefulness of the ancient "blue stone" which used to be applied indiscriminately to all. I think it is applied two or three times weekly with caution as of yore. But they with their thickened and redundant mucous membrane will many times require weeks and months for their removal. These conditions of cornea and conjunctiva are sometimes very much aggravated by non-specific vaginal secretions. I have verified all the conditions necessary to such infection and aggravation in three cases.

The drainage and lubricating apparatus of the eye may need appropriate attention. Where entropium or trichiasis aggravates the corneal condition, I have usually made the operation devised by Dr. Hotz for its relief, and where there are only a few deviating cilia that touch the cornea and irritate it, I loop them up to and with the others with collodion, which may be done a number of times or kept so for a long time, when they will remain bent away from the cornea. In several cases this has given me great satisfaction and won the plaudits of my patient. I have not obtained good results from the electro-epiliary processes so highly recommended by some.

A slight or extensive pterygium in some cases aggravates a keratitis or conjunctivitis by retaining infectious or acrid substances under its folds against the cornea, when it should have appropriate treatment by removal.

I have observed a blocking of the meibomian ducts at their orifices on the margins of the lids in a marginal blepharitis as an aggravating condition. The ring trachoma forceps is a very convenient and admirable instrument with which to squeeze out their caseous contents so as to relieve their turbulence, which may then be readily treated with the Pagenstecher ointment.

R Yellow oxid of mercury gr. ii
Vaselin ʒ. ii
Mix. Rub well and ft. ung't and sig.

Rub on the border of the lids where they touch when closed, and among the cilia, once or twice daily.

The pannus and opaque infiltration of the cornea that results from chronic inflammation and degeneration of the palpebral conjunctiva may be very hard to remove by any known process. I adopt the boracic acid and massage recommended by Landolt in 1889, and by Holmes in 1890. A few minutes after instilling a drop of cocain, twice a week, the dry boracic acid is poured from a spatula on the ball with the lids everted or apart; the lids pulled over the powder so as to confine as much as possible, and rubbed for three minutes, exact time, or till the acid is dissolved in tears. This with a few drops of gr. ii sol. zinci. sulph., in each eye nightly after being washed with the disinfecting solution and as much protection as can be given the eye, constitutes the treatment. Dr. J. A. Lydston, of Chicago, uses and recommends for a similar purpose and in a similar way, equal parts of papoid and boracic acid, under the title of "Pannus and its Treatment by Digestive Ferments." Atropia should be used in conjunction with this treatment, especially if there is photophobia and an irritable iris. I am satisfied from the results in which I have used the dry boracic acid, varied somewhat from this, that it is a useful remedy in pannus and opaque infiltration of the character de-

scribed, and is a most admirable and convenient means of cleansing out and disinfecting an infected eye.

There is a crusty blepharitis marginalis, *sui generis*, which leads to plucking of the cilia—erroneously supposed to be wild hairs—in some cases, which I regard as almost pathognomonic of an error of refraction. It is easily relieved temporarily by rest of the eyes and the margins of the lids being anointed nightly with citrine ointment made with cod-liver oil, or the Pagenstecher's ointment.

I am satisfied from observation that errors of refraction tend to originate, perpetuate and aggravate inflammatory diseases of the eye, especially those of the conjunctiva and the cornea, and to retard and otherwise render difficult their cure. Hence, I regard a determination of the refraction of an eye affected with a chronic or frequently recurring inflammation, a necessary *part* of its examination, and if errors are detected, a correction, with suitable lenses and adjustment, a necessary *part* of its treatment. After such correction very simple remedies will often suffice.

Iritis is a disease, the symptomatology of which every physician should familiarize himself with; for very many eyes are lost by it and the treatment is comparatively simple. There are usually slight lachrymation, variable photophobia and headache, orbital or occipital, pupil slightly contracted and sluggish, aqueous, more or less hazy or murky. There may be posterior synechia. There is circumcorneal injection and tenderness in the anterior region of the ball, and the iris discolored as compared with its fellow.

The symptomatology and treatment of cyclitis is so nearly the same as that of iritis that if I add that in addition to these, cyclitis is characterized by punctate deposits on the posterior surface of the cornea and cloudiness of the anterior vitreous, the two may be grouped together. Cyclitis may be caused by traumatism or by continuity of tissue, from choroiditis, or iritis, or may constitute a link in inflammation of the uveal tract—uveitis, iritis, cyclitis and choroiditis combined.

The cause of an iritis can not always be easily determined. Traumatism, syphilis and rheumatism are oftenest referred to by the books. I am quite certain I have seen it arise from excessive functional activity of the eye, laboring under the disadvantage of an error of refraction.

The sheet anchor treatment both of iritis and cyclitis is mydriasis and potassio-mercurial medication and tonics, with absolute rest of the eyes. The mydriasis should be pushed to paralysis of accommodation so that the eye is as perfectly passive as may be. Severe cases with increased tension may require paracentesis of the cornea repeated, and iridectomy. If the iritis is recurrent, the iridectomy should be made.

In regard to the symptomatology of both iritis and cyclitis, I wish to reiterate with emphasis that the inception and progress may be so passive as to give rise to no subjective symptoms except that of slight or marked impairment of vision, which if occurring in one eye may not be heeded till the eye is beyond recovery.

To determine some of the conditions and symptoms of these two diseases and others to follow, the ophthalmoscope and bifocal illumination may have

to be brought into requisition. Bifocal illumination is sufficiently simple in its performance and mode of application, and revelations, to need no more than a reference, but the use of the ophthalmoscope may need some more explanation from books, cuts and illustrations. In order to familiarize myself with the use of the ophthalmoscope I did what I suppose almost any one may do with equal benefit—devised a schematic eye which has the lens in the front as near as may be like the natural eye—the globe in two sections, front and back, an image of retina, disc with blood vessels and yellow spot painted in relative position, order and size; mounted so the globe can be elongated or shortened anterior-posteriorly; made myopic or hypermetropic and with two cylindrical lenses concave and convex, to slip over the cornea, so as to make it astigmatic. The whole combination mounted so it has all the motions or positions of the normal eye. With this placed in proper relation to the lamp, for illumination, I soon acquired the facility of focusing on any part of the interior of the eye to get a perfect image. This instrument so devised, and made by an ingenious gunsmith, suited me better than any of the other similar devices I have seen illustrated. It is now like the scaffolding around a building, useless and laid on the shelf. I exhibit it to show how simply and easily one may acquire a degree of skill in ophthalmoscopy. The appearance of the interior of the eye, both normal and diseased, can be better learned from cuts in any of the books I have referred to than by description here.

The diseases of the crystalline lens are of so little importance in this connection, except as related to cataract, that little need be said except of that and its relief or removal by operation. The mere diagnosis of the presence in a given case of a mature cataract is not difficult. The want of vision beyond the mere perception of light, counting fingers only near the face between the eyes and a window, and a lightish colored opacity in the locality of the lens just behind the pupil, the light or white colored area enlarging with a dilated pupil, together with a history of gradual and painless loss of vision would ordinarily be thought conclusive. Bifocal illumination and the use of the ophthalmoscope, would if confirmatory of the nature and location of the obstruction of vision add greater certainty. For the one who is going to operate, the diagnosis involves much more. On these points depend the determination of the time and variety of operation to be devised. Besides the incisions to be made, every possible means of infecting the wounds and the interior of the eye must be guarded against and every precaution taken in the technique to preclude any infection, and with the least manipulation. The care of the case after operation is one that involves too much to discuss in so little space and time. The diagnosis of congenital or lamellar cataract is of importance and can be readily made by one at all familiar with the ophthalmoscope; not without, however.

The possibility and practicability of artificially ripening or hastening the maturity of a slowly progressing senile, or blinding lamellar cataract for early extraction, so zealously and ably advocated and practiced by Dr. Boerne Bettman, of Chicago, needs more than a passing consideration. It is done by directly agitating the lense with the intact capsule through an incision in the cornea with a spatula made for the purpose.

Disease of the vitreous, or hyalitis, as characterized by cloudiness, floating bodies, flakes, films, syphilitic dust, sychysis scintillans in the vitreous and muscæ volitantes, etc., is so largely symptomatic of choroiditis and irido-cyclitis that it is not worth referring to under any other head.

We were told while students of ophthalmology that glaucoma is a terrible disease and that the general practitioner, with reprehensible temerity, overlooks it till the eyes affected with it are irretrievably lost. I think I see twenty such losses from choroiditis to one from glaucoma in any of its forms. Indeed, I see many more from iritis that have passed unheeded either by the patient or the physician. I think it is not so much the practitioner's fault as the patient's, and even this is not to be wondered at when we consider how indefinite are the symptoms in many cases of the latter two diseases, in their inception and early progress; and how passive or nearly void of marked symptoms a choroiditis may be in its whole progress except in its almost by-gone stage. There are almost no objective symptoms except that in connection with the subjective ones of slightly impaired vision there is noticed cloudiness of and floating opacities or films in the vitreous. In this stage the ophthalmoscope reveals no marked lesions of the fundus and from these the diagnosis is almost a matter of inference till the past stage of atrophy with its scotoma begin to appear. I think that if we were to inculcate as an aphorism that all persons whose vision is gradually or suddenly diminished, for more than a few hours should immediately put their eyes absolutely at rest till the trouble has passed some time, or a more definite diagnosis is made, we would save more eyes and promote more happiness than is done by railing at the general practitioner for overlooking the importance of an occasional glaucoma.

I will say in this connection, as a criticism of the books and many of the teachers, that we are too much disposed to say, when a disease is passive in character and obscure in cause as choroiditis eminently is, that it is syphilitic in nature. I am satisfied that choroiditis does originate without the syphilitic taint and get well as it may during or after the use of potassium iodid and mercury.

I think we should not strive to draw the tail of some remote and imaginary diathesis across every diagnosis of iritis or choroiditis we make, so as to label it scrofulous, gouty rheumatic or syphilitic, but that we should regard such diathetic condition as merely modifying or otherwise aggravating a disease in itself originating in the deranged functional activity of the organ or tissue.

Retinitis is hardly distinguishable from choroiditis in its inception and early progress except by very close comparison of symptoms, and there is some doubt whether it ever originates as an idiopathic disease. Its diagnosis is largely by exclusion of choroiditis and inference from negative signs. Retinal amblyopia is in many cases purely a functional ailment and non-inflammatory.

Papillitis unioocularis is a very passive disease, and is liable to have progressed so far before coming under observation and treatment that the possibility of maintaining a useful degree of vision has passed. The only thing that may attract the patient's attention is slightly impaired vision. Its complications are likely soon to obscure all means of a definite

diagnosis. I saw a patient who on Saturday noticed some obscuration of vision, and on Monday following I found the outlines of the disc entirely obliterated and vision almost totally lost. The patient was at once put on tonic and laxative remedies preparatory to the alterative treatment indicated. After she had been on the latter a few days, I found the pupil moderately dilated and adherent to the lens throughout, and punctate deposits on posterior surface of the cornea, and aqueous and vitreous too cloudy to admit of viewing the fundus. Atropia was added to the medication and within another week the pupil was well dilated and detached from the lens, and in two weeks longer the aqueous and vitreous were cleared so the retinal vessels and a large spot of choroidal atrophy near the yellow spot were visible. This all transpiring with almost no subjective symptoms except the obscuration of vision, and only a very slight hyperemia of the ocular and palpebral conjunctiva; and there was no reasonable manifest cause except slight albumen uræa, without casts or other signs of permanent renal disease. The very latent and insidious progress of this and other eye diseases I have mentioned, and the fact that very many eyes are irretrievably lost by them, suggests that we should diffuse a better knowledge of these facts among physicians and a greater apprehension among the people.

Lately we have learned to recognize a large class of functional troubles that may be classed under the head of errors of refraction, such as functional asthenopia and asthenopia of the muscular apparatus of the eye, which together with the habit deformity of strabismus, requires the use of lenses and their adjustment, and sometimes a surgical operation to correct and relieve. In language that may seem rude one may become foot-sore in his or her eyes. Excessive walking will make one's feet sore, though the feet be normal, which will be perpetuated if the walking is continuous; but with the use of a horse and buggy the feet will get well while the traveling by another mode is going on. So will the eyes, disabled by excessive functional activity, if sufficient assistance is afforded with suitable lenses properly adjusted. If there is an error of refraction to be overcome by the visual effort the functional trouble will arise earlier and persist much more pertinaciously; when, if the error is corrected, it may enable the one so troubled to use the eyes for any and all purposes with immunity.

The errors of refraction requiring such correction are those of myopia, hypertropia and astigmatism and presbyopia, separate or variously combined, with also those disassociations of the muscular apparatus of the eyes, as strabismus and the varieties of heterophoria—hyperphoria right and left, where the deviation of one eye is above the horizontal, and esophoria and exophoria, where the deviation is to the right or left of the vertical line.

To diagnose or measure some of these errors of refraction and to detect some of the disassociations of the muscular apparatus and properly correct them singly or variously combined, is many times one of the most difficult problems in physical and medical science.

Many persons, from innate singularity of endurance, will bear a great deal of some one, or combination of these defects of vision without inconvenience; others will become worried and suffer great incon-

venience from eye work with little of either, single or combined. The degree of inconvenience varies from slight fatigue and redness of eyes through all the gradations of neuralgia, headache, nervousness, stupidity, mental worry and chorea to insanity. Hence their importance can not be ignored.

In the measurement of refraction for its correction, I deem an absolute measurement necessary, by which I mean the unmasking of all latent conditions and degrees by temporary paralysis of the ciliary muscle. In this way I have resolved all cases of manifest mixed astigmatism I ever saw except *two* into some one variety or compound variety. In this, I usually find hydrobromate of homatropin sufficient. I use a 2 per cent. solution,—one or two drops instilled every five minutes three or four times, after which I wait till the accommodation is so relaxed as to render the patient unable to read No. 5½ Snellen or No. 14 Jeager, at ten inches, within the area of diverging rays with less than +3 D. lens which I have adopted as a standard of relaxation.

I have verified the efficiency of homatropin with atropia gtt. 1, instilled three times daily in same patient. I do not regard it as always sufficient or satisfactory. Yet it is the most so, consistent with the time allowed in a mere refraction case. At least it is vastly better than to merely correct manifest errors without it. In anisometropia I usually correct both eyes if I can get fusion of images, binocular fixation and the two images nearly the same size. If the patient is not annoyed by the two images with full correction of both eyes, and one is dull, I order the use of the dull eye alone when convenient, for its improvement.

The spectacle business must ever be a matter of importance and interest to all literary, scientific and professional people, as well as many who are engaged in the arts and trades, and almost all who use their eyes with any constancy at the near point. It is not like the trade in food and clothing, merely protecting the body and furnishing nourishment, but the use of lenses for the eye is to correct an error, supply a deficiency, cure or prevent disease, and requires some degree of knowledge of anatomy, physiology, etiology, pathology and therapeutics, and hence belongs to the profession of medicine.

I frequently see most egregious blunders growing out of the efforts of the mere opticians, jewelers, druggists and spectacle peddlers, by various make-believes, trying to do this work.

It belongs to the profession to prescribe for such troubles as require lenses, and physicians *ought* to prepare themselves so as to in all cases do better for the patient than the optician, spectacle peddler, jeweler, or druggist who is ignorant of the mere physiologic principles involved, to say nothing of the anatomic, pathologic and physical ones. It will not require much time for any of you to acquire all the knowledge necessary in connection with what you should already know, to enable you to do far better for the presbyopic and many others than those of the trades I have mentioned. Read a few pages in some school philosophy or physics in the chapter on light, under the sub-title of dioptrics and catoptrics, and the formation and power of lenses, and a few under hypermetropia, myopia, and presbyopia, in some good work on diseases of the eye, which you all have no doubt. Get you a box of lenses and a pair of trial frames such as belong with the box, and a

dozen sample spectacle frames of a variety of shaped nose-pieces, and a pupilometer—King's—and a little rule for measuring frames, so as to be able to make a measurement of the face or determine the shape the frame should be, and a card with a variety of sizes of print from diamond to long primer, and a card of graded large type, Snellen's, to put on the wall fifteen or twenty feet away. This outfit is only to enable you to do better than which these trades pretend to do, that of correcting presbyopia, and some cases of hypermetropia and myopia. Farther than this these trades can not go and you do not want to. I do not mean that these trades ought to be prevented from selling optical goods, but they ought to be discouraged from prescribing or pretending to say or "make believe" what lenses ought to be worn. The physician may use them just as he does the druggist, and only so.

The proper adjustment of the lenses selected, to one's eyes and face is a matter of much more importance than is thought. The pupillary distance should correspond as nearly as may be, with the space between the center of the pupils when viewing the objects at the distance the lenses are to be used. The distance between the optical center of the lenses after they are placed in the frames in which they are to be worn, should correspond to this pupillary distance. The height of the nose piece should be so arranged that the line of vision for the same object should pass through the optical center of the lens. The prominence of the nose-piece should be so arranged that the posterior face of the lenses just clears the eyelashes, and the lenses should be so otherwise adjusted that their face should be at right angles with the visual line. If the lens is tilted from this, either vertically or horizontally, it becomes in that meridian in a degree a cylinder. I wish some of our physicians could see how urbanely and complacently, yet grotesquely they violate every one of these principles in their latest purchase.

Some of you no doubt are ready to ask: "Ought not we to wear nose-glasses?" Yes, if you can get a pair that you can put on twice alike, and that does not, when on, violate two or more of the principles of adjustment I have just laid down. They are very convenient but ought not, as a rule, to be worn for more than a few minutes at a time. Glasses need a firm and steady and always-the-same adjustment.

Some no doubt say: "Should I begin to wear glasses for my presbyopia early? You should begin to wear the correction of your presbyopia just when you can no longer do your near work at a convenient distance and with desirable comfort. Over-work of eyes from ill convenience and optical disadvantages is as liable to produce disease in these organs as over-work in any other organ of the body is liable to produce disease in the same.

I notice that physicians often order patients suffering with weak or sore eyes to wear periscopic London smoked coquelles. Now if you will think for a minute that most persons are hypermetropic, and that the London smoked periscopic coquelles are usually concave spherocylinders, it will readily occur to you that this ought not to be done, because it tends to fatigue the eyes. It is better to prescribe the plano or flat ones of the same color.

Formerly, as a general practitioner, I treated headaches with alteratives, quinia and tonics, with variable results. Now, in every case of persistent or

frequently recurring headaches, not easily attributable to other causes, I deem an absolute measurement of refraction a necessary part of the investigation of the case, and if an error of refraction is detected, its correction is a necessary part of its treatment. With this course I relieve a larger per cent. of headaches than I used to with a treatment by medication alone.

It is not true that all the patients suffering from ametropic or heterophoric headaches or other nervous sequences must ever after wear the correction to have relief, for many very soon stop the trend of nervous pain and discomfort, break the habit which mere circumstances do not reestablish and have immunity ever after. In this connection I would feel recreant to my trust if I did not say, with a full knowledge of the difficulties that may beset the measurement of refraction and the correction of visual errors, and the great embarrassment and evil following the mistakes made by the non-professional and ignorant spectacle vendor, pretending that he understands dioptrics and ophthalmology, that the physician or oculist who is a physician, is the only one who ought to prescribe lenses and their adjustment for eye troubles requiring such. These trades should be discouraged from prescribing lenses, as druggists should be discouraged from prescribing medicines. I do not mean to say they may not sell, but they ought not to prescribe lenses, for such is virtually "prescribing for disease" and "practicing physic." Since writing the above I see that Dr. A. R. Baker, Chairman of the Ophthalmic Section, AMERICAN MEDICAL ASSOCIATION has just said in his address before that body, that every practitioner should possess an ophthalmoscope and a few trial lenses, and should be able to fit spectacles much better than jewelers or druggists who style themselves opticians.

To which I say, learn all you can, do all you can to benefit, in a useful way your patients and when you would call council in any case call a specialist, or any one who may have learned more in this particular line, as an assistant. Or, if you do not want to treat such cases, refer them to some one whom you may think competent who does. But still maintain by knowledge, moral deportment and efficiency that the general practitioner is the best exponent of the intelligence and usefulness of the practice of medicine and is the only one who can take in the whole situation.

LEGISLATION FOR THE PREVENTION OF BLINDNESS.

Read to the Illinois State Medical Society, Decatur, Ill., May 17, 1894.

BY BOERNE BETTMAN, M.D.
CHICAGO, ILL.

Owing to a misunderstanding, the subject which I announced for this meeting does not appear on the program. I prepared a paper on "The Working of the Lunacy Law," the intent being to elucidate some of the measures of the new law, and indicate to you how imperfectly the essential feature, at least from a medical standpoint, is being carried out. I refer, namely, to trials by a board of medical commissioners. However, I propose publishing the article later on in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, and hope its perusal will induce you to labor with the judges in your respective counties and influence them to do away with the old jury system and adopt instead a more enlightened and humane

method of investigation into the mental state of an individual, by a commission consisting of two well qualified physicians. The subject to which I will now call your attention, namely, "Legislation for the Prevention of Blindness," is also worthy of your attention and coöperation. It has been discussed so often and has been so repeatedly a theme of discourse that I will dispense with the reading of statistical tables showing the number of blind in the various communities, and the causes which are responsible for this affliction. Neither will I dwell upon the prophylactic measures which are so efficacious to prevent blennorrhœa neonatorum. I wish merely to inform you that the State Board of Charities of Illinois determined at its last meeting to induce the next Legislature to pass such measures as will reduce the percentage of blindness at least 25 per cent. The need of such legislation is probably felt more keenly in large cities. Of the 1,152 midwives in the State of Illinois, 700 are located in Chicago. Of the 28,742 births recorded last year in Cook County, more than one-half were reported by midwives. They do not carry out the preventive measures of Haussman and Credé. They do not render the vaginal tract aseptic; they do not make innocuous the germs which have lodged in the conjunctival sac of the new-born infant, and when ophthalmia neonatorum does make its appearance they frequently try home remedies for its alleviation. Only after serious damage has resulted to the eyes do they call in the aid of a physician; consequently they must be held responsible to a large degree for loss of vision in the young.

I have read two exhaustive papers on the subject in question at the Chicago Society of Ophthalmology and Otology and at the Chicago Medical Society, and requested both bodies to pass resolutions showing the need of legislation for the prevention of blindness. The necessity for adopting such a course will become more evident to our representatives if the contemplated act receives the indorsement of representative bodies of physicians. The resolutions passed by the Chicago medical societies contain a preamble and the intended bill which has already become a law in the States of Maine, New Jersey, New York and Maryland. The resolutions read thus:

WHEREAS, Statistics compiled in this country and Europe demonstrate that fully 25 per cent. of our blind owe their affliction to an inflammation of the eyes appearing a few days after birth; and

WHEREAS, Experience has proved that the inflammation can be cured and the eyesight saved in the majority of cases, if treatment is instituted at an early stage of the disease; and

WHEREAS, The destruction of the eye and blindness are usually the result of the delay of treatment; be it

Resolved, That we heartily recommend that the people of the State of Illinois, represented in Senate and Assembly, do enact as follows:

SECTION 1.—Should one or both eyes of an infant become inflamed or swollen, or reddened at any time within two weeks after its birth, it shall be the duty of the midwife or nurse having charge of such infant to report in writing within six hours to the Health Officer or some legally qualified practitioner of the city, town or district in which the parents of the child reside the fact that such inflammation, or swelling, or redness of the eye exists.

SEC. 2.—Any failure to comply with the provisions of this Act shall be punishable by a fine not to exceed two hundred dollars, or imprisonment, or both.

F. C. HOTZ, M.D.,
LYMAN WARE, M.D.,
BOERNE BETTMAN, M.D.,
Committee.

I have suggested to gentlemen to adopt similar recommendations in medical assemblies throughout the State, and in accordance with this idea the Central Illinois District Medical Society passed the following resolutions at their last meeting, held at Pana, April 22, 1894:

WHEREAS, Laws have been enacted by the Legislatures of several States relative to the prevention of blindness due to ophthalmia neonatorum; and

WHEREAS, Efforts are being made by the Illinois State Board of Charities to influence the passage of a similar law by the Illinois State Legislature of 1894-95; be it

Resolved, That the District Society of Central Illinois, convened at Pana, April 22, 1894, hereby indorses and commends the efforts being made by the Illinois State Board of Charities to secure appropriate legislation relative to the prevention of blindness due to ophthalmia of the newborn.

And now, gentleman, I hope this convention representing the united interests of the regular profession of the State of Illinois, will aid the good cause by encouraging, with your stamp of approval, the work of the State Board of Charities. I submit to you for acceptance resolutions containing the sentiment of those already read:

WHEREAS, Statistics compiled in this country and in Europe demonstrate that fully 25 per cent. of our blind owe their affliction to an inflammation of the eyes appearing a few days after birth; and

WHEREAS, Experience has proved that the inflammation can be cured and the eyesight saved in the majority of cases, if treatment is instituted at an early stage of the disease; and

WHEREAS, The destruction of the eye and blindness are usually the result of delay in treatment; and

WHEREAS, Efforts are being made by the Illinois State Board of Charities to influence the passage of an act for the prevention of blindness; be it

Resolved, That the Illinois State Medical Society, convened at Decatur, May 17, 1894, hereby indorses and commends the efforts being made by the Illinois State Board of Charities to secure appropriate legislation relative to the prevention of blindness due to ophthalmia of the newborn.

DISCUSSION.

DR. E. P. COOK, Mendota—Permit me to make a remark in connection with what Dr. Bettman has said, although he did not read his paper, in relation to the working of the law for the commitment of the insane. It is a subject in which I have taken a great deal of personal interest, and the Transactions of this Society show that I was the first to present the matter in this State Medical Society. By following up the movement it has gradually grown strong enough so that we have the present law. While it is true that we are working under a law that is defective, still it is very much in advance of that previously existing. My opportunity for observation of the working of that law has been so limited that I can not base any opinion of its merits upon that observation. Shortly after the law came into operation, in July, I saw the judge having in charge such matters, and had a case before the court. In the course of conversation with the court, however, he was unaware that there had been any change in the law, and that there was no provision for insane cases. He was astonished to hear the law had been changed. That was after July 1. He took an interest in the matter, looked it up, and shortly after had the case investigated in private. It was cruel to take the case before a court, and the judge was right and expressed his approval of the new law. The case was investigated at the home of the patient and the patient finally sent to one of the State institutions. It was a serious case, and later the remains of that party were taken to the former home.

As my observation has been so limited with reference to the working of the law, I would like to hear some expression of opinion from those who have given it more attention. It occurs to me the majority of cases should be so investi-

gated, as was suggested by some remarks, and the exceptions are those that should be publicly investigated.

THE CHAIRMAN—Can any one present give us any light on this subject?

DR. BOERNE BETTMAN, Chicago—There is a great deal to be said on this subject, and that was the object in preparing the paper alluded to. All of the lunacy cases are not tried by the new system of a board of commissioners.

Before coming to this convention I had statistics sent to me from Springfield, wherein it is stated that since August 10, 1893, up to May 1, 1894, there were all in all about seven hundred and thirty-one cases adjudged insane. Of this number about ninety-six were tried by commissioners, the rest by jury. In the city of Chicago there were 411 cases committed to various insane asylums, not one of this number being tried before a commissioner. In conversation with Judge Scales and Judge Brown—county judges of Cook County—as to the reason why they would not appoint commissioners to try insane cases, they said they were being called upon so frequently by shyster doctors of Chicago, who were so anxious to earn \$5 which they were entitled to for an examination of a case, that rather than have incompetent commissioners they would insist upon the old jury trial. In some of the out-lying districts, especially throughout the country here, a great number of cases, I am glad to say, are being tried by commissioners, and I am quite sure that if the physicians assembled here to-day would use their influence with the respective county judges in the various counties, and show them the necessity of appointing a board of commissioners, more cases would be tried in this way.

Section 5 of our new law was changed after the first reading. The first reading of the law read something like this, that "cases of insanity shall be tried by jury or by commissioners at the discretion of the judge," etc. The first seven words were retained after the first reading of the bill; the rest of the clause was erased for some reason that I could not learn. The following clauses, 9, 10 and 11, go on to elucidate the duties of the jury or commissioners. Section 5, as it now stands, however, states that the "trial shall be by jury." I have been told by some learned lawyers and judges that this one section—section 5—makes the others ineffective. Again, other lawyers and judges have told me that the true conception and essence of the law could not be obtained from the wording of one section; that in order to have a proper expression of the law all sections must be taken together. Therefore there are some judges who refuse trials by commissioners because they consider the law inefficient, while others say it is unconstitutional.

I have talked over the matter with several lawyers, and they say the only way to settle it would be to get an opinion from the Supreme Court, and I hope in a few weeks to have a case taken there for final decision.

DR. D. W. GRAHAM, Chicago—I would like to say just a word or two along the line of Dr. Bettman's remarks. The bill as originally drawn passed part of the way through, but there was a little coterie of lawyers who opposed anything that doctors proposed in the Legislature, and they thought it would kill the bill, or the essence of it, by striking out a certain clause in section 5, leaving the statement as Dr. Bettman has given it, that "trial shall be by jury." I was one of the members of the Society who had something to do with this matter, and after consultation with some of the experienced members of the Legislature and best lawyers, we were told that it was too late to try to get the bill amended; that the best thing to do was to get the bill through as amended, giving it as their opinion that the bill was efficient. It was claimed that the striking out the clause in section 5 had killed the essence of the bill. Other lawyers told us that in their opinion it would be a matter for the Supreme Court to decide whether the amendment did destroy the commission feature of the bill. But the understanding was that the law should be accepted as passed, and let the courts decide whether the present law, as amended, allows commissioners to try cases or not.

SOCIETY PROCEEDINGS.

American Association of Obstetricians and Gynecologists.

Abstract of the Proceedings of the Seventh Annual Meeting, held in Toronto, Sept. 19, 20, and 21, 1894.

(Continued from page 552).

DR. A. H. CORDIER, of Kansas City, read a paper on
HYDROSALPINX.

He said articles had appeared in medical journals by the so-called conservative writers in the last few months in which aspiration or catheterization of the Fallopian tubes filled with liquid of any character had been advocated as a procedure of relief and cure. Such articles had engendered a retrograde tendency on the part of many, and it is sure to be at the expense of an increased mortality from subsequent operative procedures to cure these cases after abandoning the unsurgical and uncertain tinkering. Hydrosalpinx had been looked upon as the least hazardous of all inflammatory results to the Fallopian tubes. The writer claimed that hydrosalpinx was a sequel of some old inflammatory diseases of the tubes, an offspring of a virulent process that had wrought permanent and irreparable injury to the delicate structures of the tubes. The writer did not consider hydrosalpinx as a retention cyst. Cases were rarely diagnosed prior to operation. A digital examination of one of these cases causes less pain than is produced in examining a pyosalpinx. In one case occurring in the essayist's practice the uterine extremity of the tube was largely dilated and filled with a clear fluid, while in the ampulla there existed a collection of pus, separated from the clear fluid by a closed stricture.

INFLAMMATORY DISEASE OF THE UTERUS AND APPENDAGES UNDER VARIOUS MODES OF TREATMENT.

By DR. JOSEPH PRICE, of Philadelphia. The methods of treatment of pelvic disease may be broadly classed as those that are proved, and those that are experimental. Many of the operations now successful were formerly failures because of the insufficient knowledge of how to deal with a wounded gut, how to make an anastomosis, or to do a bowel resection. Hence it is to be put down as a postulate in pelvic surgery that no man has a right to attempt it who does not know how to deal with all the complexities of intestinal surgery. To know when to stitch and when not to stitch the intestine, is as necessary as to know when and when not to operate. The leaving of pus tubes to recover of themselves is just one step removed to stuffing them with gauze and trusting to Providence. To puncture and evacuate and stitch a suppurating cyst—say a real ovarian cyst—would be derided out of sight, and yet, said the essayist, we have operators who do not hesitate to do this with the smaller pus tube.

DR. GEO. H. ROHÉ, of Catonsville, Md., said that conservative surgeons were very much shocked at first by the proposition to remove the uterus, together with the adnexa, in cases of inflammatory disease in the pelvis. However, the operation has won its way against opposition and must now be considered as an elective procedure in cases of extensive suppuration with adhesion, and especially in those cases so numerous in which the endometrium is likewise the seat of purulent inflammation. Gonorrhœal, puerperal or tubercular inflammations and dense adhesions, with displacement of the uterus, demand removal of this organ as well as of the appendages if permanent good results are expected. Total extirpation of the uterus and appendages by the vaginal method for pelvic suppuration was first done by Péan in 1886. Péan, Segond, Doyen, Jacobs and Landau have performed the operation upward of five hundred times with an average mortality of less than 5 per cent. The operation by the vagina is easier than abdominal extirpation, and in the hands of most surgeons who have performed it, is attended by less shock. It leaves the parts in condition for perfect drainage. The after-treatment is simple. Pa-

tients may sit up in a week or ten days. Forceps are preferred to the ligature for hemostasis.

THE PRESENT STATUS OF THE TREATMENT OF PELVIC INFLAMMATION; OR HOW SHALL WE DEAL WITH PELVIC INFLAMMATORY TROUBLES?

By DR. W. B. DORSETT, of St. Louis. The author drew the following deductions:

1. Pus in quantities is hard to deal with down in the pelvis in laparotomy cases and, if possible, should be evacuated prior to taking out the tubes and ovaries, either through the cul-de-sac of Douglas, or if between the layers of the broad ligament at the side of the uterus, laparotomy should be done at some future time.
2. Pus sacs in the tube near the uterine end of the tube can be evacuated through the uterus by packing the horn.
3. Parametritis or cellulitis of the ancients is, except under rare instances, a secondary trouble due to a foul uterine cavity. Clean out the cavity and stop the source of poison and you do the best thing possible to be done.

SECOND DAY—AFTERNOON SESSION.

DR. C. C. FREDERICK, of Buffalo, read a paper on
THE RELATIONS OF RENAL INSUFFICIENCY TO SURGICAL OPERATIONS.

The author reported observations based on nearly three hundred operations at the Buffalo Woman's Hospital, supplemented by the experience of several prominent operators. By renal insufficiency is meant any condition of the urine which shows deficient elimination of waste products whether from functional inactivity or from disease of the kidneys. Whether renal insufficiency is a contra-indication to operation depends on the consideration of three factors: 1, the amount and nature of the insufficiency; 2, the character of the lesions for which operation is proposed; 3, the causal relation which the patient's disease holds to the renal insufficiency. Every patient's urine before operation should be collected for twenty-four hours, except when operation is urgent, as in ruptured ectopic pregnancy, for example. In examination of urine the important fact to ascertain is, whether the kidneys are crippled, or in full or nearly normal functional activity. Women with chronic endometritis are especially liable to functional insufficiency. Most gynecologic patients who are run down physically, present the same condition. A knowledge of the state of the patient's kidneys is of value to the operator and anesthetizer. Renal insufficiency renders the patient more liable to shock from operation and a slower convalescence.

DR. I. S. STONE, of Washington, D. C., followed with a paper entitled "Some Results of Ether Anesthesia in Abdominal Operations."

DR. EUGENE BOISE, of Grand Rapids, Mich., read a paper on
THE CAUSE OF THIRST FOLLOWING ABDOMINAL SECTION.

The author, after stating the generally accepted proposition that thirst is a sensation indicating that the tissues of the body are in want of more water, argues that the sensation as felt in the mouth and throat is reflex, and that the real point from which the sensation arises is in the abdominal viscera; that from these the sensation is conveyed to the consciousness by fibers of the sympathetic system of nerves; that while ordinary thirst is caused by the withdrawal of water from the tissues to refill the veins depleted by excessive perspiration or otherwise, the thirst following abdominal section is caused by the withdrawal of water from the abdominal viscera to fill veins partially collapsed by reason of diminished blood supply because of contraction of the arteries of the viscera. He briefly stated those physiologic facts which are universally accepted or have been experimentally proven on which the theory is based:

1. Thirst is a sensation indicating that the tissues need more water.
2. The sensation felt in the throat is reflex.
3. The origin of the sensation is believed by leading physiologists to lie in the sympathetic system of nerves because: a, no cerebro-spinal nerves can be found which convey the sensation to the consciousness; and b, nutrition is presided over by the sympathetic system, and thirst is a disturbance of nutrition.
4. The origin of the sensation is probably from the abdominal organs because: a, these are so rich in sympathetic fibers; and b, introduction of water into the stomach so instantaneously allays thirst.
5. The sensation invariably follows the withdrawal of any considerable amount of fluid from the body; the with-

drawal of such fluid causes proportionate collapse of veins and capillaries.

6. Capillaries tend to remain at normal tension, and when suddenly collapsed in any degree attempt to regain that tension by taking water from the surrounding tissues.

7. Irritation of sympathetic nerves causes contraction of the arterioles supplied by such nerves.

8. Sudden contraction of the arterioles supplying any organ is followed by lessened tension in the capillaries and small veins of that organ.

9. Abdominal section invariably causes direct and reflex irritation of the abdominal sympathetic nerves.

10. Such irritation causes contraction in some degree of the arterioles of the abdominal viscera with consequent lessened tension in their capillaries, and compensatory withdrawal of water from their tissues. And is it not probable that such circulatory disturbances give rise to the sensation of thirst?

Dr. HULBERT, Second Vice-President, took the chair, and PRESIDENT ROHÉ delivered his address. He selected for his subject,

INTESTINAL OBSTRUCTION FOLLOWING OPERATIONS IN WHICH THE PERITONEAL CAVITY IS OPENED.

He said obstruction of the bowels causes between 1 and 2 per cent. of the deaths following ovariectomy and other operations involving opening of the peritoneal cavity. Sir Spencer Wells lost eleven out of his first series of a thousand cases of ovariectomy from this cause. Fritsch places his mortality from ileus post-laparotomy at 1.6 per cent. Klotz has reported 31 cases of intestinal obstruction with 5 deaths due to this complication in a series of 421 abdominal sections and 148 vaginal extirpations of the uterus. The speaker had seen a case where the small intestine was doubled upon itself, and so firmly adherent that the gut was entirely impervious. Similar cases have been reported by Skutsch and Tuttle. Joseph Price quotes an interesting case from Louis, where an adherent ovarian cyst, emptied by the trocar, so dragged upon the bowel as to cause obstruction. Volvulus sometimes occurs after abdominal section, but probably only after some previous adhesion or constriction of the bowel. Two cases reported by Nieberding illustrate this. The symptoms of intestinal obstruction post-laparotomy are essentially the same as those of primary obstruction. Klotz has had much success in treating acute obstruction following abdominal section by the following method: As soon as symptoms indicating obstruction appear, he washes out the stomach with from four to six quarts of warm salt solution. Should this fail to relieve the symptoms he repeats it, and then passes into the stomach through a tube a large dose (one and a half to two ounces) of castor oil. In all cases so treated the active peristaltic movements set up caused passage of flatus and feces within ten hours. Evidently it is only in cases of fresh and friable adhesions that this method can be successful. Rectal injections of water or air may at times be curative when the obstruction is due to intussusception, volvulus or soft adhesions of the lower portion of the intestine, but where the obstruction is due to cords or bands they can manifestly be of no avail.

THIRD DAY—MORNING SESSION.

Dr. L. H. DUNNING, of Indianapolis, Ind., contributed a paper on

NEPHRECTOMY

in which he reported four cases, of which the following is a synopsis:

Case 1.—Nephrectomy for painful movable kidney. An unsuccessful nephrorrhaphy had been done two and a half years previously. The patient had been bedridden four years. A lumbar nephrectomy was done, the patient recovering and obtaining entire relief from pain. The author deplores the necessity of removing a healthy kidney only because movable and painful. He thinks that the success of recent methods for anchoring the kidney will obviate the necessity of such a procedure.

Case 2.—Nephrectomy for persistent hydronephrosis, due to stricture of the ureter at its pelvic extremity. The tumor was mistaken for an ovarian one. It was removed by a median abdominal incision.

Case 3.—Sarcoma of the kidney in a child 2 years old. Nephrectomy and recovery. The tumor had been discovered only four weeks previously. A median incision (abdominal) was employed.

The writer has collected the histories of twenty cases of sarcoma of the kidney operated upon since 1885 in children

under 5½ years of age. Of these five perished and fifteen survived the operation, thus showing a mortality of 25 per cent. This is a surprising decrease in mortality, and is probably due to improved details in technique rather than to radical changes in the method of operation.

Case 4.—Nephrectomy for uretero-vaginal fistula following vaginal extirpation of a cancerous uterus. The operation was done four weeks after the hysterectomy. The ureter was torn across in enucleating a nodule of cancerous tissue from the folds of the broad ligament on removal of the uterus. Nephrectomy was done four weeks subsequently because of intermittent closure of the fistula and the morbid mental condition of the patient. The cancer had recurred in seven weeks, and patient died three months later of exhaustion and septicemia.

Dr. C. A. L. REED, of Cincinnati, read a paper with the caption,

PROGRESSIVE CUTANEOUS ATROPHY OF THE VULVA (*kraurosis vulvæ*.)

He reported six cases in which the pathologic and clinical features were characteristic. The first changes obvious to the naked eye consist of small vascular areas around the introitus vaginae. These areas are not elevated, as if seats of merely inflammatory engorgement, but are slightly depressed relatively to the adjacent epithelial surfaces. They are exquisitely painful to the touch and efforts at sexual intercourse are generally agonizing and futile. About this time inspection will reveal a narrowing of the vaginal orifice associated with diminishing elasticity of the structures. The cutaneous or muco-cutaneous surfaces will now be observed to have lost a certain proportion of their pigment, giving them a more or less translucent appearance which increases until it becomes so transparent that the larger capillaries and minute ecchymoses may be readily discerned beneath it. The skin thus affected becomes tense, effacing to a more or less degree all of the normal folds of the vulva and narrowing the vaginal orifice until, in the case of a multipara, "incredulity may be excused when the patient states that she has born children."

Knowledge relative to progressive cutaneous atrophy of the vulva is too nebulous to justify final conclusions. That which seems to be conclusively demonstrated may be summarized as follows:

1. Progressive cutaneous atrophy of the vulva is a distinct disease; 2, it is of very rare occurrence; 3, it is essentially inflammatory in character, differing from other inflammations of the skin in the marked progressive atrophy which succeeds the stage of hyperemia and infiltration; 4, it is limited in its manifestations to the vulva; 5, it is manifestly not of syphilitic origin; 6, its etiology is so obscure as to suggest a primary causal lesion in the trophic nerve supply of the vulva; 7, the affected areas may be successfully excised.

Dr. GEO. F. HULBERT, of St. Louis, read an interesting paper on "The Element of Habit in Gynecic Disease," an abstract of which would not do justice to its author.

One of the interesting features of the meeting were the remarks on intestinal anastomosis and a beautiful demonstration of the uses of the Murphy button by Dr. J. B. Murphy, of Chicago.

RESTORATION OF INTESTINAL CONTINUITY WITHOUT MECHANICAL DEVICES.

By Dr. W. E. B. DAVIS, of Birmingham, Ala. The purpose of this paper was not to claim originality for any special technique, but rather to consider the various operations and to show that mechanical devices can in a great proportion of cases be better dispensed with by the surgeon who has had much experience in intestinal work, either on the lower animals or on the human intestine. Still there is a place in anastomotic work for bone plates, catgut plates, and other devices of this sort, and the Murphy button, but the experienced surgeon will find the field of their application very limited. These devices are of great assistance to the surgeon of limited experience in this class of work, and should be recommended in the event of an operation having to be done by one who has not had the opportunity of becoming familiar and skilled in suturing of the intestines. The Murphy button is a valuable device for cholecystenterostomy and is superior to anything yet suggested for that purpose. The button is so small that it can pass through the intestine without causing any trouble, and it can be depended upon with almost absolute certainty to produce satisfactory adhesion and a competent opening between the gall-bladder and intestine. The end-to-end operation or circular enterorrhaphy is a dangerous procedure, from the fact that injury

to the mesenteric border is liable to produce sloughing, and it is never possible to say that a surgeon will not have this complication follow the operation. Besides any stitch method in the end-to-end operation requires so much time that it should be objected to usually on that account. The Murphy button can be used very satisfactorily for this purpose, and where end-to-end operation is to be resorted to, Dr. Davis is of the opinion that this device should be used unless the surgeon is an expert in intestinal suturing. The operation of Abbe is a plausible one, but is not so reliable as the one which has proven satisfactory in the experimental work of the author. The incision is not made so long as in the case of Abbe, and is about three inches in length. In the case of gastro-enterostomy the intestine and stomach are both brought into the wound, and the incision three inches in length made in both. Interrupted sutures are taken through the coats of the bowel and stomach around the entire length of the incisions and are tied on the inside, the last stitch being tied on the outside and turned in. A continuous outside safety stitch is then taken through the peritoneal and muscular walls. In bringing the small intestine together the same procedure is followed, the interrupted through-and-through stitch of large silk being taken instead of an over-hand stitch, as recommended by Abbe, and only one row of outside sutures which may be interrupted or continuous, preferably the latter. This operation can be done very quickly and is more reliable than the various ones with mechanical aids to anastomosis. Particularly is this method of operating valuable in cases of simple stricture of the bowel, and there will be a great many of these cases now, inasmuch as there are more operations done on the intestines.

Dr. F. BLUME, of Allegheny, Pa., reported a very interesting case of cholelithiasis in a woman 37 years of age, in which the number of calculi removed besides minute concretions was 123, weighing fourteen drachms. The stone removed from the gall bladder weighed four and three-quarter drachms.

THE REASON WHY PATIENTS RECOVER FROM TUBERCULOSIS OF THE PERITONEUM AFTER OPERATION.

By Dr. ROBERT T. MORRIS, New York. The author stated that he had been experimenting with a view to determining the reason for the cure of tuberculosis of the peritoneum after operation, it being a well-known fact that more than 80 per cent of these cases recover as a result of simply exposing the peritoneal cavity to the air. Dr. Morris collected fluid from the abdominal cavity of patients with tuberculosis of the peritoneum, placed it in an incubator for forty-eight hours and developed the bacteria of putrefaction which would ordinarily enter in such fluid exposed to the air. From this fluid Dr. Eiloart then isolated a toxalbumin the product of the growth of putrefactive bacteria in this peritoneal fluid. The toxalbumin employed to destroy tubercle bacilli in culture tubes destroyed them very promptly. A control experiment, which was not yet completed, was in progress for determining if these bacteria were absolutely dead. However, enough had been proven to show that tuberculosis of the peritoneum recovers after operation, because putrefactive bacteria produce a toxalbumin in the fluid which is fatal to tubercle bacilli in the peritoneum. The reason why it is more effective in curing cases of tuberculosis of the peritoneum, than tuberculosis of the knee joint, is because the lymphatic anatomy of the peritoneum is such that any toxic agent absorbed by the lymphatics of the peritoneum is brought into close contact with the entire structure; whereas in the knee joint the lymphatics are fewer and with more definite channels.

The following officers were elected: President, Dr. J. Henry Carstens, Detroit; First Vice-President, Dr. W. E. B. Davis, of Birmingham, Ala.; Second Vice-President, Dr. Henry Howitt, Guelph, Ont.; Secretary, Dr. William Warren Potter, Buffalo; Treasurer, Dr. X. O. Werder, Pittsburg.

The place of meeting for 1895 was referred to the Executive Council for decision.

American Public Health Association.

Twenty second Annual Meeting, held at Montreal, Canada, Sept. 25-28, 1894.

(Continued from page 554.)

Dr. A. N. BELL, of Brooklyn, regarding the paper of Dr. Lee, "The Cart Before the Horse." The writer distinguished the horse as the public and the cart as the contractor or plumber—although he meant no offense to the latter gentleman; that the horses or public are frequently neglectful

in doing their duty he had no doubt, and he thought the case often is that health officers neglect their duty also.

Dr. S. W. ABBOTT, of Wakefield, Mass., among other things said, that several of the laws were inoperative or ineffective; especially was this true in his State.

Dr. P. H. BAYCE, of Toronto, thought perhaps the Committee had overlooked the subject of purification and how to prevent pollution of public water supplies, yet their work had been splendid and the Committee might be excused on account of the limited length of time that they had to formulate their report.

Mr. JOHN MITCHELL, of New York, a master plumber and delegate from the Master Plumbers' Association, stated that they are in hearty support of vigorous laws and prompt and decided enforcement of such laws in this matter. He thought this body would be a power to enforce earnest and active laws of sanitary inspection. The architect directs no plumbing in the public buildings to-day; we are simply a machine. The architect, contractor and householder throw the responsibility on us, which we do not justly deserve. We desire participation in the plans as laid out by the architect and contractor. The plumbers are in earnest to help carry out this work, as suggested in Dr. Lee's paper.

Dr. LEE, discussing his paper, expressed his thanks for the feast of good things we have heard to-day. It would be invidious to refer to any paper. The one that appealed to him most strongly was the "Constant Pollution of the Homesteads of Farms," for surely the pollution of the family well is most prolific of this enteric form of trouble.

Dr. C. A. LINDSLEY, of New Haven, Conn., cited a case of failure of "the cart-before-the-horse" plan, as follows: In his city a law was passed by the common council to appoint a "plumbing inspector" to be approved by the State Board of Health. A gentleman was selected for this position and then presented himself before the State Board for examination. He failed to pass the necessary requirements, and the Board so reported to the mayor and council. The man was, nevertheless, appointed to the position without the indorsement of the State Board.

MANAGEMENT IN DIPHTHERIA EPIDEMICS IN RURAL DISTRICTS,

By Dr. CHAS. A. HODGETTS, L.R.C., Toronto, Ont., was the title of a well written paper. The author stated that he intended to treat more especially of the people who live in the land of the ax and hoe; and the treatment of the disease as it appears in lumber camps, and out-of-the-way places; how cases appearing there can be isolated, quarantined, treated, etc.; all of which was also particularly given in detail.

The next paper "Practical Difficulties of Medical Health Officers and Physicians in dealing with suspected Cases of Diphtheria," was by Dr. PETER H. BRYCE, Secretary of Provincial Board of Health of Ontario, Toronto. (Dr. Bryce's paper will appear in the JOURNAL at an early day.)

Dr. J. ED. LABERGE, Bacteriologist to the Local Board of Health of Montreal, read the next paper on

DE LA VACCINATION COMME PROPHYLAXIS DES MALADIES CONTAGIEUSES.

Dr. FORMENTO said that the paper of Dr. Laberge was of much scientific interest, as well as of excellent intrinsic value. It opens the field of preventive medicine, by treatment by inoculation of a formidable character. He personally thanked Dr. Bryce, as well as the other gentlemen, for the scientific and practical ideas each had advanced.

On motion of Dr. Bryce, seconded by Dr. J. Berrien Lindsley, further discussion of the series of papers on diphtheria was postponed until the next (Wednesday) morning.

The two succeeding essays were upon motion read by title: "Notes on the Soil Factor in the Development and Prevention of Infectious Diseases," by Dr. EDWARD PLAYTER, Ottawa, Canada; and "Drainage of Montreal," by Mr. ALFRED BRITAIN, Assistant-Surveyor of the city of Montreal, which was followed by Dr. J. D. GRIFFITH, of Kansas City, Mo., who read a lengthy paper on,

INNOCUOUS TRANSPORTATION OF THE DEAD.

The author took the ground that enough care is not taken in transporting dead bodies from one place to another. No undertaker is capable of making caskets perfectly air-tight, and cars bearing dead bodies are always pestilential. The precaution of wrapping bodies in solutions of disinfecting fluids is useless when it is remembered that a couple of hours dries the cloths. There is a danger of infection even from the bodies of victims of consumption, and besides the baggagemen of trains the general traveling public are exposed through their baggage. Dr. Griffith recommended a law

compelling the railways to divide a portion of the baggage-cars off as a large air-tight compartment for the carriage of dead bodies.

DR. BRYCE suggested that precautions should be taken to prevent the carriage by railways of persons suffering from consumption, as well as all contagious diseases. Consumptive patients are more dangerous than their dead bodies.

DR. HINGSTON was opposed to Dr. Griffith's scheme because he was opposed to increasing facilities for moving dead bodies. No bodies of people dying with infectious diseases can be removed from Montreal, and the railways will not carry them.

A young member suggested that no dead bodies should be allowed to be carried except as ashes after being cremated. On Dr. Bryce's motion a committee was appointed to discuss the whole question.

Adjourned at 6:20 o'clock.

The formal opening of the Association took place at Windsor Hall at 8:30 o'clock P.M. Many ladies graced the audience with their presence. The Address of Welcome by Lieutenant-Governor Chapeau, of the Province of Quebec, was a tribute to the Association, and the addresses of the Mayor of the city, Hon. J. O. Villeneuve; Dr. Robert Craik, Dean of the Faculty of McGill University; Hon. L. P. Pelletier, Provincial Secretary; the President, Dr. E. P. LaChapelle; Dr. Mendizabal, of Orizaba, Mexico, each in turn received round after round of applause.

The opening of the proceedings was fixed for 8:30. At that time the capacious hall was comfortably filled. Gruenwald's orchestra was on hand, and promptly at the time fixed for the opening struck up a medley of British, Mexican, United States and Canadian airs. In a few minutes an imposing procession began to file down the hall from the eastern entrance. Dr. E. P. LaChapelle, the

PRESIDENT OF THE ASSOCIATION, LED,

and following him were: His Honor Lieut-Governor Chapeau, Hon. L. P. Pelletier, Provincial Secretary; His Worship the Mayor; Dr. Anderson, U. S. Consul-General; Dr. R. Craik, Dean of the Medical Faculty of McGill University; Dr. Durgin, Boston; Dr. Paley, New Westborough; Dr. Formento, New Orleans; Dr. Montizambert, of the Dominion Quarantine Service; Dr. Gibon, of the U. S. Navy; Dr. Cormick, of Kentucky; Dr. Watson, of Burlington, Vt.; Dr. Hingston, Dr. Holden, of Burlington, Vt.; Dr. J. Bell and the Mexican delegates. These gentlemen were loudly cheered as they passed up the hall and ascended the platform. The orchestra having leisurely completed its selection, Dr. LaChapelle rose to introduce Dr. Craik. The Chairman was evidently a lover of brevity. "Your Honor, ladies and gentlemen," he said: "I have the honor to present to you Dr. Robert Craik, Chairman of the Local Committee."

DR. CRAIK proceeded to read a little address of welcome. The Association was one whose aims appealed to everybody, no matter what their

AGE, CREED OR NATIONALITY,

and whether he or she might take any interest in it or not. The object of this meeting was to introduce to the people of Montreal, a body of eminent men coming from all parts of this continent, from distant Mexico and from every part of the United States and of Canada.

Canada was not slow to recognize the power for good which such an Association offered, and had taken a prominent part in its operations. Canadians prominent in health and sanitary matters had from time to time occupied important positions among its officers, and our distinguished sanitarian and fellow townsman, Dr. E. P. LaChapelle, President of our Provincial Board of Health, had this year been its President; and it is largely to his influence and to the appreciation of his great gifts as a leader in matters connected with public health that Montreal owed the gratification of seeing the Association working in its midst to-day.

Dr. Craik proceeded to extend a welcome to all and concluded: "Let us, regardless of all

ARTIFICIAL LINES OF SEPARATION,

join together as one great family, striving earnestly to prevent as far as may be human misery, disease and premature death and to increase by every means in our power the sum of human health, happiness and prosperity."

The Chairman then briefly introduced Lieutenant-Governor Chapeau. His Honor was greeted with hearty applause when he rose to speak. He extended first a welcome in French. A governor had no right to speak, only to sign. He would have been proud to have had the privilege of sign-

ing the address of welcome to this important Association. He would extend a hearty Canadian *Bienvenu* to the Association. Then His Honor addressed the meeting in English. Mexico had treated the Association hospitably at its last meeting. Montreal was doing the same now and would continue to do so. There was no use for him to say how noble was the object of the Association. There might be labor congresses, peace congresses, and congresses for this, that, and the other thing. There could be no greater and more noble object than that of the Health Association, the object of conserving the health of this continent and of the world. People said that the length of life is decreasing; but that would no longer be a fact when the Association had succeeded in its noble aims. One thing they had succeeded in doing. They had stopped the great plagues which were once the dread of humanity. The questions which the Association discussed were large and important. Personally he could appreciate medical science. He had been a sick man for fifteen years, and as a good patient he appreciated his doctor. He could consequently appreciate the Association, the great doctor of humanity. He hoped that the fruits of its discussions would

BE TAKEN ADVANTAGE OF

by the national and civic governments of the continent. The Association had reason to be proud of what its members had done for Canada. The first Board of Health in Canada, that of the city of Montreal, was organized when one of the members of the Association, Dr. Hingston, was Mayor of the city. The President of the Association had also done much as Chairman of the Provincial Board of Health to perfect the system of provincial sanitation. So long as he was Lieutenant-Governor he should consider it one of the most important functions of the Government to assist in carrying out the work in which the Association was concerned. His Honor incidentally remarked that the efforts of the Association reminded him of the great benefits sanitary science had rendered to humanity in the question of food alone. It was for the Association to prove the falsity of the verses:

"Placid I am, content, serene,
I take my slab of gypsum bread,
And chunks of oleomargarine
Upon its tasteless sides I spread.

"The egg I eat was never laid
By any cackling, feathered hen;
But from the Lord knows what 'tis made
In Newark by unfeathered men.

"I wash my simple breakfast down
With fragrant chicory so cheap;
Or with the best black tea in town—
Dried willow leaves—I calmly steep.

"But if from man's vile arts I flee
And drink pure water from the pump,
I gulp down infusoriae,
And hideous rotatoriae,
And wriggling polygastricae,
And slimy diatomaceae,
And hard-shelled orphryocercinae,
And double-barrelled kolpodae,
Non-located ambrellae,
And various animalculae;
Of middle, high and low degree;
For nature just beats all creation
In multiplied adulteration."

HON. L. P. PELLETIER, the Provincial Secretary, was next introduced and read an eloquent address of welcome.

HIS WORSHIP, the Mayor, then took the stand and read a brief address of welcome on behalf of the city. He clinched the good effect produced by the simple words of welcome by expressing his wish to be enrolled as a member.

THE PRESIDENT called upon Dr. Gregarios Mendizabal, of Orizaba, Mexico, to reply on behalf of the Association. Although but few understood the speech, for it was in Spanish, the orator evoked round after round of applause by the very fervor of his eloquence and the musical cadence of his flowing periods. He was proud to speak in Montreal as the representative of the Spanish race. Science knows no country, but attends to the salvation of the people of the whole world, and the natural prosperity of all the peoples thereof. The fame of Montreal, and its great institutions of learning and beautiful benevolence had reached Mexico. Nor had the people of Mexico forgotten

THE GLORIOUS HISTORY

of the northern part of the continent. The people of Anglo-Saxon, French and Spanish ancestry had equal right to be proud of the development of Canada.

The President then delivered the annual address, in the course of which he said: The American Public Health As-

sociation, since its foundation, now twenty-two years ago, ever true to its mission, has never ceased to labor for the advancement of sanitary science—for the promotion of measures and organizations that should effect the practical accomplishment of the laws and principles of public hygiene. It has thus realized the brightest hopes and most enthusiastic provisions of its worthy founders, and has extended its benefits and influence over the whole of North America; to-day it embraces the three great countries that form this vast continent: The United States of America, the Republic of Mexico, and the Dominion of Canada, all three working together in brotherly emulation, recognizing no political boundaries, and valiantly striving to attain one unique and humane object—the dissemination to all of the knowledge of public hygiene and the development of respect for its decrees. Every year the Association changes its places of meeting, and this for good reasons. The spirit of its founders being to establish, above all, a body for the diffusion and popularization of public sanitary science, this object could not be better attained than by extending to its greatest limits the influence of the Association; and for this purpose, no surer means could be found than this bringing together of its distinguished members

IN DIFFERENT DISTANT CITIES.

Judging, as I do, from what has occurred elsewhere, I feel convinced that Montreal, and this province in general, will reap much benefit from this learned and important congress. Wherever the Association has met, it has stimulated and guided the march of progress, and it is becoming more and more respected and honored by the grateful public, for it ever leaves behind it tangible and irrevocable proofs of the good work it propagates. Hygiene is no longer the patrimony of physicians exclusively; it is a science open to all; laymen and clergymen, men and women. It needs supporters and workers in all classes; engineers, architects, teachers, chemists, etc. In a word, it appeals to all who are competent to aid its progress. Public opinion has been converted, popular prejudice giving way to unwavering confidence. Governments have thus been enabled, without risking their often precarious existence, to cause important decrees of hygiene to be sanctioned by parliaments, and to have the necessary funds voted to permit of their being put into practice. Hygiene having thus drawn their attention, they begin to understand the necessity of strenuous means being employed to assure its advancement, and they realize the fact that, instead of being detrimental to public commercial interests, sanitary measures favor their growth by protecting the country from disease. They recognize, to-day, that the money and labor spent in upholding sanitary principles are repaid manifold by the security afforded to public health, a more continuous and active trade being thus assured. May we not hope that governments, fully realizing the importance of those questions and wishing to afford greater facilities for protection, will soon see the necessity of creating a new department in their cabinets—that of Public Health; and that, in the near future, all Governments will be advised and supported by a competent specialist—

A MINISTER OF PUBLIC HEALTH?

We can easily foresee all the good that will arise from the creation of such a position. Although it is encouraging and pleasing to note the progress realized, the success obtained, we must not believe the task is done, and that all obstacles have vanished. For instance, the adoption of measures requisite to put into practice the solution of a question of sanitation, collides with two great and serious obstacles: Expenditure and personal interests. Such is the case when measures for quarantine, isolation, disinfection, the cleansing of towns and seaports, the prohibition of adulterated food, etc., are put into force. Quarantine, so needful to protect against the invasion of exotic epidemic diseases, is no longer, thanks to the progress of hygiene, what it was formerly; detention is shorter, I may say, practically suppressed by our modern methods of effective disinfection; but, nevertheless, even the slightest delay in the unloading of a ship begets expense, and brings constraint on personal interests. Typhoid fever and tuberculosis are even more malignant in their ultimate results than variola or great epidemics of other dreaded plagues, because their action is persistent, insidious and universal. The attention of the public and others is not thus thoroughly awakened to the threatening danger, and no efficient opposition is brought to bear against the ravages of those two devastating diseases. No expense or study should be considered to discover means of fully arresting the action of those scourges; the

demand is urgent; the answer, vital. It is deplorable to see the continual ravages of typhoid fever among young people; it seems to maliciously devote itself to cutting off in the prime of life the more healthy and useful subjects; in the end, the result is a most disastrous loss to the community. Water being the one great medium of its spreading, all efforts should unite to

OBTAIN PURE WATER SUPPLIES.

The cause and the remedy being known, it is the duty of interested persons and governments to procure such help from sanitary engineering and elsewhere, as will give the desired results. Do our municipal councils realize their responsibilities in this matter, and are they fully alive to their duty? We have before us to be imitated, the examples of the Romans and ancients, who drew back before no expense or labor, time or distance, to obtain wholesome water, and who built in every country where they ruled, those monumental aqueducts which still excite our admiration. This points to the urgency of developing and perfecting the study of sanitary civil engineering. It is a science that should be afforded all means of progress, and quickly placed in a position to give its much needed powerful help to the cause of hygiene.

Among all the diseases that have been the subjects of our labors, actually none forces itself more pressingly upon our zeal, than tuberculosis. This implacable affection, that may be rightly termed the scourge of mankind, continues, despite all science and philanthropy, to persistently thin the ranks of mankind, and reap its deadly tribute from every family. To it alone are due the enormous proportion of one-sixth of the deaths from all causes.

Thanks to the discoveries of modern science, we now know that this disease is produced by a germ or microbe; consequently that it ranks among contagious diseases and is amenable to hygiene. The resources of sanitary knowledge must, therefore, be immediately brought into action to per severingly check its destructive operations.

FOOD ADULTERATION

is, I should say, in most cases, a crime deserving the severest punishment; it is fraught with danger, and it is an important factor in the increase of premature mortality, especially among children. Even when life is not immediately endangered, a chronic intoxication is often produced that insidiously and irreparably undermines the health of many a human being, both young and old. Urgent appeals should be made to the press, to boards of health, boards of trade, and governments to raise their warning and protective influence to eradicate such criminal procedures. Municipal laboratories should be established throughout the land for the detection of such fraudulent doings, and justice should deal rigorously with all offenders. Alcoholism is the plague of many northern climates, and we are not without participating in its dire influences. It should not be allowed to escape our vigilant attention, for it is the ruin of health, of society, and of a nation. The Fates point to the gloomy picture of ancient times, but the experience of the past does not seem to have succeeded in rooting out this terrible evil, which is the harbinger and entertainer of the greatest part of all crime and vice. Alcoholism has for its share more than half the occupants of our prisons, hospitals and lunatic asylums. Not only do those addicted to drinking intoxicating liquors most of the time throw their entire families upon the State for support, but the latter is also obliged to look after their scrofulous, idiotic, and epileptic offspring, who are incapable of providing for themselves and are often dangerous to society. Their other children, although less affected by the original taint, are generally worthless subjects; lazy, criminal, and degenerate, and form loathsome mediums for the propagation of disease and vice. Under such conditions as these, and with such dreadful results, we pay too dearly the money that enters the coffers of the State or municipality under the title of tax or license. It is

SIMPLY SPECULATING ON VICE,

on the ruin of wealth, health, and talents, and such speculation is no wise justifiable, and should not be tolerated under any consideration. By every means in our power this plague should be opposed and if possible exterminated; it is more deadly than contagious diseases and more difficult to deal with. The problem is one for serious study and painstaking measures. Good work has already been done, and if the desired result has not yet been attained by the measures advocated, and tried up to the present, let us not be discouraged, but set to work again. Let us find out if there are no other ways of succeeding. Are men sufficiently educated in their

childhood on the dangers and terrible consequences of indulging in the use of liquors, even in a social way? And in this as in all other matters of hygiene, why not ask more of education and not trust exclusively to legislation?

After a few supplementary words of welcome by the Lieutenant-Governor, the meeting was declared adjourned and the orchestra struck up, "God Save the Queen."

SECOND DAY—WEDNESDAY.

The Association was called to order at 10:15 A.M., with Dr. LA CHAPPELLE, the President, in the chair.

The Executive Committee reported that twenty additional applications for membership had been considered, and upon motion the Secretary cast the ballot in their favor. The Committee also recommended the adoption of the resolution offered by Dr. Probst on the preceding day. (See JOURNAL October 6, page 554). On motion carried. The Committee also recommended the creation of a new committee to consist of five persons, "On Steamboats and Steamboat Sanitation," and upon motion the suggestion was adopted.

The following gentlemen were selected as the Advisory Council for the meeting, in several instances to fill vacancies, a number of whom "hold over" until the year 1895: Drs. Jerome Cochran, Mobile, Ala.; H. C. Dunnavant, Osceola, Ark.; W. F. Wiard, Sacramento, Cal.; Henry Sewell, Denver, Colo.; R. S. Goodwin, Thomaston, Conn.; Joseph Y. Porter, Key West, Fla.; William F. Bruner, Savannah, Ga.; Liston H. Montgomery, Chicago, Ill.; L. L. Whitesides, Franklin, Ind.; A. N. Cantwell, Davenport, Iowa; C. Jones, Topeka, Kan.; J. N. McCormick, Bowling Green, Ky.; Felix Formento, New Orleans, La.; A. J. Young, Augusta, Maine; J. F. McShane, Baltimore, Md.; Samuel W. Abbott, Wakefield, Mass.; C. L. Wilbur, Lansing, Mich.; E. S. Kelley, Minneapolis, Minn.; Wirt Johnson, Jackson, Miss.; J. D. Griffith, Kansas City, Mo.; F. D. Haldeman, Ord, Neb.; G. P. Conn, Concord, N. H.; John Mitchell, Trenton, N. J.; Friend Palmer, Cerrillos, N. M.; A. N. Bell, Brooklyn, N. Y.; Henry I. Bahson, Salem, N. C.; Devaux, Jamestown, N. D.; C. O. Probst, Columbus, Ohio; Charles F. Waldron, Oklahoma City, Oklahoma Ter.; Benjamin Lee, Philadelphia, Pa.; Swertz, Providence, R. I.; H. B. Horlbeck, Charleston, S. C.; K. M. O. Tiegen, Fargo, S. D.; J. Berrien Lindsley, Nashville, Tenn.; R. M. Swearingen, Austin, Texas; Canerty, Vermont; John B. Minor, Richmond, Va.; G. S. Armstrong, Olympia, Wash.; Louis D. Wilson, Wheeling, W. Va.; U. O. B. Wingate, Milwaukee, Wis.; Ralph Walsh, Washington, D. C.; Charles Smart, Washington, U. S. Army; A. L. Gihon, Washington, U. S. Navy; P. H. Bailhache, New York, U. S. M. H. S.

CANADA.

Frederick Montizambert, Quebec, Dominion of Canada; Peter H. Bryce, Toronto, Province of Ontario; Henry R. Gray, Montreal, Province of Quebec; Pattison, Winnipeg, Manitoba; Wm. S. Harding, St. John, New Brunswick; A. P. Reid, Halifax, Nova Scotia.

MEXICO.

Drs. Manuel Carmona y Valle, Federal District, Mexico; Jesus Chico, Guanajuato, Guanajuato; Jesus E. Monjaras, St. Louis Potosi, St. Louis Potosi; Gregorius Mendizabal, Orizaba, Vera Cruz; Juan Zavala, Guadalajara, Jalisco.

The PRESIDENT announced that he would leave the matter of appointment of members to the Advisory Council from the remainder of the States in the republic of Mexico, to the incoming President of the Association.

DR. CRAIK, Chairman of the Local Committee of Arrangements, made several announcements, among them one pertaining to the special train announced to depart from the Bonaventure Station at 2:45 o'clock, P.M., for Lachine, from which point members and their ladies were to board a steamer for a voyage through the Lachine Rapids.

DR. JOHN NAGLE, Registrar of Vital Statistics, New York city, (by permission) submitted printed reports as prepared by Dr. Cyrus Edson, of that city. Also a circular of information to physicians regarding the measures adopted by the Board of Health of New York for the prevention of tuberculosis, beside a paper in the form of a report on the antitoxin treatment of diphtheria. The following observations were given:

1. In diphtheria, death, as a rule, is due to the poisoning by a chemic substance (a toxin) produced by the diphtheria bacillus in the throat and absorbed.

2. A certain degree of immunity which is temporary only, is afforded by one attack of diphtheria, and this immunity is the result of an acquired tolerance to the "toxin." This applies to both animals and man.

3. If large animals are inoculated from derived cultures of the diphtheria bacillus they become gradually tolerant to its poisonous action.

4. This immunity is the result of the development in the blood of antitoxin.

When animals have thus been immunized, blood is withdrawn from the circulation in quantities varying with the size of the animal, and then employed through hypodermatic injections in the treatment of cases of diphtheria, and the antitoxin thus introduced neutralizes the toxin absorbed into the circulation of the sick person. By this method it is apparently possible to protect persons from diphtheria when they have been exposed and infected if the general symptoms have not yet appeared, and also to cure them, as a rule, when treated in the early stages of the disease.

A brief discussion ensued on the papers on diphtheria read on the previous day, as well as upon the report of Dr. Nagle, which was participated in by Drs. Ferguson, of New York; Hingston, of Montreal, and Formento, of New Orleans.

DR. E. GAUVRAU, Director of the Vaccine Institute of Ste-Foye, P. Q., contributed a paper on "Culture and Collection of Vaccine Lymph."

The next paper was read by DR. N. E. WORDIN, of Bridgeport, Conn., on

RESTRICTION AND PREVENTION OF TUBERCULOSIS,

In which the author took the ground that, since the wonderful strides made by the science of bacteriology, the germs of diseases are no longer unknown, unseen but dreaded organisms, but are things that we can see, handle and kill. The bacillus of consumption is fortunately one which science has many advantages in combating. It takes weeks and months to develop, and requires a special temperature and moisture to develop. Practically the only means of communicating the disease is through the sputum. There is little danger from the bacillus so long as it is moist. But there are some ways in which it may be directly transmitted, as by kissing. Among the hygienic commandments for consumptives and syphilitics there should be one, "Thou shalt not kiss." Direct inoculation may occur through coughing, by soiled hands and clothes. But the cases thus transmitted must be very few. The only danger worth considering is from the sputum after it has been dried. The solution, then, of the whole question resolves itself into this, that in order to prevent the spread of this terrible disease, it is necessary to destroy the sputum as soon as it is emitted from the person, as soon as it has become dried. The difficult thing is to get it before it has escaped into the air and become dried. Tuberculosis should be put on the list of infectious or communicable diseases to be reported to the health officer. Following this there should be a thorough disinfection of all houses in which tuberculosis has occurred. In the second place there should be compulsory disinfection of hotel rooms, sleeping-car berths, steamer cabins and prison cells which have been occupied by consumptives before any other persons are allowed to occupy them. In the third place there should be special hospitals for the treatment and prevention of tuberculosis. The Doctor emphasized the facts that no tuberculous female should nurse a child and that milk from a tuberculous animal should never be used, and that overcrowding in houses should be prevented. Michigan has taken the advance in requirements of notification and restriction of this disease. She has already reaped an abundant reward. In 1878 the cases of consumption were 71, and this proportion has steadily decreased every year, until in 1889 it was 49, which goes to show that an ounce of prevention is worth tons of cure in the restriction and prevention of this "great white plague" which claims its victims from those in the flush and bloom of youth, from the ranks of the fairest and best in the land.

The third paper was

EXAMINATION OF THE MILK SUPPLY FOR TUBERCULOSIS IN THE STATE OF NEW YORK,

By DR. F. O. DONOHUE, President of the New York State Board of Health.

In part this is what he said: Deaths in the State of New York last year were computed to be 17.42 per 1,000 inhabitants, of which 1.09 or about one-eighth of the deaths of the State were found to be due to consumption, and it followed that a certain number of these cases were due to the use of tuberculous milk, making it possible to entirely stop the disease. Forty million dollars worth of milk and its products were produced in New York last year from 2,000,000 milch cows in the State. A percentage comparison was then furnished of tuberculous cows throughout Prussia, France and elsewhere. The field of infection is through the stomach

The bacillus tuberculosis is killed by the sun in a few hours. Out of 22,000 head of cattle examined, in herds throughout various portions of the State, 700 were slaughtered on account of their being found tuberculous. The stigma on account of the reports published in the daily press for slaughter of diseased cattle in dairymen's herds, and the pecuniary loss to them, met with opposition as all innovations meet with opposition. At any rate it was found that tuberculosis existed in dairy cattle to such an extent that it led to the appointment May 1, 1894, of a special Tuberculosis Commission to prosecute the inquiry further, and clothed with all the powers of the State Board of Health, with the object and aim to determine the dissemination and presence of its prevalence. If the disease in animals is found to exist, the owner is compensated for loss of diseased cattle. This encourages the owners to help the Commission to ferret out affected animals and thereby it may not be impossible to eradicate the disease. Details were then given as to the use of tuberculin, although as the author stated, the tuberculin test is not infallible and can not be relied on in cattle in an advanced stage of gestation, and furthermore, the finest grades of cattle, or other distinctive breeds are apparently exempt from tuberculosis.

The fourth paper was a short one read by DR. PAUL PAQUIN, of the State Board of Health of Missouri, on

SHOULD THE MARRIAGE OF CONSUMPTIVES BE DISCOURAGED?

The reader stated that tuberculosis is transmissible between human beings as well as from animal to man. The close intimacy of man and wife make it infectious. Their home becomes an infection center. Expectorations when dried pollute the atmosphere. A healthy person will contract the disease from a tuberculous subject if married. Children are born feeble and are predisposed to it. This marriage of a consumptive couple establishes a pest-house, and children's rights are hazarded. They should be born healthy and not condemned to die young. It was a cruel system which put children in the world handicapped at the very start of the battle of life by feeble health. Marriages which would obviously result disastrously to the human race by producing weakly children should be prevented, and science should protest against the marriage of consumptives by judicious regulations.

The next contribution was an essay on

THE CLIMATIC SEGREGATION OF CONSUMPTIVES.

By DR. HENRY SEWELL, Secretary of the State Board of Health of Colorado. The essayist set forth the advantages of Colorado as a residence for consumptives. Although he mentioned the so-called arid region of the United States, exclusive of Alaska, which forms about one-third of the country and includes parts of the States and territories of California, Oregon, Wyoming, Washington, Idaho, Utah, Arizona, Nevada and New Mexico. This essay, however dwelt particularly upon the area of Colorado.

It is nothing new in history that the teachings of great truths need many exponents before they win disciples. The essay outlined a reasonable method for the frequent cure, the inevitable prevention, and perhaps the final suppression of consumption. It is no impertinence to assume that consumption is an infectious disease due to the implantation and growth of a living organism within the afflicted body, and that further, this organism exists in the sputa of pulmonary consumptives which becoming dry and pulverized is inhaled by healthy lungs and so elaborates the most common method of infection. Consumption has been called "the disease of civilized life," since it has not spontaneously invaded isolated savage tribes. He said in part: That a single one out of all known diseases should cause from one-fourth to one-eighth of all deaths in civilized communities, not to compute the disastrous effects of non-fatal cases; that this disease is demonstrably preventable, and even curable; it is small wonder that the splendid modern passion to relieve human suffering has concentrated itself upon the ways and means of overthrowing the reign of the "great white plague," consumption. Small consideration makes it evident that no single means within our power is competent to overcome the enemy. The most certain and speedy blotting out of the disease would follow the instant and permanent isolation in some far-off region of every individual afflicted with it; but mankind will choose to go on in suffering rather than shock its ethical nature in forcing such seclusion. Undoubtedly our main defense when the disease exists, depends upon the growth of broad and sound views of sanitary facts among the people; not merely the lip knowledge which repeats words, but the active realization of the burnt child who dreads the fire. It is a pity that those modern educators who have induced State Legislatures

to dictate that the evils which may follow the use of tobacco and alcohol shall be described in the school physiologies, should not have seen to it that the youthful mind might have demonstrated to it the nature and causes of infectious diseases and the modes of combating them. The author, believes that an appropriate course of bacteriology would be a fascinating, comprehensible and infinitely practical addition to the curriculum of the secondary schools.

In the experience of the past it is not a bold assertion that consumption is incurable by any known drug, and that the single hope the consumptive has is to improve the vital resistance of his own body. Moreover, it may be taken as established, that the one essential factor, more important than all others combined, in this improvement of militant vitality depends upon outdoor life with its incidents of fresh, circulating air and sunshine. Observation shows clearly enough that the place of residence of the consumptive is not indifferent; that, in general, it is better for him to change his abode from the place where the disease was contracted; that inland excel seashore resorts; that dry air is more beneficial than moist; that altitude above sea level is of decided advantage and, above all, that purity of air and absence of microorganisms and the matters incident to their existence from it are indispensable conditions for the improvement of the sick one.

Numbers of suitable places at once occur to any one who is familiar with Colorado; I may definitely specify the neighborhood of Colorado Springs several localities within a few miles of Denver, Perry Park half way between the two places, points to the north of Denver and Estes Park. Certain of these places are habitable all the year around and others best available only in summer. A salaried resident physician should be constantly on the ground for the moral comfort and physical demands of the patient. An unpaid medical sanitary director of known experience, making weekly visits, should have complete direction of the general conduct of the sanatorium. Such medical service could no doubt be obtained gratuitously. There would be no objection to these communities increasing to the size of villages of 300 or even 500 inhabitants, there being but one single essential proviso, *i. e.*, that all things and acts therein accomplished shall have reference to the benefit of the invalid and the restriction in the spread of disease. The essential sanatory laws are few, broad and accepted by all, and physicians at large might send to such an institution their private patients and still keep them under observation. The cottages should be constructed with sole reference to their uses, and might each accommodate from four to eight persons. An important part of the scheme would consist of a central building with rooms above for the accommodation of the weaker invalids and with an assembly room and various dining-rooms below. Patients who could afford it might be allowed to occupy a whole cottage and cater to a private table. The food for all should be of the best.

The land appropriated to the sanatorium should be extensive; not less than five or ten acres to the cottage, and it should be an object to raise, under proper restrictions, vegetables for the table, and to keep a special herd of milch cows. No effort should be spared to provide outdoor amusements, scientific and trivial, of every suitable description. Botany, geology, gardening, with the lighter outdoor games; even billiards, cards, reading, work with the microscope, under proper conditions, are open to prevent this terrible ennui of isolation. The summer sanatoria distributed in the various mountain parks would offer delightful outings and change of scene. At least monthly, patients should be examined physically, and as the cases improved they should be sent to higher altitudes which, when well borne, immensely facilitate recovery. Such sanatoria are by no means intended as permanent abodes. The invalid should be turned loose to provide for himself as soon as safely able to earn his own livelihood, and after he has acquired that simple but precious education through which he learns the habits that protect himself and others from the disease. For most favorable cases this time would average from three to six months and includes that critical period when the homesick, helpless sick one drifts, a stranger, into the hotels and boarding houses of Denver or Colorado Springs, and often because of his surroundings, receives a fatal impulse which determines his dissolution. I say no word of absolute cure. Undoubtedly cases occur in which after a few months' residence under favorable conditions the invalid may return restored to health, to the scenes and occupations of his downfall. But I know no means of ascertaining whether such a cure has been attained, and the humiliating fatal mistakes made by most skilful medical observers who have let their good will

direct their good sense, form a patent warning against such a course. There is, however, a cure which can almost be guaranteed; that this disease may be so arrested as to interfere in no wise with the usefulness or enjoyment of life lived under the conditions establishing recovery. This then is at least one great advantage that Colorado possesses over health resorts of the East, that means of earning a livelihood and the chief requisites of a happy existence are to be found almost at the doors of the sanatorium.

The Committee on restriction and prevention of tuberculosis, Dr. J. N. McCormack, Secretary of the State Board of Health of Kentucky, chairman, was upon request granted further time to submit its report.

A motion by Dr. Montizambert that each speaker be limited to five minutes prevailed. Dr. Nagle, of New York; Dr. Patterson, of Winnipeg; Dr. Slocum, of Defiance, Ohio, and Dr. Hopkins, of New York, discussed the papers and generally agreed with the views set forth by the authors of the series of papers that had been presented on this subject of tuberculosis. Dr. Nagle, of New York, explained that in that State, the sputum of all patients suspected of having tuberculosis is microscopically examined, and in the event of death or of removal the apartments occupied are disinfected, and friends of patients are furnished with simple but complete instructions for the care of the patients. One of the instructions is that the clothing of tuberculous patients should not be allowed to go to the laundry with the clothing of healthy persons. Dr. Ferguson, of the laboratory of the New York Board of Health, explained that investigation showed both consumption and diphtheria bacilli lie in wait on the shining glassware of the most aristocratic drinking glass, in the artistic combs, brushes and razors of the highest class of barber shops and in the communion cup. Bacilli from all of these articles had been procured by the Board. In the case of the communion cup he believed that the germs of consumption could be transferred from lip to lip with disastrous results. Continuing he said the sputum of animals and men were the same, and that twenty-nine different forms of bacilli had been found in the sputum of man. Dr. Lee, of Pennsylvania, expressed the belief that all State and Provincial Boards of Health should have bureaus to supply the public with information as to the dangers of consumption. He also objected to the philosophy of Dr. Paquin's paper on restricting marriage by legal interference with the rules of natural selection. This, the speaker stated, should be avoided. Dr. D. C. Ramsey, of Mt. Vernon, Ind., feared that the clinical thermometers of physicians were often the cause of conveying infection. Physicians should always have these in a perfectly aseptic condition. Dr. Paquin replied to Dr. Lee by explaining that he did not say a word in his address regarding legislative interference in this matter, simply to educate the public on the dangers of the continuance of the present system of marriage among consumptives.

(To be continued.)

SOCIETY NEWS.

Anatomic Material.—The Association of American Anatomists has issued the following circular: *Dear Sir:*—At the last meeting of the Association of American Anatomists, the undersigned committee was appointed to "consider the question of the collection and preservation of anatomic material, and to report, at the next meeting, what in their opinion are the best means of accomplishing these objects."

In order to make the work of the committee as comprehensive as possible, and to obtain information which will be of service in arriving at definite conclusions as to the best methods of accomplishing the purposes indicated in the resolution, the committee has deemed it desirable to send to the teachers of anatomy, not only in this country, but abroad, this circular letter, with the questions appended, and respectfully to request answers thereto, as fully as they can be made.

1. Is anatomic material obtained in accordance with a legal enactment, wholly or in part?

2. If there is an anatomic law in your country or State, please send a copy of it to the chairman of this committee, Dr. J. Ewing Mears, 1429 Walnut Street, Philadelphia, Pa.

Please state whether the law is satisfactory, whether it is readily obeyed by those upon whom duties are imposed by it, and mention any improvements you would suggest, as to its requirements.

3. Is the material received in good condition?

4. What disposal is ultimately made of the remains?

5. Please state what means are employed to preserve anatomic material for the purposes of dissection or operative surgery. If injections of preservative fluids are used, state their composition and the methods of use, at what point injections are made, whether at the heart or in the large arteries, and their effect in accomplishing the preservation, with any changes in the color or the character of the tissues. What length of time can material be used in dissection by the methods employed by you? If preservation by means of "cold storage" is employed, please state the cost of the machinery which it was necessary to construct for this purpose, and what means are taken to prevent decomposition after the subject is placed upon the table for dissection?

6. Please state the cost, by the method employed by you, for each subject: *a*, for receiving it; *b*, for injecting and preserving it.

7. Do you obtain an adequate supply of material for the purposes of anatomic instruction? How many students are assigned to each subject, and what is the method of allotment?

8. Please give any information which you may deem of importance. As the report will be general in character the name of the informant or institution will not be mentioned by the committee unless requested.

Your compliance with the request of the committee, at an early date, will be fully appreciated as rendering assistance to it in accomplishing its work, and it desires to thank you for the same in advance.

J. EWING MEARS, M.D.,

JOSEPH D. BRYANT, M.D.,

THOMAS DWIGHT, M.D.,

Committee.

The Cleveland Medical Society.—At the last quarterly meeting of the Cleveland Medical Society held Sept. 28, 1894, Dr. W. W. Keen, of the Jefferson Medical College of Philadelphia was present and addressed the Society on the subject of "Amputation of the Breast." On the following morning, Professor Keen also held a clinic in the Cleveland General Hospital to a large assemblage of the profession, demonstrating in his inimitable way the remarks of the previous evening. A large number of physicians from the northern and central parts of the State were present and all expressed the pleasure and the profit experienced by a close observation of Dr. Keen's thought and work. By no other means than the organization of a popular society (such as the Cleveland Medical Society has endeavored to be) could the local profession have been brought into such harmonious union on the great topics of ethics, higher medical education, State and National legislation, and so forth; and our efforts to broaden this union of feeling and action have happily been effected in great part at least, by our quarterly meetings. We are grateful for the spirit which animated Kelly and Pepper and Keen to sacrifice themselves in our behalf and their mission has already borne fruit. Since March, 1894, our average attendance at regular meetings has been over 100; and the papers and discussions have been of an unusually high order. Also the Society is alive to the attainment of more efficient State medical legislation of which our State is so much in need.

OSCAR T. THOMAS, Secretary.

The Capital District Medical Society of Illinois met in Jacksonville October 4. Dr. George N. Kreider, Treasurer of the Illinois State Medical Society, presided. Papers were read by Drs. H. W. Chapman, of Whitehall; L. C. Taylor, of Springfield; J. J. Connor, of Pana; G. N. Kreider, of Springfield; and L. A. Malone, of Jacksonville. Resolutions were passed calling on the Legislature to establish at public expense pathologic laboratories for the study and examination of infectious and contagious diseases, and named a committee, consisting of Drs. C. E. Black, Jacksonville, L. C. Taylor, Springfield, and E. J. Brown, Decatur, to study the contagious and infectious diseases peculiar to this locality, and report at the next meeting in Springfield in January.

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SATURDAY, OCTOBER 13, 1894.

THE DEATH OF OLIVER WENDELL HOLMES.

The genial "Autocrat" passed away on Sunday, October 7, at the ripe age of 85.

He will be missed not only by his circle of friends in Boston, the pupils whom he led through the dreary details of anatomy for so many years, and the Massachusetts Medical Society, but the older members of the AMERICAN MEDICAL ASSOCIATION, who remember with pride that DOCTOR OLIVER WENDELL HOLMES was one of the founders of the ASSOCIATION, and at the first annual meeting, as Chairman, read the "Report of the Committee on Medical Literature."¹ In what more competent hands could such a report have fallen! The old members recall with affectionate remembrance his scholarly articles read at the earlier annual meetings, "On the Microscopic Anatomy of Bone,"² "Puerperal Fever as a Private Pestilence,"³ and the three Boylston Prize Essays. There are but few now who remember him as he was in his earlier days, and those think with him of many a companion of those days:

"The mossy marbles rest
On the lips that he has prest
In their bloom;
And the names he loved to hear
Have been carved for many a year
On the tomb."

The whole world not less than the medical profession owes a deep debt of gratitude to him for the keen words of wisdom contained in his essay on the cause and prevention of puerperal sepsis, written thirty years before the era of antiseptic douches and precautionary cleanliness. The many suggestions contained in the valedictory address to the gradu-

ating class of Bellevue Hospital Medical College in 1871 conveyed in his inimitable manner to medical men generally, rules for social and professional conduct, so valuable that they deserve perennial reproduction. His "Lectures on Homeopathy and Kindred Delusions," abound with that keen humor characteristic of his bright vivacious spirit; but even in satire he always avoided needless pain and severity. He never wrote anything which could cause him to be classed among those writers of whom he wrote

"Their discords sting through Burns and Moore,
Like hedgehogs dressed in lace."

As a medical teacher he invested even the most intricate details with a polish which was not merely veneer, for no one could have heard his famous dedication address at the opening of the Boston Medical Library without knowing that his wide knowledge of medical literature was one acquired not only by reason of years of love of the subject, but by hard and painstaking labor. The class of 1847 who heard Dr. HOLMES' lectures on anatomy at Harvard University, were astonished and delighted by his methods, and pleasant manner, and annually thereafter for nearly or quite thirty years, PROFESSOR HOLMES appeared before the class with military promptness.

We have not mentioned him as he appears to the literary world, for all the world is in mourning for him to-day, and his greatness in general literature has made his writings familiar to thousands of old and young readers who have probably learned for the first time, by reading the obituary notices, that he was a physician. He was not only a physician in every sense of the word, but a great physician, and one whose researches and observations would have made him famous had he never written a line of his illustrious prose and poetical works.

There is grief in the Massachusetts Medical Society, because he is no more, and many an eye will become dim with tears when his empty chair is placed at the annual dinner table.

In the album of a young lady, then at Bar Harbor, there was written by Dr. HOLMES in his old age, the following, which shows to what thoughts his mind was tending in his last days:

"From this fair home behold on either side,
The restful mountains or the restless sea;
So do the warm sheltering walls of life divide
Time and its tides from still eternity."

"Look on the waves, their noisy voices teach
That not on earth may toil and struggle cease;
Look on the mountains, better far than speech,
Their silent promise of eternal peace."

AMERICAN PUBLIC HEALTH ASSOCIATION.

The published transactions of this Association, extending over a quarter of a century, constitute a library of sanitary science full of promise for the fu-

¹ Transactions, Vol. I, p. 249

² Transactions, Vol. IV, p. 52.

³ Transactions, Vol. IX, p. 372.

ture. The Montreal meeting of the Association last week adds another volume of increasing interest. The membership includes all the leading health officers of both cities, States, and the governments of United States, Canada, and Mexico, also of the Army and Navy of these countries. It also includes sanitary engineers and plumbers, and officers who are dealing with questions affecting public health. From this the wide and varied character of the papers may be inferred. At this meeting sixty-one papers were read, and eight reports of the progress of science on special topics; together with one evening devoted to addresses of welcome and commendation.

A grand excursion to the Quarantine at Grosse Isle on the St. Lawrence, below Quebec, also a ride through La Chine Rapids, and a reception were given to the members. Outside of this, four days were devoted to the real work of reading and discussing the many topics.

As usual, in all such meetings, a certain number of papers are poor compilations of books and pamphlets, and a certain number contain a few facts of fresh interest, that could be stated in a few printed lines, but are covered up in words that stretch over twenty minutes. A small number of papers are always extreme in assumption, and dangerously dogmatic, and other papers seem to come up to the verge of originality, but fail in obscurity and confusion of statement. Then the usual advertising and commercial papers and the enthusiast with one idea and one theory to apply to all conditions of life and living. Beyond this common experience of every meeting, some excellent scientific work was presented. The filtration and sedimentation of water was presented with great clearness, and the results of original experiments given, showing that polluted waters passing over sand beds may be deprived of 95 per cent. of all their microbes and organisms. The efforts to extend the boundaries of exact science in this direction, were very clearly set forth by DR. SMART, of the U. S. Army, in a report on this topic. The disposal of garbage was the topic of several excellent papers, showing great advance and very thoughtful suggestive work in this field. The air and water of farm houses was the subject of some striking observations. Car ventilation, the danger from sputa in tuberculosis, and the infection of milk from tuberculosis were well presented. "The Influence of the Climate of Canada on Health," "The Influence of Inebriety on Public Health," and the "Long Island Water Basin," were notable papers. Drainage, ventilation, cremation, plumbing, climate, and other topics received very substantial contributions. The fact that over four hundred members were registered from all parts of the United States, Canada, and Mexico, is significant of a great advance in sanitary matters.

The science of medicine has expanded to such an

extent that these widely varying topics must be separated and studied by specialists. As in all new subjects, sanitary science and the questions of the prevention of disease must pass through the various stages of growth and evolution.

Health boards with their officers and inspectors should lead as teachers and instructors of public sentiment; while the general practitioner may be a good observer and reasoner of causes and effects in preventive medicine, he can not have the experience and facts to draw conclusions from, that health boards possess. Yet the impression grows stronger after listening to a long list of papers by men who are in a position to know the facts, that many of these sanitarians fail to use the knowledge in their possession, or to make the original observations possible in their positions. A little reflection makes it apparent that many persons connected with these health boards owe their positions more to political influence than to scientific attainments. This readily explains the disappointment in the character and quality of some of the work of these boards. While the blighting influence of politics is not peculiar to boards of health and sanitarians in general, yet it can be seen and felt in many ways in all these gatherings. This meeting of the Association showed a marked advance in many ways, over previous gatherings, and will be noted in its history as the starting point by the publication of its transactions in a quarterly. These large gatherings of men devoted to sanitary subjects have an excellent influence on the public, and if the rule of the Association was rescinded so as to allow daily papers to publish certain papers in full, the best results would follow, and more good would be done. Over a dozen papers read at this meeting would have been printed in full by the daily press, and read by a large number of persons to their great profit if the rules could have been changed. As it is these papers will be buried in the transactions and only a few ever appear in the public press. The sanitarians of this country have a great field before them, and this Association is doing a work of very wide influence.

THE AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.

This Association held its fourth annual meeting in New York City September 25, 26 and 27, under the Presidency of PROFESSOR W. J. HERDMAN, of Ann Arbor. The scientific proceedings, which, we presume, will appear in full in the JOURNAL, were more than usually interesting and systematic, the plan of pre-arranged discussions on the physics and therapeutics of each form of current being followed. The spirit of the meeting, which was largely attended, seemed to be the discussion of the primary facts of electro-physics and their applications to medicine, and while but

few new facts were announced the full discussions elicited on these fundamentals were interesting alike to the expert and the tyro, and can not be other than highly useful in stimulating greater accuracy and thoroughness in the medical users of electricity. The presence and participation of a number of electrical engineers and distinguished physicists were significant.

On the evening of the third day the members were received by NIKOLA TESLA at his laboratory, and were treated to a display of the remarkable qualities of high frequency currents recently developed by this latest electrical prodigy. On Friday, through the courtesy of MR. EDISON, the whole Association and its ladies were conveyed to EDISON'S laboratory by special train and escorted through the works, after which a delightful banquet was enjoyed.

That New York fulfilled its social opportunities was well proven by the reception and banquet at the Academy of Medicine, and by its private hospitalities to visiting members.

"PICNIC MEMBERS."

Echoes of the recent season of congresses and meetings of medical, sanitary and other scientific bodies are finding their way across the waters. In a recent number of the JOURNAL, mention was made of the comparative failure of the Buda-Pesth Congress of Hygiene, through the multiplicity of sections and the counter-attractions which reduced the attendance at sessions below working point. Now the *Medical Press*, (London) deplores the changing character of the "hygiene and sanitary congresses," the success of which, it says, is at present measured at least as much by the magnificence and abundance of the festivities as by the scientific work accomplished at the meetings. All this is attributed to the fact that,—while membership in a medical congress is limited to those who possess a certain definite standard of education and technical competence, and valuable work is thereby secured—any one may become a member of a sanitary organization or participate in a congress of hygiene by paying the annual fee. The result is a very large proportion of "picnic members," by which phrase is understood "people who join simply with the object of participating in the social entertainments which have now come to form an integral part of such gatherings," and whose behavior at the *fetes* organized in honor of the congresses is, not infrequently, "calculated to raise a doubt in the minds of beholders as to their civilization"—behavior by which the *fetes* "but too often degenerate into orgies."

We have thus far been spared any such exhibition in this country and can only share sympathetically in our contemporary's indignation; but we are at one with him in the belief that the dignity and usefulness

of such meetings would be enhanced by limiting participation in the proceedings to those who are qualified by work and interest in the ostensible subjects. There is a growing danger, from this indiscriminate membership, that our public health meetings may come to resemble the picture which the *Press* draws of such meetings abroad: "At present the sanitary or hygienic congress is the happy hunting-ground of the faddist and of the irresponsible seeker after notoriety; and as the time for papers and discussions is always brought down to the irreducible minimum the result is that papers which really represent individual labor and research are crowded out, to the disappointment of their authors and to the annoyance of the discriminating public."

The International Medical Congress which met at the National Capital in 1887, and the Pan-American Medical Congress of 1893, are creditable examples of the American idea of such gatherings.

CORRESPONDENCE.

A Case of Hypertrophy of the Heart.

TECUMSEH, MICH., Oct. 4, 1894.

To the Editor:—Oscar H., aged about 32 years, an American by birth, had his first attack of articular rheumatism when he was 16 years old, which left him with a damaged heart. Since that time he has had several severe attacks of rheumatic fever, each affecting more or less the circulation. The symptoms in his case were those associated with lesions of the semilunar valves of the aorta. Finally, death took place from "heart failure."

October 4, forty-eight hours after death, a *post-mortem* examination was made by Drs. North and Teft, in the presence of Drs. Catlin, Howell, Woodward and Jenkins. Upon opening the thorax the heart was found greatly enlarged. A measurement of the heart before its removal from the cavity of the thorax gave the length seven and a half inches, breadth six inches, thickness four and a half inches, and its circumference eighteen inches. When removed from the thoracic cavity, its weight with the blood contained in its chambers was three pounds six ounces. After removing the *ante-mortem* and *post-mortem* clots the heart weighed thirty-four ounces. The semilunar valves of the aorta were ossified, and from their walls at their base were ossified projections, feeling very much to the touch like pieces of coral reef. The walls of the heart were thin, especially at the apex, where they were only about five millimeters in thickness.

J. F. JENKINS, M.D.

PUBLIC HEALTH.

Sterilization of Bread.—At the request of the Minister for War, MM. Ballaud and Masson were recently assigned by the Paris Council of Hygiene to conduct an investigation to determine whether baking destroys any microorganisms that might exist in the water, flour or other raw materials used in making bread. They have decided that the principal agents that destroy such germs are the acidity of the dough and the high temperature it is subjected to in the oven; and conclude (*Annales d'Hygiene*) that the center of a loaf attains a temperature of 100 to 102 degrees C.; that the center of biscuits attains 110 degrees C.; the combined action of these temperatures and of the acidity of the dough

suffices to assure practically the sterilization of bread and biscuit; that in dough prepared with yeast, where the acidity is diminished, sterilization is not assured to the same degree; that in any case those pathogenic germs which offer but little resistance to heat, such as the bacillus typhosus and the cholera bacillus, must necessarily be destroyed.

Ohio Pure Food and Drug Laws.—Operations under the recently enacted pure food and drug laws of Ohio were begun on the 7th inst., by the publication of a code of rules and regulations for the guidance of the wholesale and retail liquor dealers of that State, prepared by State Dairy and Food Commissioner F. B. McNeal. This was promptly followed by the prosecution of sundry Cincinnati druggists on charges made by Deputy Food Commissioner Luebbling and State Chemist Fennel, who have for some time been collecting and analyzing samples of drugs, proprietary articles, etc. Among the articles specified as sold in violation of the law are Vin Mariana, Paskola and unfermented grape juice; Paskola, which is represented to be a "predigested food, having the rich nourishing properties of the cereals and saccharine fruits, together with a sufficient percentage of albumen to take the place of meats," is pronounced by Professor Fennel, after analysis, to be simply confectioners' glucose. Cheap tinctures and condensed milks have been selected as the next subjects of investigation. The result of these efforts to secure pure food, drinks and drugs will be of interest to physicians, sanitarians and the public generally.

Growth of a Health Department.—When the Health Department of New York City was first organized in March, 1866, it was abundantly accommodated in a few rooms in the Police Department building, but in a short time the few rooms had increased in number to eighteen and then the various bureaus and divisions with their accumulations of records and other material overflowed into neighboring buildings until the Department was so much scattered as seriously to hamper its work. Within the past year or two the bacteriologic laboratory has increased so greatly in importance and in the scope of its operations that the demand for larger accommodations had become imperative. Last week the entire Department was removed to the new Criminal Court building, where it is now commodiously housed under one roof, with from four to five times more space than that formerly occupied. Even this is to be supplemented by an establishment on East Sixteenth Street for the production of the antitoxins, under the charge of the Bureau of Bacteriology; when this branch is in operation the New York Health Department will be one of the most perfectly equipped of its kind in the world and can not fail to exert a highly important educational influence upon public health administration throughout the country.

Regulation of Prostitution.—At the recent Congress of Syphilography M. Dron offered the following propositions: 1. Society ought to protect itself against venereal disease as fully as against any other of the contagious diseases. In order to lessen the ravages of syphilis, weekly inspections of the inmates of houses of prostitution should be imposed, and those exhibiting any symptom of venereal disease should be sent at once to hospital. While these measures would be beneficial they would not afford absolute guarantee, for all practitioners have seen patients infected by inspected women in whom no symptom of the disease was detected; again, if the disease is in the secondary stage syphilitic lesions may manifest themselves in the interim between inspections. In case any prostitute exhibits syphilitic symptoms she should be interdicted from plying her vocation until all danger of contagion is past; to be positive three years should elapse from the time of the primitive lesion or from the first appearance of secondary lesions; this is the length of time the proponent has exacted before permitting a syphilitic to contract marriage. In conclusion M. Dron thought the Congress would not be justified in indorsing a proposition to consider any female afflicted with syphilis as a prostitute!¹ On the whole the American or

modern proposed method of regulating this evil seems more decent and reasonable—to treat the male prostitute as at least equally culpable with his companion, and to subject him to the same measures of inspection, immurement in hospital and interdiction from his vocation and from marriage.

Leprosy through Four Centuries.—Goldschmidt, of Madeira, has just published the results of his twenty-six years of personal experience with leprosy. He affirms that his researches show that the disease has maintained its character essentially unchanged on that island for over four centuries. At the beginning of this century it was widespread throughout Madeira; then it sensibly declined, but within the last two decades it has gained fresh ground, owing to the increasing misery of the population. The leper hospital at Funchal, the capital, dates from the end of the fifteenth century; it is half prison, half hospital, and contains at present about seventy lepers, or six cases to every 10,000 of the total population. The village of Ponta do Sol is the most seriously infected locality; it has furnished nearly one-third of all the cases received at the hospital during the past sixty years. Leprosy persists and increases with misery and squalor. According to Goldschmidt, telluric influences have no effect upon the disease; altitude, however, has apparently a marked influence—the greater the elevation the greater the number of cases. The quality of the aliment seems to be no factor in the etiology; the population is sober and alcoholism almost unknown; the quantity of food, however, is a marked factor; for the unhappy inhabitants of the island eat but once a day and hunger is their normal condition. The government prohibits, instead of favoring, emigration. Promiscuity is general; the leprous father, mother and children all sleep together, naked, in the same bed; spoons, plates, drinking vessels, etc., are used in common by the leprous and the healthy; a grocer, with ulcers on his hands, waited on his customers himself. The author thinks heredity is not a predisposing cause, but that the disease is communicated by personal contact. In the treatment of the disease Goldschmidt uses injections of europphen, containing 28 per cent. of iodine, and insists on its energetic use kept up for a long period.

NECROLOGY.

CHARLES G. BARNEY, M.D., of Richmond, Va., September 15. Dr. Barney was born in New York in 1814. He graduated in medicine in that city, and practiced there for several years. He afterwards removed to Mobile, Ala. In 1855 he moved to Richmond, Va. Soon after the war he engaged in the insurance business, and was associated with Mr. Wyndham R. Bolling in that business at the time of his death. For some time before the war Dr. Barney was the Chairman of the Executive Committee of the Virginia Historical Society. He was one of the most active and valuable members of that organization up to four or five years ago. During the struggles of the Society, when the fighting around Richmond was at its height, many of the books and valuable records were stored away in Dr. Barney's barn, and he did a great deal toward preserving many of the manuscripts and pamphlets. He was fond of collecting books and papers bearing upon the history of the Old Dominion, and rendered valuable service in this direction. Among other collections he secured autographs of nearly all the signers of the Declaration of Independence, besides autographs of the most famous Virginians. A number of letters of Washington, Jefferson and other Virginians were secured by him. Dr. Barney was the owner of one of the original copies of "Hamor (Raphl), A True Discourse of the Present Estate of Virginia, and the Successes of the Affaires There, Till the 18th of June, 1614." This was published in London in 1615, and was a very rare book. Dr. Barney had 200 copies of it reprinted. He also made up more sets of the *Southern Literary Messenger* than any one else, including the one now in the State Library. Dr. Barney was one of the original members of the famous old Union Club, in New York, and is said to have been the last surviving member of the founders of that famous organization.

¹ Free translation from the *Gazette Medicale de Liege*.



OLIVER WENDELL HOLMES.

RUDOLPH SEIFFERT, M.D., of Chicago, October 4, aged 69 years. He was born in Vienna, and after completing his studies in the gymnasium he entered the University of Vienna. He completed a course in the medical school and afterward resumed his studies at the University of Heidelberg. After graduation he practiced in his native town until the beginning of the war of 1866 between Austria and Prussia, when he entered the army as regimental surgeon and served until its close. After peace was declared he came to Chicago, and in 1885 he became House Physician to the Alexian Hospital, a position which he filled to the time of his death.

PATRICK BOOTH, M.D., of Oxford, N. C., died recently, and his loss is feelingly referred to in the September Bulletin of the State Board of Health. Dr. Booth was a graduate of the Medical College of South Carolina, in the class of 1875. The Bulletin contains the following note: "It was with genuine sorrow that we learned last month of the death of Dr. Patrick Booth, Superintendent of Health of Granville County. We have received no details of his passing away, but the sad fact remains that we shall see him no more in this life. While our personal acquaintance was of the slightest our official relations were of the most satisfactory character. Earnest, zealous, faithful, prompt—he was an admirable Health Officer."

THE DEATH OF HENRY F. LYSER, M.D.—The Faculty of the Detroit College of Medicine held a meeting at the office of Dr. H. O. Walker, Thursday, October 4. On motion the following resolutions were adopted:

WHEREAS, Death having removed from this Faculty our friend and fellow teacher, Dr. Henry F. Lyster, we desire to

express our high appreciation of him as friend, physician and teacher.

Resolved, That in his death the Faculty of the Detroit College of Medicine has sustained a great loss, and that we shall greatly miss his counsel.

Resolved, That we extend to his family our sincere sympathies in this hour of their bereavement.

Resolved, That a copy of these resolutions be sent to the family of the deceased, to the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, and to the local press.

(Signed)

C. G. JENNINGS.

A. W. IVES,

H. W. LONGYEAR,

H. O. WALKER,

ANDREW P. BIDDLE.

Expressions of regret were made by various members of the Faculty and, out of respect to his memory, lectures at the Detroit College of Medicine will be omitted on the day of the funeral.

A. B. MILES, M.D.—The Tulane University has passed the following in memory of Prof. Albert B. Miles, M.D.:

Medical Department, Tulane University, La.

NEW ORLEANS, Sept. 28, 1894.

On the above date, the first opportunity (since his death on Aug. 5, 1894), was presented for the colleagues of Professor Miles to testify publicly to the love and esteem entertained for him and to the grief caused by his loss. The following resolutions were submitted by Professors Elliott and Souchon:

"WHEREAS, Professor Miles rendered this institution invaluable services during nineteen years, as Demonstrator of Anatomy, 1875 to 1885; Professor of Materia Medica, etc., 1886 to 1893; Professor of Surgery, 1893 to 1894; Assistant Surgeon to the Charity Hospital, 1882 to 1894; be it

Resolved, That we here record our profound sorrow that death has cut off, in the prime of life and in the meridian of his reputation, our young and brilliant colleague.

Resolved, That the Medical Department of the Tulane University of Louisiana has lost an experienced and beloved teacher, an impressive lecturer, and a surgeon whose skill as an operator placed him in the foremost rank of America's surgeons.

Resolved, That in his death we recognize the loss of a colleague whose calm and deliberate judgment rendered his counsel invaluable in the administration of the Medical Department, and whose constant endeavor was the advancement of medical education and the steady elevation of our standards.

Resolved, That in his death we recognize a civic loss to be deplored alike by city and State; the loss of a character tested throughout the years of his arduous professional life, wherein were manifested those high qualities which compel the confidence of a community and place the crown upon professional reputation."

Approved and published in behalf of a unanimous Faculty.
STANFORD E. CHAILLE, M.D., Dean.

A. B. THURSTON, M.D., of Keene, N. H., aged 35 years.

MISCELLANY.

Oliver Wendell Holmes, a Microscopist.—Forty-one years ago, Dr. Holmes, who was 85 years old on Aug. 29, 1894, taught Dr. E. Cutter how to use the microscope with direct illumination. He had an arrangement of his own—a six-inch black disc fastened to the tube and graduated so that turning the disc would act as a fine adjustment. Dr. Cutter says that Dr. Holmes worked a good deal with the microscope in those days and that the intellectual drill derived therefrom may have been used in literature. Is not the technical use of the microscope in college as good a discipline as the study of Greek? Surely the cyclops of the Odyssey would be better understood by one who has studied a living cyclops taken from a hydrant and shown under the microscope.—*The American Monthly Microscopical Journal.*

Tuberculous Peritonitis in a Child of 13 years Cured by Injection of Camphorated Naphthol.—M. Spillman has reported an observation of a case of tuberculous peritonitis cured by an

injection of camphorated naphthol. It occurred in a boy of 13 years who entered the hospital Feb. 20, 1894, for a well-marked ascites. A diagnosis of tuberculous peritonitis was made, and 850 grams of the fluid were withdrawn and injected into the abdomen of a guinea pig. The animal died tuberculous. After this 10 grams of a solution of camphorated naphthol were injected into the abdomen of the patient by an exploring syringe. The results were excellent. To-day the child is completely cured, the belly is supple and nowhere painful, and the digestive functions are well performed.—*Les Nouveaux Remedies*, Sept. 8, 1894.

Octogenarians in Switzerland.—In the U. S. Consular Reports for September, Consul Germain quotes from the last census of Switzerland which shows the number of people of 80 years, or over, who are still engaged in earning their daily bread. The respective occupations, and the total number of hands employed are given. The statistics shows that out 626,070 persons employed, 2,353 were 80 years old and over, or a percentage to the whole of 0.4 per cent; that agricultural pursuits give employment to the greatest number of aged people; that foresters live to a greater age than gardeners; that tailors number three times as many octogenarians as do the butchers; and that shoemakers have much better prospects of growing old than the bakers. A comparatively high number are found among the wood-turners and carvers, and a still greater number among the hard-working and confined straw-braid workers.

Football.—The football season has opened with rather more than its usual quota of contusions and broken bones of which the Harvard eleven got its full share; but thus far no player has been killed outright on the field. Meanwhile Dr. Charles Anderson Dana, of the New York *Sun*, has summoned divers learned Harvard bachelors and masters of athletics in consultation as to the condition of muscular diversion at Cambridge. While concurring in the opinion of the majority, "that want of skilled leadership and want of confidence are the causes of the anemic state of Harvard sport," Prof. Dana is inclined to add that a "multiplicity of advisers and a curious narrow attitude on the part of the Faculty have helped on the work of woe." He believes, however, that there are cycles and periods of athletic triumphs, as of other things, and that in the turning of the wheel Harvard may again be on top, and so salutes "the undergraduates, studious or record-hunting or both, of the Harvard's Learning Trust," and says "to every mother's son of them, in the language of the Latin reader:

"Tu ne cede Yallis sed contra audentior ito."

Sanitary Conference in North Carolina.—The September Bulletin of the State Board of Health gives a brief account of a conference held on the 13th ult., at Salisbury. The meeting was managed by Dr. John Whitehead, a member of the Board as well as Superintendent of Health for the County of Rowan. The citizens extended a very cordial reception to the scientific men, who gathered "to spread the light, and lend a hand." There was a large and constantly increasing attendance of ladies, giving a lively and active interest to the discussions. The meeting proved to the anxious members of the Board that the people can be brought out and respond in a grateful way to efforts made to instruct the citizens of the old North State on important health problems. Among the subjects prominently discussed were the following: "On the Quarantine and Disinfection required in Contagious Diseases," introduced by a paper by Dr. George G. Thomas, a member of the Board for Wilmington; "Drinking Water in its Relations with Malarial Diseases," by Engineer J. C. Chase, a member of the Board. The same writer contributed a paper on "Household Water Supply." At the evening session Dr. Albert R. Wilson gave an address on the

important subject of sterilizing the dejecta of patients having typhoid fever, proving his points by a lucid account of a recent endemic in Guilford County, of which county he is the Health Superintendent. The water supply of Salisbury was another subject of practical moment, on which the citizens were expected to unite in debating at the evening session, but the net results were not all that had been expected. Good seed, however, has been sown, and there are intelligent citizens in Salisbury who will foster the growth of that seed. The Rev. Dr. Murdoch, among others, is named as a non-medical sanitarian who takes a lively interest in the health interests of the "goodly burgh" of Salisbury. One other subject, the prevention of tuberculosis as understood at the present day, was made interesting by Dr. Battle, a member of the Board of Health for Asheville. The accepted theory of the contagiousness of tuberculosis was the leading feature of this discussion. The President of the State Board, Dr. H. T. Bahnon of Salem, and the Secretary, Dr. R. H. Lewis, of Raleigh, were present and contributed to the gratifying outcome of the undertaking. Very few of the nine members of the Board were absent from this conference.

Model Army Post Hospital.—On the left bank of the Potomac River, and just within the gates of the old arsenal grounds, at the foot of Four-and-a-half Street, in this city, there has been erected for the use of the Washington Barracks an Army post hospital that is conceded by Department officials to be a model of its kind, both in construction and the character of material employed. It is a three-story and cellar structure, 48x64 feet, with a rear building the same height, 27x42 feet.

The *Government Advertiser* gives the following description of the building: "The foundations are of Potomac bluestone and the superstructure is composed of pressed brick trimmed with Hummelstown brownstone, the whole finishing with a high-pitched, slated hip-roof. There is a broad porch at the entrance, with a similar portico on the east side of the back building. The joists and floors are of select Georgia pine lumber. The latter have been smoothed off, waxed and given a high polish. The architraves, base and other moldings are all of white pine, finished in its natural state. The staircase is of oak and Georgia pine. Throughout the building ornamental steel ceilings are used, decorated in soft pleasing tones.

"The cellar contains two large hot water heaters, which will guarantee an even temperature at all seasons. The first floor contains a neatly finished waiting-room, office, with tiled fireplace and handsome cabinet mantel in oak, an artistic chandelier depending from the center of the ceiling; a pharmacy, fitted with a marble-top counter, prescription case, shelving and other appointments usually found in a first-class drug establishment; a lavatory with exposed sanitary plumbing and tiled bath; a dark room for use of oculist, and one large ward, 24x42.6, excellently ventilated by large windows overlooking the broad river; dining-room and kitchen.

"On the second floor is found an operating room, two spare wards, steward's room, completely equipped lavatory, ward master's room, and one large ward, just above and similar in size and appointments to the one on the first floor. The top floor is as yet in an unfinished condition, and for a lack of funds will probably remain in that state for some little time. It will require about \$7,000 to finish it in keeping with the other parts of the building.

"When the proposals were opened for the construction of this hospital quite a number of bidders submitted figures. There was a difference of more than \$4,000 between the highest and lowest proposal. The contract was finally awarded William W. Winfree, of this city, who has executed the work in a remarkably short time and to the entire satisfaction of the War Department authorities. He gave it his personal attention, and was ably assisted in this direction by his superintendent, J. E. Reynolds. The building completed, including the approaches, grading and sodding will have cost about \$26,000.

Dr. MacLure of Glen Urthg; or "All for Mercy's Sake."—The *British Weekly* for June 14, has a medical sketch of a Highland practitioner, that is a classic of its kind. Dr. MacLure, the son of Dr. MacLure, is the subject of the sketch, the two covering nearly a century of practice between them, doing

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ORIGINAL ARTICLES.

DIET IN BRIGHT'S DISEASE.

BY JOHN M. BATTEN, M.D.

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The diet in the management of a case of Bright's disease of the kidneys is a very important feature. It would seem as nitrogenous ingesta in great part undergo metamorphosis and yielding their nitrogen to be carried off in combination with a portion of other elements under the form of urinary products, that a non-nitrogenous diet or one approximating it is the proper food in this disease.

The experiments of Schmidt show that the amount of urea passed in the urine is related to the quantity of food ingested, the nature of it remaining the same.

He found that when a cat ingested 44.188 grammes of meat daily, that the amount of urea excreted per kilogramme, body weight, was 2.958;

| | |
|-------------------------------|--------------------------------------|
| 46.154 grammes were ingested; | 3.050 grammes of urea were excreted. |
| 75.988 " " " " | 5.152 " " " " |
| 108.755 " " " " | 7.663 " " " " |

It will be seen that when the cat was living on flesh diet that the kidneys excreted on an average 6.8 parts urea for every 100 parts of meat consumed, and that the great bulk of the nitrogen belonging to the food ingested passed out of the system in the form of urea. If all the nitrogen was excreted by this way the quantity of urea would amount to 7.88 per cent. of the weight of the meat; the nitrogen contained in 100 parts of flesh corresponding with that contained in 7.88 parts of urea. But there were 6.8 parts of urea produced instead of 7.88 parts, which may be spoken of as representing the actual equivalent, as far as contained nitrogen was concerned, of a 100 parts of flesh.

Lehman states from observations made on himself when he ate animal food wholly, that about five-sixths of the nitrogen ingested was found in his urine in the form of urea.

From the foregoing observations it must be admitted that nitrogenous matter undergoes metamorphosis within the system. It must also be admitted that nitrogenous matter must undergo changes in the system rapidly, as it has been found that the amount of urea excreted by the kidneys is quickly affected by the quality of the food ingested. Lehman also found that when he had breakfasted exclusively on animal food that his urine was so rich in urea as to throw down a copious precipitate of the nitrate on the addition of nitric acid.

In Dr. Parkes' observations on two soldiers, A and B, he also found that a change in the food ingested soon affected the quantity of urea excreted. These men were kept the first, second, third and fourth days on a regulated mixed diet; the fifth and sixth days on

a non-nitrogenous diet, the seventh, eighth, ninth and tenth days on a mixed diet, the eleventh and twelfth days on a non-nitrogenous diet, and on the thirteenth, fourteenth, fifteenth and sixteenth days on a mixed diet. A, during the first four days on a mixed diet excreted 35 grammes of urea as the daily mean. The fifth and sixth days on a non-nitrogenous diet, 20 grammes and 13.52 grammes respectively. On the seventh, eighth, ninth and tenth days on a mixed diet he excreted 20.67, 25.68, 26.29 and 29.67 grammes of urea respectively. On the eleventh and twelfth days on a non-nitrogenous diet he excreted 19.12 and 15 grammes of urea respectively, and lastly, on the thirteenth, fourteenth, fifteenth and sixteenth days on a mixed diet he passed the first day 20.8, second 26.36, third 28.32 and fourth day 30.10 grammes of urea. B, who was a much smaller man, the mean for the first four days on a mixed diet was 25.92 grammes of urea passed. During the fifth and sixth days on a non-nitrogenous diet the urea excreted was 17.3 and 12.65 grammes respectively. On the seventh, eighth, ninth and tenth days on a mixed diet the urea excreted 14.40, 23, 25.20 and 22.99 grammes respectively. On the eleventh and twelfth days on a non-nitrogenous diet he voided 16 and 13.20 grammes of urea respectively. Lastly, on the thirteenth, fourteenth, fifteenth and sixteenth, days on a mixed diet the urea passed was 23, 24.36, 24.57 and 21.36 grammes respectively.

The above observations show that urea excreted by the kidneys was increased or diminished according as nitrogenous or non-nitrogenous food was ingested.

Mahomet, age 22, and weight 165 pounds, who had been living on an ordinary mixed diet, conducted two experiments on himself with a view to obtaining more precise information with regard to the time required for metamorphosis of nitrogenous matter to occur and to lead to an increased elimination of urea. In order to do this, he took his dinner of mixed food as usual at 1:30 P.M., April 16, 1871. From this time, so as not to suffer too much from want of nitrogenous food, he restricted himself to tea, sugar, butter, arrowroot and rice, the latter being the least nitrogenous of the natural food products. This diet was continued throughout the 17th, and at 8 A.M. on the 18th he took four eggs so as to supply nitrogenous matter. By the following morning it would be expected that the urea excreted would be at a low point when a meal was taken of meat diet.

Under a restricted diet the urea steadily decreased from 21 to 9.05 grains per hour. After eating the eggs the urea readily increased within the next four hours to 13.82 grains, and during the remainder of the day the urea only underwent a little further increase. The following morning the urea had decreased to 10.62 grains per hour, then after eating plentifully of beefsteak at breakfast the urea rose to 21.16 grains per hour, and with a repetition of meat

diet the urea continued to increase throughout the day.

During the experiment the usual bodily and mental work was performed. He noticed, however, during the restricted diet that he experienced a feeling of faintness and some increase in his appetite. Before the experiment was commenced he noticed that his urine was loaded with alkalies. During the restricted diet his urine was clear and the quantity passed was larger than when animal food was being consumed. This shows that when an increased amount of urea was excreted a less amount of urine was passed. Had the urine been increased with the increased amount of urea excreted, it might be argued that the increased amount of urea was due to the increased amount of urine passed.

In the second experiment of two days, on a very restricted diet, the urea fell from a range of 21 to 25 grains per hour to 8.87 grains per hour. At the end of two days, on the very restricted diet, nitrogenous food was taken in the form of egg and milk, beaten together so absorption would take place more easily and quickly. Half an hour later an ordinary meal of cold meat was taken. During the three hours succeeding the first ingestion of nitrogenous matter, the urea excreted stood 12.43 grains per hour against 8.87 grains per hour, the mean amount for the eight hours previously.

Now in Bright's disease of the kidneys we have certain conditions to be met and ameliorated in order to benefit the patient so afflicted. It must be admitted that when the kidneys are diseased they are embarrassed by reason of having too much labor to perform and owing to their enfeebled condition, being unable to perform the necessary functions which is shown usually by a dropsical condition of the system. Reason would then dictate that the kidneys should be relieved of a part of their duties. Now from the foregoing observations we have learned that in order to diminish their labor it is necessary to prescribe for our patient so afflicted, such food as will produce the least amount of or excrete the least amount of urea. It has been shown that urea is most excreted when nitrogenous diet is ingested, and least excreted when non-nitrogenous food is ingested. It has also been shown that the bulk of the nitrogen in nitrogenous food is excreted by the kidneys in the shape of urea. The food necessary to be ingested then by a person suffering with Bright's disease of the kidneys should be principally non-nitrogenous or approximating it.

It has been shown, also, by the above observations that when non-nitrogenous diet is ingested, urea is very much decreased in quantity, and that the urine passed is clear and increased in quantity. Then it will be seen that non-nitrogenous food not only diminishes the urea excreted in the urine, but leads to an increased amount of that fluid. This being true, it must be admitted that the patient suffering from Bright's disease is doubly benefited by a non-nitrogenous diet ingested. Namely, rest to the kidneys and an increased flow of urine.

The patient with Bright's disease is also benefited by the carbo-hydrates for the reason that the cast off material from the ingestion of them is excreted by the bowels and skin and otherwise. This would also add to our armamentarium in the treatment of a case of Bright's disease. The bowels are kept more soluble, throwing off an amount of liquid that might

not otherwise be excreted and they also act as a diaphoretic, passing through the skin an additional amount of fluid.

DIPHTHERIA; OUR MODERN VIEWS — ITS ETIOLOGY AND PATHOLOGY, WITH REMARKS ON THE EARLY HISTORY OF THIS MALADY.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held in San Francisco, June 5-8, 1894.

BY J. MOUNT-BLEYER, M.D.

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In the work of Hippocrates on dentition we find the following: "*Quibus cito in tonsillis ulcera serpentina consistunt, febrilis ac tussi per manebitibus, periculum est rursus esse generanda ulcera.*"

This is the first record of testimony regarding the recognition of the disease we now classify as diphtheria. Whether Hippocrates had in mind the simple apthous inflammation of the mouth or the well-defined disease itself is an open question. Suffice it to say, the above quotation is the first literature we possess upon ulcerative and exudative disease of the pharynx, tonsil, uvula, larynx, etc.

Aretæus gives us a more satisfactory clinical picture and intimates that Egyptians were quite familiar with diphtheria. Aëtius, who lived some two centuries later, left a manuscript giving clear evidence that he understood diphtheria. And so we pass on rapidly to the end of the sixteenth century. It was the distinguished French physician, Baillou, who it may be truly said gives us the first accurate description of diphtheria. He speaks of a false membrane which we can scarcely mistake for anything save fibrinous exudate of diphtheria.

Ever since the day of Baillou, diphtheria has prevailed in the various quarters of the world. We have the history of an epidemic of malignant angina in Paris toward the close of the sixteenth century; again we find it in Spain—as we learn from Villa Real, who studied an epidemic which raged in Spain in the early years of the seventeenth century, which he portrayed as *garotello* or more specifically *morbi suffocantis*, and which possesses without drawing the broad line of differentiation between diphtheria and the scarlatinal exudates.

Coming down to more recent times, we find such eminent observers as Dr. Patrick Blair, Schobinger, Ghisi, John Star, Huxham, Francis House, Trouseau, Samuel Bard and others engaged in the study of diphtheria. The first exact record comes to us in the form of two treatises on angina diphtheritis which were submitted to the French Academy of Medicine by Bretonneau in 1821. In these brochures he made the broad claim that an inflammation without an exudation is never diphtheria, while no inflammation with an exudation is diphtheritis, when it does not spread by contagion.

He believed that inoculation was the only means of conveying the disease from one to another, and held firmly to the opinion that the atmosphere did not act as a conveyor of the contagion. We have since modified our views regarding the spread of the contagion of diphtheria, and unfortunately the violent epidemics in France, Holland, Germany and our own country, where it raged from time to time, have

given us ample opportunity and material for the study of this feature of the disease.

It was Virchow who established the pathologico-anatomic basis upon which we have since based our investigation of the diphtheritic process. He taught us to direct our attention to the exudation in the substance of the mucous membrane, and the death of this membrane in consequence of the interference with its nutritive supply, in contra-distinction to croupous inflammation where the exudate does not penetrate the structure of the membrane but simply lies upon its surface.

There are still many who hold that diphtheria and croup are essentially similar conditions pathologically considered. Their numbers, however, are rapidly diminishing, and there seems to be little question that within the next decade we will all agree that the views of Wagner will have to give way to the more recent bacteriologic and pathologic discoveries.

Bahl considered diphtheria as a general infectious disease, entirely independent of any previously existing local disease, whose distinctive characteristic was a nuclear or cystoid growth of the submucous connective tissues which caused the death of the membrane by compressing the vessels of its vascular supply. To him the manifestation in the throat and tonsils was simply an indication, or symptom as it were, of the general infection just as the eruptive basis chose the skin as the most favorable seat of characteristic indication.

These are the views about which the profession at large are still at variance. The older practitioner, whose good judgment is based upon a large experience, is not yet ready to resign the theories in vogue during the longer period of his professional career, but there can be but one correct solution of the problem concerning the origin and character of a disease which even to-day is an almost unconquerable foe, and the weight of research prompts to the fact that we must accept and carry on the work laid out by Oertel, Huebner and Welsh if we hope to be able to cope intelligently with diphtheria. The bacillus, described by Löffler and Klebs, coupled with the study of the toxic ferment it ushers into existence, and which finds its way into the circulation, together with the pathology as Oertel has taught it to us, it seems accounts in a satisfactory way for the clinical manifestation of the disease. In other words, if I may be permitted to say it, we have only now begun to know something about the nature of diphtheria.

The etiology of diphtheria, in a great measure, is the practical lesson we have learned from the researches of Klebs, Löffler and their followers. Before the time of these observers we were apt to confound the exudative diseases of the pharynx, tonsils and upper respiratory tract. To day we know, with almost absolute certainty, that there are two forms of this class of disease, which to the eye of the clinical observer present similar changes in the mucous membrane, inasmuch as both are characterized by the appearance of a pseudo-membrane, at times dirty white, often tinted greenish or yellow white in color. Viewed at the bedside alone, in both you will observe alike, prostration, a febrile condition, swell-

ing of the submaxillary glands, disturbance of respiration, often slight it is true, so that a differential diagnosis, clinically, is a qualification to which few of us can lay claim. Notwithstanding this, the two are totally dissimilar. Examined bacteriologically, the exudate of one will reveal nests of bacilli which are found only in the exudate of true diphtheria, while in the other there are no bacilli, but instead the so-called staphylo- and streptococci.

The first variety is highly fatal, statistics showing a mortality of almost 50 per cent., while the second, so far as danger to life is concerned, is comparatively harmless. Thus it becomes of great importance, whenever we have a case of exudative disease of these parts to deal with, to make, if possible, a positive diagnosis of its true character. The New York Board of Health has instituted a most practical method by which every practitioner can ascertain beyond a doubt the disease under his care, and thus avoid mistakes. Where this mode, as aforesaid, can not be made use of, I will explain, when discussing the subject of bacteriology, a very simple manner in a comparatively short time, so that the clinical observer can avail himself of this means of confirming his diagnosis, thus saving much time and trouble.

The causation of diphtheria leaves us much in doubt. We know that it prevails at all seasons of the year, most extensively in the damp chilly weather of the late fall and early winter. We find it in all latitudes and longitudes, although quite recently I was assured by Dr. Angel Garvino, Professor of Bacteriology at the University of Mexico, who visited New York, that the City of Mexico, which lies in a very high altitude, some 1,500 meters above the level of the sea, was comparatively free from diphtheria; in fact so much so that the experience of a case of true diphtheria is regarded with rare interest by the medical men of that city. The disease, too, is not limited to classes. We find it among the rich and poor alike; in well and badly ventilated and drained houses; in the thickly and sparsely populated districts.

Essentially, diphtheria is a disease of early childhood, although no age is exempt from it. Sometimes we find it raging in epidemics, again it is met with in isolated cases in which the question of origin by contagion can have but little weight. In short, these are the conditions under which we find diphtheria.

Many valuable statistics have been collected on the subject, but the limits of a chapter like this do not permit of such detail. Then, again, profitable as statistics are to the specialist and the doctor at large, they make the driest of dry reading. For such as desire more in this regard, the late brochures of Huebner, Baginsky, Oertel, von Brieger, Sidney Martin, William Welsh and others may be consulted.

Diphtheria presents itself under two series of symptoms—the local, and constitutional manifestations, to which may be added a third form best considered, however, as the sequelæ of the disease. Thus in speaking of diphtheria we should bear in mind these conditions, although they do not always manifest themselves together in each individual case. The local disease makes its appearance in an inflammatory process upon certain mucous membranes and denuded parts of the skin, the most common seat of affection being the membranes of the throat and fauces, those most directly in contact with the air, and the inflammation leads to formation of a membranous exudate which is usually the first indication that causes us

¹ I have purposely avoided more extensive reference to the bibliography of the history of diphtheria which may be found in nearly all the works on diphtheria, particularly that of Oertel, Mackenzie and others. In order to devote my limited space to the consideration of the disease in its more modern aspect.

to suspect the existence of diphtheria. Upon superficial examination the clinical observer meets with grayish or dirty white false membrane deposits upon the mucous membrane of the mouth, the pharynx, tonsil, nose; in fact, anywhere along the upper air passages. It is under the same conditions found upon the conjunctiva, the rectum or vagina, or upon any of the mucous membranes of the body that are directly exposed to the air.

When this false membrane invades the deeper mucous membranes, such as that of the intestinal canal, etc., we are inclined to regard it as secondary infection, notwithstanding that we lean to the opinion that the diphtheritic process is usually circumscribed locally, and spreading by way of the general circulation all through the body. Thus we account for the evidence of diphtheria as we find it in the various organs as a primary condition. This, by the way, is the most modern view taken of the disease and the one which to us, after careful consideration, is the theory most in accord with clinical manifestations.

Diphtheria is an infectious disease, and may be classified as somewhere between simple excitement of the circulatory system, and the most aggravated form of typhoid fever and pyemic poisoning. The sequelæ, in my opinion, will depend more or less on the extent of the general invasion from the original local disease, and largely upon the quantity and nature of the septic ferments that find their way into the circulation, involving those organs that offer the least resistance. The latest investigations point to the necessity of turning our attention to the form of true diphtheritis as much as has been hitherto done to the local manifestations of the disease.

In the study of the etiology of diphtheria the first consideration is to explain, if we can, the process of the disease itself. Roux and Yersin, in substantiation of their theory that the systemic effect of diphtheria is not due to the bacillus described by Löffler and Klebs, but rather is caused by the ptomaines or poisonous substances produced by it, proved it by separating the bacillus from the ptomaines and subjected it to chemico-analysis and physiologic test. They described the disease as a toxemia, differing from others in the respect that the toxic acts as a ferment which when injected into living tissue, even in the most minute quantities, ushers into existence certain well defined albuminous substances or bodies.

Sidney Martin succeeded in isolating these poisonous albuminoids from the organs of persons who died from the disease. This substance was secured from the spleen and blood of children, was subjected to repeated alcohol falling and resolved itself into a proto- and deatro-albumose which he injected into the skin of rabbits.

In doses of 0.117 per kilo it produced a febrile condition and edema in the animal; slightly increasing the amount to 0.112 per kilo, rapid death of the animal followed. Intravenous introduction of this albumose in the same animals produced fever, progressive paralysis and degeneration of the heart, nerves and muscles, precisely analogous to those conditions we find resulting from diphtheria.

Löffler's theory of the local origin of diphtheria, when contrasted with the clinical manifestations of the disease, does not seem as plausible as when viewed from its bacteriologic and pathologic standpoint alone. True, he has given us a most careful

and competent description of the bacillus, since honored with his name, and the majority of clinicians agree that upon the presence of this bacillus alone can the diagnosis of true diphtheritis be made beyond peradventure. We are not all bacteriologists, and we propose to lay the greatest stress on the clinical view of diphtheria. I shall refer to its bacteriologic significance only so far as it can be practically made use of at the bedside and aid us in diagnosis, treatment and prophylaxis.

Ab intra diphtheria appears to be a disease which draws into sympathy certain organs, preferably the heart, muscles, kidneys and nerves, and thus it becomes at first glance difficult for us to understand how it is possible that such conditions can be brought into play by a microorganism that has its habitat near the surfaces, and it is even more difficult to harmonize with the insidious progress of the disease and the toxemic symptoms we observe. Once, however, we establish the presence and origin of the diffusible ferments, all these characteristic manifestations become apparent. Bear in mind that the bacteriologic investigations of recent years do not stand alone; we can carry them one by one to the bedside and study them side by side, and reason logically from cause to effect.

One thing judged by the weight of careful research appears true, that it is essentially certain we can no longer hazard a positive opinion upon a case of diphtheria without having ascertained the presence or absence of the bacillus. Many of us appreciate the force of this broad statement from practical lessons learned at the bedside where without any indication that would direct our attention to it, we have seen certain cases of diphtheria resolve themselves in from one to three days into simple exudative tonsillitis or angina lacunaris.

Skigo reports several such cases which he met with during an epidemic of diphtheria, where the tonsils were covered with disseminated spots of exudate the size of a pea; and he tells us that there was absolutely no clinical indication by which he could differentiate the cases which ran the violent course of true diphtheria, and those which took the milder course.

The value of the bacteriologic character of the exudate in this connection received much attention from Morton, who examined 200 cases of diphtheria that had been diagnosed by that eminent clinician, Dr. Simon, of Paris. In only 137 of these cases did he find the bacillus; 43 of the remaining 63 cases proved to be tonsillitis; 13 proved to be croup, of which 12 got well without operation; 7 cases proved to be diphtheria with croup, 6 of which developed bacilli after the operation of tracheotomy had been done, and which Morton says was clearly due to hospital infection.

It is necessary in the very first instance to differentiate between exudative tonsillitis and true diphtheria. This, if we are obliged to follow the procedure of Koch, which requires a bacteriologic experience which the average clinician does not possess. The cultivation of the bacillus in glycerin agar requires time and patience, to say nothing of careful work. The bacillus must be isolated from the membranous exudate. The cultivation of the bacillus in blood serum requires at least from twelve to sixteen hours, and a day or a day and a half, at least, in making the diagnosis. With a case of true diphthe-

ria to deal with, so much time can not be sacrificed, and hence we must look to other more rapid means of gaining the object of which we are in search. In hospitals, with all the facilities at hand, we can allow ourselves privileges that we can not think of in private practice.

But we have a simple means at hand of making a hurried and certain examination of the exudate, where one can not have the opportunities of a city board of health. The method is the one devised by Roux and Yersin, modified by Huebner. A bit of the yellow covering of the membrane from the tonsil is removed with a sterilized spatula, and rubbed over the surface of a cover-glass until the film is very thin and almost dry. The glass is then passed through a flame and stained with methyl blue. The specimen, it will be found, readily takes the stain, and inside of a very short time it is ready for the field of the microscope. An ordinary objective magnifying glass of 400 or 500 diameters answers the purpose, and with a little practice, between the detritus, mucus, pus cells and the various bacteria heaps, you will observe nests or pockets of mixed up bacilli about the size of the tubercle bacillus, most of them slightly bent, some club shaped, often irregularly seamed.

With the presence of these nests established you may be reasonably certain, in fact we almost feel like saying absolutely certain, that the case is one of true diphtheritis.

On the other hand, if you find only the cocci—the strepto- and diplococci, with here and there, short, thick, weakly stained bacilli not arranged in nests, you will, in all probability, in fact you may be certain the case you have to deal with is not a true diphtheria. The statistics of Huebner covering 113 cases examined by him during a period of six years after Löffler described the specific bacillus, go a great way toward supporting the above statement.

In thirty-six cases, Huebner found cocci, many solitary ones, with some side by side, but no nests of bacilli with stained ends. Ten of these cases were scarlet fever, and thirteen presented the clinical picture of follicular tonsillitis or croup. The exudate of the other seventy-seven cases revealed bacilli arranged in nests; of these the nests of bacilli alone presented, while in fifty-three there were nests besides cocci. Of these seventy-seven cases, fifty-three died with all the manifestations of true diphtheria. The mortality of the cases where the bacilli predominated in very large quantities was 66 per cent., and where the nests and cocci both existed 59 per cent. died. Of the thirty-two recovered cases, seventeen presented all the clinical appearances and were of the most violent type, four were tracheotomized and fifteen were mild cases without any of the marked characteristics of true diphtheria.

From this, alone, the high value of a bacteriologic examination becomes evident, and to say the least, it is beyond question the most reasonable diagnostic factor we have had in years and of undeniable practical value, for the reason that in each case the cover-glass method before described alone was sufficient to make a satisfactory examination.

"It is possible," says Huebner, "that a recovered case may show bacilli some days after the disappearance of the membrane." I can add my testimony to this, for in four cases similar, I also discovered sparsely filled nests, two days after all visible signs of the membrane had disappeared.

It must not be forgotten that you will find cocci in angina lacunaris to which Fraenkel called our attention in 1886. And lately the claim has been made that a small coccus is always found in the pseudo-membranous disease, which is pathognomonic of the disease. This still remains to be proved, although it appears to us to be a fact ready for acceptance, yet it will require more careful investigation before we can put ourselves on record with an unmistakable picture of this microorganism. Martin, of Paris, first described the organism which he pronounced to be pathognomonic of the pseudo-membrane, and I am inclined to agree with him. The significance and value of these recent researches will bear much upon our treatment of this malady.

With Laycock in 1858, we have the first intimation of the possible parasitic origin of diphtheria, the parasite being the oidium albicans. Later, Letzerich ascribed it as due to the zygodemus, and Tuscos and Joffe to the leptothrix buccalis.

In 1868, Oertel carefully studied the habits of micrococcus which he isolated from the exudate, membranous exudate. It occurred as a minute, dark, point-like microbe; some round, others oval, occurring singly or in masses—zöoglea; it was always accompanied by the rod bacterium. In 1883, Klebs examined the exudates obtained during an epidemic in hemorrhagic diphtheria in Prague, and claimed to have discovered the specific germ of true diphtheria—the microsporon diphtheriticum, a small micrococcus, arranged in round balls covered by a thin layer of gelatinous matter. These subsequently developed into motive bacilli and finally into tufts of mycelium.

In another epidemic occurring in Zurich, and characterized by a rapid extent of the membrane into the larynx, followed by interstitial inflammatory process in the internal organs, Klebs came across a microorganism that differed totally from the one he first observed. It was lobular and essentially belonging to the bacillus group. He naturally concluded that there were two forms of diphtheria, *i. e.*, diphtheria microsporon and diphtheria bacillaris. Klebs undoubtedly was on the right track, but he lost the scent, which also escaped Emmerich-Solomen, until Dr. Frederick Löffler took it up and accurately pictured to us the bacillus which we now accept as characteristic of true diphtheria. It is essentially the one observed long before by Klebs whose weak point seems to have been insufficient accuracy and evenness in conducting his investigations.

To Löffler we owe the streptococcus and the bacillus; the bacillus of which I desire to speak at length here. It is non-mobile, its form is difficult to describe in words that will give you an adequate idea of its appearance to the eye, for it is neither straight nor bent; in short, it is about the size of a tubercle bacillus, somewhat thicker. It is not found in the intestinal organs, and micrococci morphologically identical with those found by Löffler are observed also in various diseases accompanied by inflammation of the mucous membrane, like variola, typhoid and puerperal fever, but their presence there is regarded as purely accidental.

Löffler found his micrococci not only in the membranes, but also in the lymphatics, from which point they penetrated every part of the body, causing a tissue necrosis.

The micrococci are not always present. Inocula-

tion by injection of streptococci do not produce true diphtheria. This is the great evidence that they are not specific of the disease. Not so with the bacillus.

The bacteria of diphtheria is aerobic; that is, it requires oxygen for its life and growth.

The pathology of diphtheria.—As in the preceding pages on the etiology and bacteriology, I will not be able to go into details, but rather confine myself to the pathology, as it is most nearly associated with changes that are manifested by ordinary clinical observation. The most complete studies on the pathology of the disease have been made by Oertel, both as to the structure of the membrane and the changes in the tissues of the body, as we find them affected by diphtheria.

Let us take up the membrane first. In color, it is grayish or white, varying in thickness from one to three millimeters. It is tenacious, thick and closely adherent to the parts, and for this reason, on removing any of it for examination it is necessary to scratch with some vigor and not scrape lightly over the surface with a spatula. In the main it consists of degenerated fibrinous epithelium and faser stoff exudate. This with the coagulation of the fibrin produces a hyaline substance made up largely of degenerated cells and tissue elements. This occurs not only on the surface of the membrane, but deep down in the sub-epithelial tissue. The inflammation and fibrinous exudate is a secondary process.

The classification the modern observers are inclined to make, summed up is this: Diphtheritic pseudo-membrane is true diphtheria. Fibrinous pseudo-membrane is not true diphtheria. The two, as they appear clinically, are absolutely identical. There is absolutely no way of differentiating when viewed in gross. Practically speaking they are alike, and it is in this connection that the bacteriologic examination alone can determine the diagnosis. Both are a coagulation of fibrinous exudate.

The degenerative process in the spleen, in Peyer's patches, in the lymphatics, the solution and degeneration of the cells into coagulable hyaline substance are precisely similar to that which produces the pseudo-membrane in the larynx, trachea, uvula and pharynx.

The histologic structure of the membrane varies. The epithelium, according to von Wagner, is a fibrinous metamorphosis. Between the epithelium there are leucocytes which (*necrotistisch zu grunde gegangen sind*) have become resolved into hyaline substance, the masses of (*fibrinogener flussigkeit*), which transudated assumes in the epithelial structure the form of a network or fibrillated structure.

Masses of larger round cells are also intermixed, some broken down, others still retaining their apparent integrity, with disintegrated similar masses. The first change occurs in the nuclei of the cells.

The major part of the membranous masses of the pseudo-membrane is of secondary origin. It originates from the mucous tissue and the elements which form it have collected and originated in it. They were simply evolved from the depths of the membrane to the surfaces.

There is a fibrinous infiltration of the connective tissue observable in the lowest strata of the mucous membrane, also hyaline degeneration of the membrane; larger and similar round cells with the detritus of the breaking up of these cells, around which in the deeper layers we find healthy cells sickened, or

so affected that they have gathered in heaps ready to undergo further change.

These, in brief, are the pathologic products and changes we find in the structure of the membrane and its continuance indicates that the disease is advancing.

It is claimed that pathologic changes, such as have been described, may be produced by injections, in the membranes and the tissues directly underlying, of powerful irritants, and thus the possibility of producing diphtheria by mechanical means is claimed to be possible.

460 Lexington Avenue, New York City.

DUTY—LOYALTY—SUCCESS.

Read before the Joint Meeting of the Golden Belt and Northwestern Kansas Medical Societies, held at Ellsworth, Kan., Oct. 4, 1894.

BY WILLIAM B. DEWEES, A.M., M.D.

SALINA, KAN.

Fain would I call the attention of not only those within the sound of my voice, but of every member of the two Societies here represented, as well as of every reputable practitioner in America, to the too much neglected duty of contributing to and studying the proper current medical literature. By the right endeavor in this direction the great distinctive service of American practitioners of medicine may justly become effectually manifested by its counter-acting influence in removing the pedantry shown in some of our medical colleges and periodicals, and encourage the expression of original thought and observation in young physicians. The distinction of young physicians is made because it is from this rank that the future advance in medicine will be made, and also from the cognizance that most of the older members of our guild have never learned to write nor to observe or study, while as they become burdened with the cares of a large practice or the habit of indifference, it becomes impossible for them to acquire the art of writing. Thus, whatever knowledge they may possess of positive value to the profession, dies with them.

Advance in medical education follows the earnest endeavor of the thoughtful and observing doctor to learn something of profit and interest, and then place this before the profession in the most attractive manner. When a young practitioner has begun to realize that he can talk to the medical profession throughout the State, the nation, and even the world, life and study take on an entirely new aspect. To the day of small things will now be added the day of an enlarged and enlarging physicianhood. He who fully realizes this truth will never write a poor article for publication. The poor articles come from quite a different sort of doctors. To every young practitioner who would make the most of his powers I would say: Think and observe for yourself, and write for the best periodicals constantly. Though it be only one or two articles a year and much time be required to prepare the same, be sure to acquire and keep up the habit of correct thinking and observing, constant study and perfect writing.

With regard to studying the proper current medical literature, it is but necessary to call attention to the fact that no practitioner can be considered as progressive who has not provided himself, first of all, with the true representative periodicals of the profession of his State and nation. Therefore every

loyal physician in Kansas should consider it his first duty to become a member of the local medical society of his city, county or district, then to join the State Society and thus in turn hold membership in the AMERICAN MEDICAL ASSOCIATION. Then will follow the regular weekly visits to his table of both the *Kansas Medical Journal* and the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. These periodicals are the official organs of the State and national organizations respectively, and are independent, being controlled and issued by medical men for professional purposes only, and will allow a weekly interview and counsel with the best medical talent of the State and nation. This argues for State and national unitary medical organization. Why not? Our business remains to be the welfare of the people and raising the standard of our profession. We are thus to consider ourselves called upon to constantly arouse in the medical mind the recognition of the need of professional unity. Without unity we can not speak properly and effectively to the people or the profession, criticise abuses, or encourage faint and sporadic attempts to be in accord with nature. In unity we shall find strength and success, while singleness of purpose can only bring professional weakness and failure.

They only gain the largest success who improve every opportunity. By thus studiously applying himself the doctor may become as progressive in Kansas as anywhere else on the globe. We say progressive, because our profession is a progressive one; and every succeeding representative of a progressive cause, will find the pre-requisite to be more knowledge and a better understanding of the truths which the same embodies, in order to be properly qualified and merit the name of a representative. The knowledge and wisdom of to-day will not fully serve the needs and wants of to-morrow. What little we can do now and year by year, are like little seeds scattered by the wayside, yet falling upon good soil, will germinate and grow, and though planted by a tyro and watered by Apollo, the kind and ever careful Dame Nature will not fail to give them the rightful increase.

We know of no means by which success will come to our profession, save by untiring industry in both individual and united effort. The great danger of failure lies in knowing and doing too little and not in knowing and doing too much. It is work that gains the goal and wins the prize; and as we have nothing which we desire to lose but much to gain, we should have strong wills followed by strong deeds; such as will leave their impress as guides to our successors. A mark set high and a plan well laid are not often found in the *débris* following a failure; but stand out prominently as monuments of mature intellects, not easily shaken and much less destroyed. Let us then henceforth individually and jointly endeavor to "learn to labor and to wait," and see to it that our brethren do likewise—even though we shall find it necessary to "go out into the highways and hedges, and compel them to come in," (Luke xiv, 23) to work and be happy, to be loyal and deserve success in unity. Let our motto be in the language of Addison's "Cato:"

"'Tis not in mortals to command success

But we'll do more, Sempronius; we'll deserve it."

When thus we become really aroused to the proper sense of our duty and demonstrate effectually our loyalty to our profession with a spirit that will

strongly and convincingly awaken our brethren who are now dormant existing in professional desuetude, by driving home to them those conditions which are of a nature that pinch the conscious, and of which the only consoling element is to be found in the thought and act of "*We must be born again;*" then will the possibility present itself of increasing the membership of the Kansas State Society to upwards of 1,000, and that of the AMERICAN MEDICAL ASSOCIATION from less than 5,000 to a possible 50,000—which estimate will include only a limited number in excess of one-half of the practitioners of rational medicine in our State and Nation, respectively. Then, and not until then, may we confidently hope to find enlisted the requisite majority essential to ultimately have success reward our efforts by bringing about through unitary action, legislation in all things concerned with the well-being of the people, as it should be, namely: In dependence upon concerted medical advice. Will we do our duty, be loyal, and deserve success?

TOXIC AMBLYOPIA.

Read by title in the Section on Ophthalmology and Otolaryngology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY JAMES A. LYDSTON, M.D., Ph.G.

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CHICAGO, ILL.

Accustomed as we are to such precise and accurately descriptive terms in ophthalmology, it is a matter of some surprise that such vague and indefinite ones as amaurosis and amblyopia should have withstood the changes of years and still confront us as we scan the index of every well-arranged ophthalmologic text-book; but we presume that the ophthalmologist feels himself entitled to just as much license as does the author of every treatise upon the principles and practice of medicine, wherein we see an entire chapter devoted to jaundice, which is at best but a symptom of hepatic derangement. Were we to adhere strictly without qualification to the modern definition of amblyopia, we should confine ourselves strictly to those cases of visual perturbation in which there is no dioptric or structural change to account for the defective visual acuity; but in strict accordance with my subject I must depart from such a fixed classification and embrace all forms of impaired vision arising directly or indirectly from retinal or optic nerve changes due to toxic causes whether heralded by organic disturbances, ophthalmoscopically perceptible, or dependent upon retinal or optic nerve intoxication under the one significant title, toxic amblyopia. Inasmuch as in every case of optic nerve or retinal change, arising from toxic influence, it is only in the later degenerative stages that characteristic phenomena assert themselves and become sufficiently grave to be perceptible to ophthalmoscopic investigation. Thus grouping toxic amaurosis and toxic amblyopia together we find that a common cause is often the dominating etiologic factor. Thus we have uremic amaurosis and uremic amblyopia, designed to describe different degrees of impaired vision consequent upon one and the same cause. Therefore, with the remark that I shall not attempt to differentiate between toxic amblyopia and toxic amaurosis, regarding the two terms, as we must, as

simply differing in degree and descriptive of visual changes resulting from either moderate or severe retinal or optic nerve intoxication or structural change, I will at once invite your attention to a few clinically demonstrable facts that may serve to shed some light upon a subject which is at best but a poorly comprehended and complex topic.

Samelsohn is entitled to credit for having presented us with the knowledge that anatomic investigation revealed in all cases of toxic amblyopia an inflammation of that part of the optic nerve lying within the optic canal, which serves to explain many otherwise inexplicable optic nerve changes. Toxic amblyopia has been known to result from many and various causes. As significant of its origin, we are burdened with numerous names descriptive of the disease. Thus we have amblyopia uremica, amblyopia albuminurica, amblyopia saturnina, amblyopia diabetica, amblyopia nicotinic, amblyopia alcoholica, etc., and of all these, probably from their greater frequency, amblyopia nicotinic and amblyopia alcoholica are the most commonly described and more fully appreciated, and we find these forms to be accompanied by a chronic retro-bulbar neuritis which lies at the bottom of the subjective manifestations—defective vision, nyctalopia, scotomata, etc., which are the suggestive manifestations to the patient, and if the interstitial neuritis is overlooked will ultimately lead to permanent optic nerve changes such as atrophy of the nerve, blanching of the papilla, atrophic excavation, contraction or narrowing of the retinal blood vessels and consequent pronounced limitation of the visual field.

Arlt described the condition that we appreciate to-day as amblyopia nicotinic, under the title of amblyopia nyctalopia, inasmuch as nyctalopia was its most striking symptom, ascribing the nyctalopia to dazzling by intense illumination for lack of a better explanation; but thanks to Samelsohn, we are able to define a more plausible reason for the changes. Three well-marked and typical illustrations of toxic amblyopia, or better, retro-bulbar neuritis from toxic causes, arising from the excessive use of tobacco, and aggravated by alcoholic indulgence and excessive venery have presented themselves to my notice in the last few months, and in each instance I was able to define marked retinal ischemia, pronounced pupillary dilatation, together with sluggishness of the pupil under the reflex stimulus of light. In all cases the attention of the patient was directed to his eyes by great visual deterioration in both eyes, and that, too, to a similar degree in each. The constancy of nyctalopia as a symptom occurring in the early stages of this affection, I believe with Arlt is partially explicable on the ground that the pupil is dilated and therefore during the day permits light to enter the eye in floods, producing a disagreeable glare, dulling the retinal elements by over-stimulation. As we know that when the eye is suddenly exposed to the influence of the terrific glare of an arc light its retinal impressions are almost obliterated, as was typically illustrated in one of the electric light fitters in the Champlain Building, whose eyes I had the opportunity of examining ophthalmoscopically immediately after they had been subjected to the flash consequent upon a short circuit. In this case there was developed an acute traumatic conjunctivitis and amblyopia fugax, both of which symptoms disappeared with appropriate rest under atropin,

dark glasses, etc. Aside from hyperemia or ischemia of the disc, we may say ophthalmoscopic examination reveals no changes in early cases of toxic amblyopia. Testing the vision, however, we note gradual diminution of the visual acuity, the cause of which is a central scotoma. This scotoma is horizontally oval in form, extends from the macula lutea to the optic disc and corresponds to the maculo-papillary region of the retina. The gap is noted where the vision is tested by means of a white object, but red and green change in the region of the scotoma, appearing less highly colored than in other parts of the visual field, and as the case progresses, red becomes wholly imperceptible, and finally white disappears in the area corresponding to the scotoma, the vision is reduced to its extreme, and we now have an absolute scotoma, but here, as in other instances in which it is advisable to test the visual perceptivity of color, we must remember that even within physiologic limits the perception of colors is not the same in all portions of the visual field, *i. e.*, there may be a wide difference between central and peripheral color perception, and while we can test the central region with the colored skeins of Holmgren, the peripheral color acuity must be investigated by movable colored bodies which are forced into different positions, throughout the visual range, and thus are we able to define that the peripheral retinal domain is normally color blind.

The etiologic factor in that variety of toxic amblyopia styled amblyopia nicotinic is the excessive chewing or smoking of tobacco combined with excessive drinking, sexual excesses, etc., consequently most, if not all, cases are found among men, and not earlier than middle life, more frequently in cases of advanced age, as it seems that as age advances the optic nerves become less tolerant to the effects of nicotin, and again individual predisposition or particular susceptibility seems to be a prime factor in certain instances in this class of cases, therefore comparatively small quantities of nicotin are sufficient in exceptional cases to produce optic nerve intoxication to the degree of exciting amblyopia, while in others *per contra*, there seems to be almost complete immunity to this affection. A point possibly that exercises an important bearing in the way of explaining the occurrence of toxic amblyopia is the fact that in certain cases the physiologic excavation involves almost the entire disc, and the fibers corresponding to the area of the disc implicated in the physiologic excavation are consequently more prone to degenerative change. And again, another predisposing factor is in my estimation the fact that in adult life the optic nerve fibers lying adjacent to the pial sheath regularly experience atrophy, while coincidentally therewith atrophic changes assert themselves in the optic nerve fibrillæ lying contiguous to the central vessels which, complicated by the toxic influence of any poison having a particular predilection towards optic nerve degeneration, favors optic nerve change with consequent amblyopia.

With respect to treatment, the primal indication is to eliminate the exciting or predisposing factor. We must at once withdraw tobacco and advise complete abstinence from alcoholic beverages, excessive venery, etc.; in short, everything that tends to deplete or lower the vital powers of resistance must be eschewed. Proper regimen of the eyes advised and instituted, excessive close eye work, as well as exposure

to the dazzling effects of bright light should be avoided, and tonic measures of treatment at once applied. Among the remedies that stand preëminently forth in the management of toxic amblyopia from whatever cause, we yield the palm to strychnia, hypodermatically given, either at the nape of the neck, or in the temporal region. To Nagel belongs the credit of having first used strychnia in cases of optic nerve change, and Hippel has determined that it exercises a mildly stimulating effect upon even the normal nerve, increasing visual acuity in a transitory manner and widening the field of vision. In addition to strychnia hypodermatically and internally, iodid of potassium, in goodly sized doses, seems to exercise benefit by its eliminative tendencies, and at the same time probably separates nicotin into less poisonous compounds. Another efficient remedy is pilocarpin, both internally and hypodermatically administered, exercising its effects through elimination, diuresis and diaphoresis. Numerous other therapeutic agents are said to excite a retro-bulbar neuritis with consequent amblyopia, among the most conspicuous of which are stramonium, carbon bisulphide, lead, chloral, opium, quinin, osmic acid, etc. I have met with toxic amblyopia arising from huge doses of quinin, but here there were, as a rule, no diagnostic optic nerve changes, aside from retinal ischemia or hyperemia and slight swelling of the disc, and the amblyopic manifestations were fugacious in character, so that the diagnosis was necessarily based upon the immediate restoration of vision following withdrawal of the medicament, which was exercising a toxic effect exhibited by the amblyopic manifestations.

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THE MARINE BIOLOGICAL LABORATORY AT WOOD'S HOLL, AND ITS POSSIBLE RELATION TO MEDICAL EDUCATION.

BY C. S. BACON, M.D.

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Medicine, which lays under contribution all the natural sciences, chemistry, physiology, botany, zoology, etc., is interested in the development of each of its subordinate or fundamental parts, and hence can not be indifferent to any means which promises to aid the growth of any one of these foundation sciences. Such an agent in developing biology is the Marine Biological Laboratory of Wood's Holl, Mass. The questions that have been asked convince me that there is much interest among medical men concerning this station for science research and teaching, combined with as much ignorance of its practical workings. To satisfy this interest I will give the readers of the *JOURNAL* some idea of the aims and methods of this institution and then suggest how it can be of use to the medical profession.

Although marine laboratories have been in existence only for about twenty years, their objects or functions are well known to all who have to do with morphologic and physiologic functions. Prof. C. O. Whitman, Director of the Laboratory at Wood's Holl, in the opening sentence of an article in the *Atlantic Monthly* of June, 1893, makes the following suggestive statement: "The ocean is now regarded as the original home of life on this planet and its present inhabitants furnish records of life histories

and evolution phases which are absolutely indispensable to a deeper insight into the phenomena and laws of life." It may be added that for purposes of instruction marine forms can be studied in their natural habitat more easily and economically than land animals and especially is this true of the study of their embryologic and larval stages of development.

The laboratory at Wood's Holl differs in one important respect from other seaside laboratories, such as the well-known station at Naples. Our American laboratory combines the function of a station for research with one for instruction, while that at Naples is exclusively for original investigation. Any one who intends to enter upon any line of research but is unprepared in the details of technique may acquire in the school such preparation at a great saving of time and energy. The school is also made use of by teachers in colleges, normal and high schools who wish to keep up to date their knowledge of biology and the methods of study. For their benefit there have been organized classes in vertebrate and invertebrate anatomy, embryology, morphology, comparative physiology and botany. A more vivid idea of the way these courses are presented may be obtained by a short detailed description of the course with which I am most familiar, that in embryology. This class studies the fertilization, segmentation and early stages of development of various pelagic fish eggs, and the variations produced by securing abnormal conditions of pressure, rupture of cell membrane, etc.; learns the method of killing, staining, sectioning in parafine and celloidin and reconstruction. Some time is also given to the study of the holoblastic eggs of sea urchins and amphibians. This statement of the work at the tables, however, gives but a very incomplete idea of the value of the course. One of its most important features is the series of lectures and seminars with discussions of the vital questions of biology, such as the structure and nature of the cell, the questions of heredity and homology, etc. Here the broad-minded tolerance of the director and his wise, suggestive and stimulating influence are best seen and felt. The contact with the resident investigators and visitors who give the lectures is also as profitable and stimulating.

I shall not attempt any particular account of the research department further than to say that each investigator has his own room and is given every facility for collecting material that can be furnished by free use of the laboratory boats and a steam launch. A list of the workers who are here, or have been here, would include the names of a considerable proportion of those who are making original contributions to science. A list of the publications that have been prepared here would, no doubt, surprise many who have not realized the importance of a marine observatory.

It should be noted that this institution is not under the control of any school or sect, but is national in its scope and organization. Its trustees and instructors are from the faculties of Harvard, Brown, Yale, Columbia, Universities of Pennsylvania, Chicago, Michigan and other widely separated schools. Twenty institutions have subscribed for rooms or tables while the 133 students present this year represent 70 colleges, universities and schools.

In locating the station at Wood's Holl the directors profited by the earlier attempts to establish similar institutions at less accessible points, that of

Agassiz's summer school at Penikese and the school at Annisquam. Wood's Holl is at the southwest angle of that part of the Massachusetts coast that bounds Buzzard's Bay on the east and forms the northern boundary of Vineyard Sound, the eastern extension of Long Island Sound. It is easily reached from New York or Boston and is the starting point for boats to Martha's Vineyard and Nantucket. Buzzard's Bay, the sound, the ocean to the east with its numerous shoal banks, the long stretch of the coast line of the main land and the adjacent islands furnish excellent collecting grounds for both northern and southern marine forms. Brackish and fresh water ponds are near while the flora is rich and accessible. The United States Fish Commission is also located here and is of value to the laboratory in many ways. The climate is ideal for a summer resort. The invigorating sea breezes, the cool nights, the afternoon swim and the numerous excursions and collecting expeditions all tend to make one forget that there is a hot, bustling and uncomfortable city. If one does not care to do much laboratory work he can pass a most pleasant and profitable vacation of four to six weeks by renting a sail boat for the season at an expense of from \$10 to \$20, take in the lectures, come in contact with the workers, and thus imbibe the spiritual and climatic air. The laboratory furnishes a good "mess" at \$5 a week, while lodgings can be obtained at from \$2 to \$5.

The school is supported by donations from friends of scientific research and by fees from students. The courses in which instruction is given are \$50, while the investigators rooms are \$100 for the season. Many schools and colleges have subscribed for tables or rooms for the use of their most promising students. It has seemed to me a practical suggestion that medical colleges and societies subscribe for tables or rooms for the use of members of the faculty, or as prizes to students to be awarded for excellence in scholarship or of a thesis. The laboratory is now open only during the summer months as there is no provision for heating the building. An effort will soon be made to secure sufficient funds to erect permanent buildings and provide an endowment that will make the institution secure.

In considering the relation of schools in biology to medical education it is hardly necessary to discuss seriously at this day the proposition that the student of medicine should be well grounded in comparative anatomy and physiology, embryology and physiologic chemistry. These sciences are the foundation of human anatomy and physiology and hence the foundation of the science of medicine. Without them the physician would be like a watchmaker who should attempt to regulate the mainspring of a watch without a knowledge of its shafts and pinions, or a locomotive engineer who should attempt to manage his machine while ignorant of the properties of steam. In a few of the best medical schools this proposition is assumed, and such knowledge is made a condition of admittance. To supply it, a few schools have established short courses in embryology, bacteriology, etc. But teachers need teaching to keep their knowledge up to date. For many years it has been the custom for the teachers in our common schools, high schools and colleges to get together in their normal institutes and State and National conventions for the exchange of views, learning improved methods and securing the stimu-

lation necessary for success in their work. The State and National medical associations help physicians in the same way. These meetings, however, are hardly sufficient. They are too short, too much is crammed into a few days and there are too many social distractions. The recent growth of summer schools is very suggestive. The real meaning, purpose and uses of a vacation are becoming better known. A true vacation is not idleness; it is a change of work. Hence I believe that summer schools in biology furnish an ideal vacation for teachers in medicine or, indeed, for all physicians.

I will suggest, then, that teachers of anatomy in our medical colleges come to Wood's Holl and take the course in comparative vertebrate anatomy that is planned for the season of 1895. The course will be under the direction of a corps of instructors of national reputation and the animals dissected for the practical laboratory work will be of the most typical nature (amphioxus, shark, skate and an amphibian). The most modern and improved methods of microscopic and histologic research will receive special attention. After such a course I will warrant that they will no longer impose on their classes by reciting Gray and calling the performance lecturing on anatomy. The physiologist, pathologist and neurologist can also find here abundant material for work, while every physician who has a special interest in any line of work can certainly profit by learning the latest methods of original investigation.

FIBROID TUMORS OF THE UTERUS.

Read at the Meeting of the Illinois State Medical Society, May 15, 1894.

BY LOUIS A. MALONE, M.D.

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The natural history of uterine fibroids must include their course and development, from the smallest pathologic deviation to the fully developed growth, histologic anatomy, symptomatology, and, as well, classification.

In looking over the literature of this subject, it seems as if each one has endeavored to create for himself a new term to describe the same condition. The classification of these tumors which seems to meet with most general adoption and which most nearly expresses the pathologic anatomy is fibro-myoma.

Mr. Lawson Tait is clearly of the opinion that these so-called tumors of the uterus are simply perverted muscular developments, as in all cases of uterine fibroids where careful examination has been made by him or his assistants, characteristic, unstriped, involuntary muscular fibers have been found. In his classification he makes but two divisions—multinodular and soft edematous myoma. Of the two he says that edematous myoma is always interstitial, while the multinodular may be, and in fact generally is, at once submucous, interstitial, and subperitoneal.

This classification of Mr. Tait's hardly meets with the approbation of most writers on the subject. His edematous myoma appears, according to other writers, simply as a degenerated process of the same tumor which he classifies as multinodular. Like nearly all, or all, of the malignant or benign tumors of the body, they have their origin in the natural tissues of the body and are but degenerated muscular cells from the uterine body itself.

In an excellent paper read before the Mississippi Valley Medical Society, Oct. 4-6, 1893, by Dr. R. Stansbury Sutton, of Pittsburg, Pa., and published in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*, the whole subject of uterine fibroids is carefully gone over. He has summed up in a most excellent form all that is known on the subject, and I am indebted to him for a great deal of assistance from this paper.

The term, fibro-myoma, is all comprehensive and will describe the histologic formation of all such tumors; in some the connective or fibrous tissue will predominate, while in others the muscular, so that the classification of subperitoneal, interstitial, and submucous fibroids will be simply the naming from location.

When it comes to dealing with the treatment of these tumors, however, and with the symptomatology, their location is of the utmost importance. The pathologic changes which these tumors may undergo are varied; and have also led up to an additional classification. Like tissues elsewhere in the body, these neoplasms may undergo different degenerations such as fatty degeneration, myxomatous, suppuration, gangrene, calcification, or cystic degeneration.

The subperitoneal or subserous fibro-myomata is simply an outgrowth from the wall of the uterus, pushing the peritoneum and part of the uterine wall before it, sometimes becoming pedunculated, at other times sessile, simply pressing out the sides of the uterus between the folds of the broad ligament or peritoneum, which subsequently forms a serous covering for it. This pedicle may remain thick or become attenuated to such a degree that nothing but the layers of the peritoneum and intervening cellular tissues, blood vessels and nerves intervene.

The tumor continues to grow in the cavity of the pelvis toward which it gravitates, retroverting the uterus if attached to its posterior wall, until finally it reaches such a size that it can not enter the superior strait of the pelvis. When it projects from the top or anterior wall of the uterus, the latter is retroverted as soon as the growth has attained any considerable size.

The growth of these tumors in the pelvis gives rise to distressing rectal irritation, and often to retention of urine; the narrowing of the caliber of the rectum causes constipation and hemorrhage. The irritation and obstruction to the circulation, both from the mechanical presence of the growth and in malposition of the uterus, produce profuse bleeding at the menstrual epoch. Once the tumor has become subperitoneal, it may contract adhesions to the viscera against which it rests.

When the pedicle is long it may become twisted as in ovarian tumors; but if a new blood supply has been established the tumor will not die, even though it may be separated from the uterus. When this variety of tumor drags the uterus upward, or the base of the pedicle is broad and the tumor falls backward, bending the uterus, the cavity is increased in depth. As the pedicle becomes elongated the uterine cavity shortens whether the tumor decreases in size or not; the uterus may be flattened out completely and adherent to the side of the tumor. After it has contracted adhesions to the intestines any rotary motion of the tumor is liable to produce intestinal obstruction, and to demand immediate operative interference to save the life of the patient.

In submucous fibro-myomata the tumor develops in the wall of the uterus just beneath the endometrium, pushing forward into the cavity of the uterus, and as it projects it carries the lining membrane before it. The pedicle of this variety may be very thick, and like the lining membrane of the uterus contains muscular tissue and very small blood vessels. After entering the cavity of the uterus, these tumors become pear-shaped due to the action of the muscular contractions of the uterus. They are usually expelled sooner or later from want of nourishment and the action of the uterine contractions. This is the class of fibroids in which ergot has been used extensively and great success has been accredited to the drug; but in the natural history of this tumor it is often expelled after the use of any remedy. This is the only class in which ergot can be used with any degree of safety.

The intramural or interstitial fibro-myoma develops in the uterine wall and is surrounded on all sides by uterine tissue; it receives a greater blood supply than any other form, and perhaps reaches a larger size, the patient often appearing like one at the full term of pregnancy. These tumors bulging out of the uterus laterally, spread apart the layers of the broad ligament, and the hypertrophied tubes are spread out high upon the tumor. The uterus and the tumor develop in such a way as to entirely alter the relative positions of the uterine appendages. In these cases the cavity of the uterus is deepened or shortened, and often rendered crooked, thus making it exceedingly difficult to find the os uteri in the vagina. These externally large tumors are usually single, and the walls of the uterus may be found either greatly hypertrophied or much atrophied; they occasionally undergo cystic degeneration, grow to an enormous size and constitute the edematous myomata of Tait.

Mr. Tait says that he never saw a nodule having its origin in the true cervix. This statement seems rather queer for one who has had so wide an experience. I have seen a few cases where the fibroid development reached a considerable size and which undoubtedly had its origin in the true cervix. These tumors follow the same laws as to location and development as those in the body of the uterus.

The symptoms produced by these degenerations vary greatly in different subjects; we see patients with large fibroid developments who seem to experience but little inconvenience, while others with comparatively small growths suffer very greatly.

In my experience I have found that the intramural and submucous fibroids are more apt to make invalids and the cases are more likely to terminate fatally, than any of the other growths. While ordinarily these are comparatively harmless growths, yet in many cases very active and energetic treatment is necessary for the relief of symptoms.

Prognosis.—The subperitoneal growth causes the fewest deaths; the interstitial, cervical and submucous are far more serious and the prognosis much more grave; especially is that true of the submucous, for there is likely to be a fatal hemorrhage even from a very small tumor. Yet if there be no cystic degeneration and the patient is not having any serious hemorrhage the prognosis can be hopeful, for after the menopause the tumors, in most if not all cases, grow smaller.

I have a case in mind of interstitial fibroid tumor where the patient was as large as a woman at full

term; two years after the menopause the growth had diminished fully one-half, and is still growing smaller. Another case where the growth reached the size of a fetal head at full term during gestation but entirely disappeared one year after labor.

The rapid disappearance of a uterine fibroid after the menopause occurs so frequently that it must have come under the observation of nearly every medical man.

EROSIONS AND LACERATIONS OF THE CERVIX UTERI.

Read in the Meeting of the Missouri Valley Medical Society held at Council Bluffs, Iowa, Sept. 20, 1894.

BY GEO. H. SIMMONS, M.D.
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I hardly think it necessary to offer an apology for a paper on this subject. We hear and read so much of, and the time of our society meetings is monopolized so much with, the wonderful major operations of the day that it may seem cruel to bring you down from the scientific altitude you occupy in discussing laparotomies, hysterectomies, appendisectomies, (that is a new word) and a dozen other ectomies and otomies that can only be indulged in by the select few. But when we consider how very, very few women there are who need their ovaries or wombs removed,—whether they have it done or not; and when we realize how very, very many women there are suffering from pathologic conditions of the cervix, I am sure you will pardon me for taking up your valuable time with what some of you may think an invaluable subject.

"Ulceration of the womb" used to be the fad among women, and it was a fashionable thing to be under treatment with some popular physician for this trouble. It was just as much of a fad for the physician to call every trouble that affected the cervix, ulceration. But while we may have ulcers of the cervix such as chancres, tubercular, simple and corroding ulcers, we now know that the so-called ulceration of the womb is not an ulceration at all, there being no loss of tissue, but a new formation, or rather a pathologic transformation. We now call this condition, for want of a better name, *erosions*. Under the microscope we find that in the place of the normal pavement, epithelium, there has been a substitution of the cylindrical variety. There are small, reddish, semi-transparent and pedunculated masses in the orifice and extending more or less on the lips of the cervix. To the touch they seem soft, patulous and spongy, sometimes more or less granular, and often bleed at the slightest touch. The cause of simple erosions is often hard to trace. Fischel says that many women seemingly have a natural predisposition to erosions. These women have erosions from the slightest inflammation or a cold. Tyler Smith claims that the condition is merely a hernia of the mucosa, an ectropion similar to that of the conjunctiva from inflammation, although he probably here refers to erosions from lacerations. It often originates from a simple catarrhal inflammation of the endometrium, extending through the os and, from irritation, the epithelium proliferates, becomes softened and macerated by the morbid discharge. The inflammation extends deeper and, instead of the normal membrane, there appears an elevation of soft, deep red papillæ which readily bleeds. Another

great cause for these simple erosions is displacement. A badly fitting pessary has often in the past caused acute inflammation of the cervix which finally developed into a semi-chronic granulation. In fact, acknowledging the generally accepted views of the pathology of simple erosions, anything that will cause endometritis or cervicitis may cause that condition. It is, however, a rare condition without being complicated and really caused by laceration. Gallabin, Atthil, Macan, and other European authors, while hardly mentioning laceration as a cause, say that the condition is seldom seen in nullipara, a strong argument, certainly, in favor of the trauma occasioned by labor being the cause. Neither has it been my experience that simple erosion without laceration causes any particular reflex constitutional ailment.

The treatment ordinarily is simple and the results satisfactory. The cause, if possible, must be discovered and removed. Hot douches combined with rest will often alone effect a cure. A mild application of nitrate of silver, Churchill's tincture of iodine or iodized phenol may be necessary.

Coming now to laceration of the cervix, whether accompanied by erosion or not, we can not help but wonder how this condition remained unrecognized as long as it did. For twenty-five years after the invention of the speculum the condition which we now know to be simply a tear was looked upon as an ulceration without any traumatic cause. Grailly Hewitt, of London, writing in 1882¹ says: "Is it not a little remarkable that, largely used as the speculum has been in the investigation and treatment of the diseases of the uterus, cases of severe laceration of the cervix seem to have been overlooked until a very recent period, even by those who were most in the habit of employing the instrument." Probably it was because the profession accepted without question the dogmas of Bennett that displacements were the cause of ulceration, and ulceration the cause of about all the diseases with which women suffer. It was left to Dr. Thomas Addis Emmett to first describe the true character of this lesion and to give us a radical measure of cure. His first paper on the subject, published in 1869, brought it before the profession and while it was slow in being adopted, still twenty years ago it was generally accepted by the leading gynecologists of America, although it was many years before it was hardly discussed in Europe. And it is astonishing with what pertinacity some of the leading gynecologists of Europe are still opposing this operation. Tait, in his last work on diseases of women,² says: "A great flood of operations has gone through the practice of gynecology of recent years for the stitching up of this innocent fissure. The real trouble is the subinvolution and the consequent chronic metritis, and nothing more useless than Emmett's operation has ever been introduced into surgical practice." We believe that what he calls the "real trouble" that is, "subinvolution and the chronic metritis," is the result of the fissure as he calls it. Speaking before this of erosions and chronic granulations, he says: "It is very often a sequelæ of the first, or indeed of any labor or miscarriage." If this be so, is it not evident that it is caused from a laceration? I have not the slightest hesitation in saying that Emmett's discovery and his operation have done

¹ Diseases of Women, page 416.

² Diseases of Women and Abdominal Surgery, page 105.

as much good in relieving suffering among women than have the major operations, even including the so-called Tait's operation. In looking through the *London Lancet* for the last ten years the subject is mentioned scarcely half a dozen times. The only elaborate article is a long editorial review³ of an exhaustive thesis by Noeggerath, of Weisbaden.⁴ After reading the editorial, one is impressed with the belief that the editor, when he laid his pen down at the end must have heaved a sigh of relief and said: "That will end Emmett's operation for all time." Noeggerath sums up his investigation with the following six conclusions, which are heartily indorsed by the reviewer:

"1. Women with laceration are more prone to conceive than those without; they are also less likely to miscarry.

"2. The position of the uterus is not affected by laceration.

"3. The axis of the uterus is not elongated by laceration.

"4. Ulceration and erosion are as common in one class as the other and diseases of the cervical tissue are not more common in lacerated than unlacerated cervixes.

"5. Lacerations have no influence in producing uterine disease either as regards frequency or intensity.

"6. Eversion of the lips is never the result of a laceration. The restoration of the shape of the cervix can have no influence on the uterus."

It is needless to deny these propositions before a body of intelligent men on this side of the water. Stated exactly opposite to what they are, and they would be accepted as axioms by every gynecologist in the United States and by every gynecologist in Europe who has studied the subject conscientiously and without prejudice. During a fifteen months' study in Europe in 1883 and 1884, nearly all of the time in gynecologic work, I never heard the lesion mentioned, and trachelorrhaphy was never spoken of, and even to-day laceration of the cervix is still unrecognized in Europe except in very few instances, as a pathologic condition causing serious local and reflex results, and the operation for its radical cure has never been accepted as a necessary operation except by a few men.

Laceration of the cervix is the most frequent lesion resulting from child-birth although abortion at even the second month may produce it in spite of the fact that the softness and elasticity of the fetus would make it seem decidedly improbable. We need not enter into a discussion as to whether they are caused more often at the first, than at subsequent labors. Munde, and others claim that it is more often at the first, but, Pozzi has many followers who claim the reverse. His explanation is that although at the first confinement the os dilates more slowly it is in a healthy condition and is not so likely to tear as after the parts have lost, to some extent, their power of resistance from inflammatory action, the result of previous labors. The cause is nearly always beyond the control of the accoucheur to prevent, and it is the duty of the gynecologist to protect the obstetrician from any harm as he will have plenty of opportunity to do. The woman is nearly always ready to blame her physician for the trouble. And there is no doubt

that there are times when the physician is to blame. Application of the forceps before the os is dilated, the use of the fingers to dilate, the giving of ergot in the first stages of labor, are all causes of laceration, and thus far the physician is responsible. In the case of slowly dilating os with strong pains we are sometimes able with local measures to assist the relaxation and dilation of the os but further than that we can not go.

The next question is, Is the physician to be held responsible who attends the woman, the cervix being lacerated and he not discovering or notifying her of the lesion, taking it for granted that all lacerations ought to be repaired? I have always believed that "meddlesome midwifery" was bad; I have always believed that the less digital examination was made the less liability there was of septic infection, and I never can believe that the obstetrician is justified in introducing his fingers immediately after parturition when the parts are raw, lacerated, and in such an excellent condition to absorb septic matter. Again, in case of laceration it is sometimes impossible to discover it on account of the tumefied, patulous and generally contused condition. In case there is a laceration, how do we know but it will all heal up, for certainly there are lacerations and more than we probably imagine, that heal and leave no scar. Dr. Cleveland and others have urged that in every case of confinement the cervix ought to be examined and if torn repaired immediately. Dr. C. E. Ruth, of Keokuk, Iowa,⁵ says: "All women should be examined in two weeks after delivery and all lacerations of the cervix repaired before the woman is allowed to be on her feet, especially if the tears be laterally placed." Aside from the reason given above, the tissues are too soft and the sutures are most likely to cut through. But what about examining the patient after she is up and around? Are we to tell every woman what *may* have occurred and what *may* result if such a lesion is present? For our future reputation and the patient's good, I certainly think we ought to tell her what possibly may happen if the tear is left, and what she can have done to prevent its occurrence.

Laceration is often followed by subinvolution, by a chronic inflammatory condition of the neck and body of the uterus, and by hyperplasia of the glands of the mucous membrane. This condition may produce about every ailment that afflicts a woman and these are legion. The cervix is richly supplied by the sympathetic nervous system and anything that affects the cervix is liable to manifest itself in distant reflex symptoms. These may be obscure pains in the back, groin and pelvis, bearing down pains, disordered menstruation, irritability of bladder and rectum, leucorrhœa, a continued feeling of lassitude and weakness and general malaise. The cervix in its healthy condition and covered with its normal membrane is but slightly sensitive, but when it is inflamed or denuded of its membrane it is often excessively tender. In this condition there may be not only distant reflex symptoms but severe local pain and tenderness. After laceration the body of the uterus does not undergo the normal involution but remains or becomes large, heavy and congested and a seat of chronic inflammation. Year by year this heaviness gradually overcomes the natural supports, and falling of the womb is an almost sure

³ *Lancet*, Feb. 4, 1888, page 231.

⁴ *Berl. Klin. Woch.*, 1887, No. 41.

result, if not total procidentia. Metrorrhagia, or menorrhagia is often tracable to the laceration producing anemia with its train of symptoms. Sterility is often caused by laceration, although Hewitt's assertion⁶ that sterility results in 71.34 per cent. where the cervix was so injured is probably exaggerated. Abortions also are a fruitful result of this trouble. Leroty, in a thesis published in Paris in 1878 on "Hypertrophies of the Vaginal Portion of Neck," in which he describes beautifully the condition of laceration but does not recognize it as such or even mention such an occurrence, says: "One is struck by the large number of abortions which it seems to have produced." As long ago as 1856, Dr. A. K. Gardner, of New York, wrote: "Among the married, lacerations of the os and cervix in a first confinement are not unfrequently followed by subsequent barrenness, the accompanying symptoms being those of dysmenorrhea and the severest forms of uterine diseases, profuse leucorrhœa," etc. Noble, of Atlanta,⁷ Ga., says: "There is no trouble so likely to cause premature expulsion of the ovum as a lacerated cervix. In pregnancy the engorgement and eversion is greatly intensified and the lips swell and roll from the turgescence and irritation." I might elaborate on the sequelæ and symptoms resulting from laceration, but the above is sufficient to show that the results are bad enough for us to consider well our duty in the matter. Therefore I believe it is the duty of the accoucheur to examine the woman after he has given nature time enough to repair the damage she has done, and if a laceration of the second or third degree exists, operate. Understand, I am speaking now of our own cases, those we have attended in labor, or where we discover the condition within three or four months after its occurrence. The fact that she has that which may develop into, and cause innumerable afflictions, and which can be removed by a simple operation, makes it the duty of the physician to advise it. But I would not be understood as recommending that we should examine every woman who has borne children to see if she has a laceration, and if we have to operate. By no means. I believe trachelorrhaphy is being done more often where it is not necessary than it is not done where it ought to be.

Dr. Howard A. Kelley⁸ makes the following classification: 1, where the cervix although lacerated remains soft and flaccid, there will be no consequent symptoms; 2, when cicatricial tissue is developed or ectropion is present, marked reflex symptoms will ensue; and 3, when there has been natural repair but with inclusion or formation of hard or scar tissue there will be marked reflex symptoms. He advises operation in the last two classes.

The question "when to operate," in old standing cases, ought not to be hard to answer, and yet it is and has been a cause for considerable discussion. There are no hard and fast lines to draw from, but the general rule to operate only when there is a probability that the laceration is doing harm, is a good one to follow. In laceration of the third degree—that is to the vaginal border or cul-de-sac—we ought to operate if the woman is under 40, for if there is not trouble already the probability is there will be. It has been said that an operation in the

first degree where the laceration is but slight, is never called for. Yet we sometimes find a very slight laceration causing exquisite tenderness and bad reflex symptoms. The tenderness is as great as, and the appearance often simulates, the ordinary rectal fissure. In the stellate form, from the nature of the case, the results are not as deep as they seldom need an operation.

We need not enter into a discussion as to whether cancer of the cervix is caused by laceration or not. While dozens of articles have been written to prove that it is never caused by that lesion, because it is sometimes discovered where laceration does not exist, still the preponderance of evidence is decidedly to the opposite view. At least the assertion of Munde may be accepted as true when he says that a malignant growth is more sure to develop on a lacerated than on a normal cervix. Emmett's⁹ assertion that nearly all, if not all, cases of epithelioma or cauliflower growth have their exciting cause or origin in a laceration of the cervix, is certainly a strong one in the opposite direction. If this were true he ought decidedly to have urged that every laceration should be operated on, whereas he claims, and probably with truth, that not more than half the cases need the operation.

The technique of the operation is simple, yet failure often results from neglecting little things. In the first place the parts must be in such a condition that healing will take place. In certain forms of endometritis, failure is very likely to ensue if this is not eradicated. Where there are granulations on the lips we may expect that they have extended into the endometrium which will result in menorrhagia and irritating catarrh resulting in non-union. In the latter case I always dilate, curette and thoroughly wash out the cavity with a mild bichlorid solution at time of operation. Ordinarily three or four local treatments will put the patient in satisfactory condition, although rest in bed with hot douches for a week or ten days may be necessary. But first cure the catarrh, then remove the cause by curing the laceration. One especial point, to remember, however, is to thoroughly remove the hyperplastic, or so-called cicatricial tissue from the angles of the womb. More failures to effect a cure of the symptoms result from neglecting this than any other thing. It is necessary to thoroughly cut into the angle of the fissure to remove all the adventitious tissue. Neglecting to do this might result in the operation doing more harm than good. If union did not take place it would be lucky for the patient, for in case of healing this tissue would be liable to produce a train of reflex symptoms that would leave her worse off than before. There is little danger of going too high. If the circular artery is cut, a suture rightly placed will check the hemorrhage. Bleeding, aside from this, can be checked with hot water. Care must be taken to prevent too much narrowing of the os externum, preventing free drainage of uterine secretions. Great injury may be done by pulling the uterus down too much. Ordinarily there is not very much pain from the cutting or suturing, but the strained position, the speculum, etc., will often make it necessary to give an anesthetic. I have operated several times without, but I believe it is more satisfactory to both operator and patient that she be anesthetized. Until the last two years I have used silk sutures as prepared

⁶ Diseases of Women, page 117.

⁷ Medical Record, September, 1889.

⁸ Journal of Obstetrics, 1886.

⁹ Gynecology, 1884, page 509.

by Dr. Skene, but recently I have used silver wire and believe I like it better. After the operation pack the vagina loosely with iodoform gauze which is left in for two or three days, giving an injection daily for, say a week, after its removal. The stitches are left in from five to eight days although no harm is done by leaving them longer.

In conclusion, let me say that I have never done an operation for a lacerated cervix where the patient did not rejoice that she had it done, and my experience makes me feel like heartily indorsing Munde when he says: "In my opinion the operation for laceration of the cervix, as introduced by Dr. Emmett, is one of the greatest triumphs of gynecology in the last quarter of a century." At the same time I would not be understood as urging the operation when it is not necessary.

THE INTRA-UTERINE TAMPON.

BY S. W. RANSON, M.D.

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The gynecologist has for years been fully alive to the valuable therapeutic properties of the intra-uterine tampons; both after operations on the non-puerperal uterus, and for diseased conditions of this organ, so that it is now almost routine practice to employ it to control hemorrhage, promote involution, stimulate healthy granulations, and maintain permanent drainage.

The obstetrician and general practitioner have, however, shown a temerity, amounting almost to reverence for the puerperal uterus that has kept them from the use of this valuable agent in similar conditions to which the gynecologist has applied it.

I shall not now endeavor to show the value of the intra-uterine tampon in the accidental hemorrhages of labor at term, but will confine this short paper to its use in unpreventable abortion.

"Straus and Toledo have found that microbes do not occur either in the parietes or secretions of the normal uterus, and it is only in the vagina where there are accumulations of epithelial masses that the bacteria find a favorable medium upon which to develop. In normal vaginal secretion the vaginal bacillus of Doderlein is regularly found and the thrush fungus and yeast cells, are often met with, while staphylococcus, pyogenus albus, citreus and aureus are no rarities."—(Schenk). Recent bacteriologic investigations to which I am not at this time able to refer, have demonstrated that the normal vaginal bacilli undergo alteration as pregnancy advances. So regular and progressive are these changes that their character can be noted from week to week. They become softened and lose their activity until, at term, they are practically innocuous.

May not this be one explanation why sepsis is much more liable to occur after abortion than after labor at term?

In treating cases of abortion we ought to recognize this fact, that it is only the healthy normal uterus that is free from danger of sepsis. That as soon as there sets up a pathologic condition such as we have in abortion, especially if any of the secundines remain, we have within the uterine cavity a culture medium favorable for the propagation and growth of bacilli, and their migration to and development in this organ are an assured fact unless nature or art interposes to remove the secundines and stimulate

the uterus to normal healthy secretion. If we remember the additional fact that up to the third month there is no placenta. That previous to this time the ovum may pass through a small os, so small as to barely admit a uterine sound, and that the decidua vera must be expelled before the abortion is completed. That even after the formation of the placenta the fetus may pass, and the os close so as to prevent the introduction of a finger or placental forceps. That when the finger can be introduced the placenta may be attached to the fundus out of reach of the finger even though forcible bimanual efforts are made to remove it. Add to this the further fact that in the early months of pregnancy the cervix retains its full length, the os is rigid, the uterus has not undergone that hypertrophic muscular development characteristic of the later months of pregnancy. Hence cleavage and expulsion of the placenta and secundines are necessarily slow and difficult.

Two methods of treatment of unpreventable abortion have been in practice for many years: 1, the expectant plan which consists of ergot, vaginal and intra-uterine douch and vaginal tampon; 2, the active plan which consists in the speedy emptying of the uterus with finger, placental forceps, curette or by expression. The objections to the expectant plan are that it exposes patient to danger of hemorrhage and sepsis, while it involves loss of time to patient and anxiety to patient and physician. The objections to the active treatment mentioned are: 1, to be successfully done requires considerable dilatation of the os, a condition not commonly found in most cases of abortion; 2, an anesthetic will be required if the divulsors have to be used for dilation, or great force in extraction of placenta with fingers, or the curette used; 3, the use of the curette which is the most efficient and certain is unsafe in inexperienced hands, while neither finger nor placental forceps can remove the decidua vera if still adherent.

Four years ago, while attending a case of retained placenta after abortion, it occurred to me that to tampon the uterus with gauze would prevent sepsis and hemorrhage, and promote uterine contractions to expel the placenta.

The introduction of the intra-uterine tampon was followed by vigorous contractions and expulsion of tampon and secundines in about three hours.

Since that time it has been almost routine practice with me to employ the tampon in every case where I could not easily remove secundines with fingers. If the os is dilated so as to admit a finger it is a very easy matter to pack the uterus, but if undilated, or only slightly so it is more difficult. But with speculum to expose the os, tenaculum to steady it and straighten neck with body, a uterine sound and slim pair of dressing forceps and six or eight feet of iodoform gauze one-half to one inch wide, I have found little difficulty in tamponing any uterus, where a pair of dressing forceps could be barely inserted. I have always endeavored to fill the uterine cavity with one continuous piece of gauze, and leave an end hanging from the os. I then place a pledget of gauze against the os and tampon the vagina with absorbent cotton.

Careful preparation must be made, an antiseptic vaginal douch given, and strict asepsis enforced. Having carefully tamponed the uterus under strict antiseptic precautions, the physician may rest assured that his patient is perfectly safe, and can leave her bedside and attend to other duties. If the case

is near, and the physician not pressed for time, he may call again in six to twelve hours, but if otherwise, he may defer his visit for twenty-four hours.

If the case is at the third month or later, and no opiates or other anodynes have been recently given, prompt uterine contractions will take place expelling the tampon and secundines in three to six hours. If the abortion is before the third month, especially if during the first weeks, the uterine contractions will not be so prompt and expulsive, but in a large percentage of cases it will be sufficient to empty the uterus in twenty-four hours. At your first visit after tamponing the uterus, if active pains have come on and subsided for one hour, remove the vaginal tampon. If you can not get a history of expulsive pains let the vaginal tampon remain for twenty-four hours, when it should be removed. If the intra-uterine tampon has not been expelled, re-pack the vagina and leave the intra-uterine tampon in place for one to two days more, when, if not expelled, it may be removed by traction on end of gauze, hanging from uterus. The decidua vera will come with it, being forced into the meshes of gauze. A vaginal douch may now be given, strict asepsis maintained for a week or more, and the case discontinued.

In conclusion, I beg leave to make the following claims for the superiority of the intra-uterine tampon over all other methods of treatment of retained secundines of abortion:

1. Insecurity from danger of sepsis and hemorrhage.
2. Requires but slight dilatation of the os, consequently it is applicable to every case where sepsis does not already exist.
3. Is not painful, hence does not require an anesthetic.
4. Produces no traumatism.
5. The ease and safety of its application by every physician.
6. It favors prompt involution and normal healthy secretions of the uterus.

SOCIETY PROCEEDINGS.

American Public Health Association.

Twenty-second Annual Meeting, held at Montreal, Canada, Sept. 25-28, 1894.

(Continued from page 588.)

WEDNESDAY EVENING.

The evening's session convened shortly after 8 o'clock, President LaChapelle presiding. As the public was especially invited, the Association Hall of the Y. M. C. A. Building contained a large number of ladies, and members and their friends.

DR. FREDERICK MONTIZAMBERT, General Superintendent Canadian Quarantines, delivered a lecture on

QUARANTINE APPLIANCES.

The subject was illustrated by lantern slides as used at Grosse Isle. The subjoined is a brief description of the illustrations:

General view of the quarantine station in the St. Lawrence River, thirty miles below Quebec; a profile view of the island showing detention buildings, hospital, etc.; view of the hospital (100 beds); same building from another view; disinfection room in hospital; ambulance to go to wharf; view of central part of station; view of same building and doctors' quarters; eastern part of central division and disinfection building; same building for first class passengers; steam disinfecting building; front of three boilers of 40-horse power each; one of the chambers open; a chamber

with railroad track standing in it; a telemeter with figures on dial, etc.; one of the dials of the telemeter greatly enlarged; a small detention building for steerage passengers; inside of a shed for use of steerage passengers; a view of a spot of historical interest when, during the famine in Ireland in 1847, Irish immigrants died of typhus fever and were buried there; closer view of same, and monument erected in memory of the medical officers who contracted the disease while administering to those that fled from pestilence and famine in Ireland, who also succumbed to the disease. In all, 5,424 persons found a grave in America at that place during the latter part of May, June, July, August of that year; a view of one of the quarantine disinfecting steamers; a view of one of these steamers alongside of a ship; the other disinfecting steamer, the *Challenger*, which has a ship's cabin only and carries all the appliances to disinfect a steamship; two of the men with jars containing mercuric chlorid solutions, proper steam dredge and pipes, etc.; same view reversed, also to show in the distance where the work of disinfection is done.

The methods of steam sterilization were especially dwelt upon, in addition to which Dr. Montizambert stated: "It may be within the recollection of some of my hearers that last summer remarks were made in some of the papers about a party of Poles who were stated to have evaded quarantine inspection and disinfection at Quebec. Now, it is impossible for immigrants to avoid or evade the quarantine inspection, because no immigrants arrive by the St. Lawrence except in a ship, and no ship from outside Canada can make customs entry at the port of Quebec or Montreal without exhibiting, as the very first paper called for, the certificate of its inspection at and discharge from quarantine. This is under a penalty of the Collector of Customs or customs officer, of \$400 and imprisonment for six months for allowing customs entry of any vessel in the absence of the production of a quarantine clearance in accordance with the requirements of the regulations. And this is not simply an enactment hidden away in the printed regulations, and unknown to those who have not occasion to study them, but it is quoted in full upon the face of every quarantine clearance, so that it is being kept continuously under the notice of the pilots, captains and customs officials. Furthermore, in the case of all passenger vessels, the clearance granted by the quarantine officer is conditional on the landing of immigrants and their luggage at the disinfection sub-stations at Quebec and Levis at the deep-water termini of the railways. The supervising officer of such disinfection has to count the immigrants as they land, and if he finds the number tallies with that marked on the clearance of the quarantine officer (the whole number on board, or those from infected countries as at present), and has satisfactory evidence that all their luggage has been landed with them, he shall punch the clearance at the place marked for that purpose, which shall then alone become valid for customs entry.

"So you see evasion is impossible on account of the safeguards with which the Dominion Government has surrounded the processes of inspection and disinfection. Intentional removal of evidence of disinfection we can not guard against. It was thus with those Poles to whom I referred, who were found at Toronto without their luggage, bearing evidence of disinfection. They had been inspected at quarantine, and their luggage had been sterilized and tagged at Quebec. There was the interval from Tuesday morning at 7, to the Sunday following between their leaving Quebec and their being found at Toronto. During this time they are stated to have undertaken work at Cornwall and from thence to have been taken on by a 'boss' to work in the States. This being so, they would naturally remove all possible traces of recent arrival, so as to evade the alien contract labor law at the frontier. We inspect, we disinfect, we tag, we warn immigrants to preserve the evidences of disinfection, and we provide against accidental loss of these by the use of a stamped seal and almost unbreakable wire attachment; but we can not prevent the intentional removal of the tags, once the luggage has been claimed by its owner and removed. Dr. Montizambert referred to the wish that he, like other sanitarians, entertained, that the word quarantine could be dispensed with. It was founded on an idea which science had outgrown, and its retention caused modern methods to inherit, undeservedly, the objections rightly urged against the old. The key-note of the old system was prolonged detention; that of the modern system was prompt disinfection."

In conclusion, Dr. Montizambert reminded his hearers that there must always be the possibility of exotic disease passing the quarantine barriers in an invisible and unrecog-

nizable stage and condition, and first declaring itself in the interior of the country. This could not be entirely avoided without such routine detention and disinfection of all vessels, passengers, and merchandise at the ports of arrival, and such consequent interference with trade and commerce, as would be quite unjustifiable and impracticable. "Quarantines," he said, "may be held accountable for dealing with actual cases of infectious disease, with infected vessels and effects, and those suspected of being infected, but they must not be expected to do the impossible, nor should they be leaned upon as an excuse for lessened effort inland. Coast quarantines and inland health organizations must form our double line of defense, or, to borrow an illustration from the game of cricket, the coast quarantine is the wicket-keeper and the health board the long-stop. But the well equipped and well worked quarantine can, and should, strain out and protect the country from a very large percentage indeed of the exotic diseases which threaten it from time to time, and so do a great and very valuable work. I think that from what you have heard and seen this evening you will agree with me that the Dominion Government has placed the quarantine service of the St. Lawrence in a condition thoroughly to perform its onerous and important duties, and to be an actual and potent protection to this country. And as the people of Canada and the United States become more generally acquainted with the manner in which work is really done at our ports, and the safeguards the Government has provided to prevent the evasion of quarantine inspection and disinfection, there will be an ever increasing confidence in the quarantine service and leave less and less unnecessary uneasiness and fear for themselves."

The succeeding paper was on

SOME POINTS IN THE HYGIENE OF THE YOUNG IN SCHOOLS,

Illustrated and read by DR. J. CHALMERS CAMERON, Professor of Obstetrics and Diseases of Children, McGill University, Montreal. The paper was a distinct arraignment of school boards for neglecting to provide hygienic appliances. The lecturer pointed out that some thirty years ago it was remarked by Mr. Herbert Spencer that the first requisite of success in life is to be a good animal, and that to be a nation of good animals is the first condition to national prosperity. As the nation is an aggregation of individuals, the history of the nation is in a certain sense the history of its individual merits. Its strength, progress and development depended upon the strength, progress and development of its members; therefore, other things being equal, that nation will be most prosperous which secures the highest development for its members. From the age of 4 or 5 up to 15 or 16, the period of active growth and development, most children are at school, being educated and trained for their life work. If the schools fulfil their important functions well and turn out their scholars good animals, well equipped for the battle of life, the first condition of national prosperity will have been attained; but in whatever degree they fail to secure the best results, in the same degree will they hinder national progress.

It seems, therefore, peculiarly fitting that the American Public Health Association should examine carefully the methods of the public schools and inquire whether the best possible is being done, and whether sufficient attention is being paid to the all-important matter of hygiene. However we may theorize as to the nature of man, we can at least distinguish two essential parts, mind and body; and however we may speculate as to their essence and mode of union, we know at least that all life long they are linked together for weal or for woe—they develop together, mature together, decay together, ever dependent upon each other, reacting upon each other, sympathizing with each other, suffering with each other. When we strengthen the body we invigorate the mind; when we starve and neglect the body, we starve and enfeeble the mind. It follows, therefore, that for the proper development of the individual, the body must be considered and cared for, as well as the mind. According to Nature's plan, body and mind develop simultaneously, not alternately. While bone and muscle, nerve and gland are growing and specializing, the child is busy observing, testing, comparing, gaining a knowledge of his environment and learning to reason and think. So the process goes on, but by-and-by the child is sent to school. Is the same plan of development continued? Do our school boards realize that education should look to the physical as well as the mental needs of their scholars, and that strong bodies are as essential to success in life as well stored minds?

When we look at the curriculum of our schools, we find no lack of studies; perhaps the courses are too extensive, and too much is being attempted. We find that the scholars are carefully graded and arranged in various forms and classes; that their work is thoroughly systematized and that they are taught and examined *secundum artem*. All are cared for, none are overlooked. But in how many schools is adequate attention paid to the physique of the scholars? In how many is their physical condition examined and studied? Before they are promoted to a higher form they must obtain a certain percentage of marks in their examination, and demonstrate their ability to undertake more advanced work. But is there ever a question as to their physical ability for the new work? At the end of the year they are examined to determine their scholastic proficiency. Is there ever a question as to how the body has fared meanwhile? Some schools have playgrounds and give a recess presumably for play, but play is optional—the children may play or not as they please—there is no grading, no direction or supervision. Some schools have a gymnasium, but in how many is there a competent instructor to examine the scholars and grade or supervise their work? What sort of progress would there be in a school if the scholars were allowed to choose whatever studies they pleased, go into whatever classes they pleased, and study or not as they pleased? And in like manner what sort of bodily development can be expected when the arrangements for physical training are so crude and unsatisfactory? In respect to physical culture our educational system is sadly deficient. Childhood is the time to detect and prevent such deformities as spinal curvature and pelvic deformity.

Not only should children be taught in school how to stand, sit and walk, but more important still, they should be taught how to breathe. In the larger cities a valuable addition to the educational staff would be an inspector of physical culture. School desks are responsible for a good deal of deformity. The desks and seats are of uniform height, while the pupils are of various sizes. If too tall the children must stoop; if too short they must reach up somehow. No matter whether the spine is curved or the shoulder raised, the chest is compressed. Could not there be, asked the Doctor, some simple arrangement of raising and lowering the desks and seats like a piano stool? The Doctor considered the bar-bell exercise as most generally applicable to school work. Physical exercise in schools should aim to cultivate the habit of sitting, standing, walking and breathing properly. A child that sits improperly is apt to stand and walk improperly. If the bad habit is not corrected more or less permanent spinal curvature is apt to result.

Much has been done in investigating the causes of disease and preventing the spread of infection. Can we not go a step further and develop in children strong bodies which will resist the inroads of disease? Bacteriology has taught us that many diseases are directly traceable to the action of microbes introduced into the body from without. The seed, the infective microbe, is one factor; the suitable soil, the debilitated body, is the other factor. Dazzled by the brilliant discoveries of bacteriology, have we not overlooked somewhat the necessity of rendering the soil unsuitable for the growth of the seed by developing the existing powers of the human body? If we attack the problem from both sides, its solution will be easier and more satisfactory. We live in an age of restless activity; now, more than ever, is there need for strong physical frames to bear up in the ever increasing struggle of life. Now, more than ever, are men and women breaking down in middle life, their usefulness cut short when they have become most valuable to society and the State. Now, more than ever, is the battle to the strong, and staying power is essential.

The next paper was by MR. JOHN MITCHELL, President of the National Association of Master Plumbers, New York. The author said he would recommend that annual or semi-annual inspection of old buildings be made. A plea was made for the support of the Association in procuring certain legislation desired by the plumbers of the United States. The paper also pointed out the close relation between honest plumbing and sanitation, and closed by suggesting the passing of a resolution urging the members to exert themselves for the enactment of a law that "pure air and pure water shall abound in every home."

DR. ARTHUR R. REYNOLDS, Commissioner of Health, Chicago, said, in accordance with the suggestion of the reader of the paper, he desired to offer the following resolution:

Resolved, That the American Public Health Association, in convention assembled, approve and recommend the enactment of sanitary plumbing and drainage laws in the

future construction of our buildings for the better protection of the health of our people."

Under the rules, this was referred to the Executive Committee without debate.

INFLUENCE OF INEBRIETY ON THE PUBLIC HEALTH

Was read by Dr. T. D. CROTHERS, Superintendent Walnut Lodge Hospital, Hartford, Conn. This was the last paper presented at this session. Among other things he said: The contagion of saloons is like an infection. Inebriates and saloon-keepers were the prominent factors in the recent riots of our country. For 2,000 years this subject has been studied, accepted and denied. A summary of these conclusions is given here: Inebriates in the pauper class should be under legal restraint, as they are dependents and are parasites. They could be organized into self-supporting colonies and producers. They should have medical care and be under military restraint. There are 500,000 of this class in this country. What an army! Their conduct should be studied from a physical standpoint. Moderate drinkers were included with those who were a standing menace to public health. Drunkenness he considered as much a subject for isolation and quarantine as persons afflicted with the cholera or smallpox.

Dr. GHON inquired of the essayist if he intended to classify inebriates and moderate drinkers and occasional drinkers all within one category. If so, he thought that the paper was better suited for a temperance society than for this Association.

Dr. CROTHERS replied that occasional drinkers are periodic and spasmodic drinkers, while moderate drinkers are those who imbibe five or six times daily.

At 10:15 o'clock the Association adjourned.

THIRD DAY—THURSDAY SESSION.

The Association was called to order at 10 o'clock by the President. The first business was the announcement by the Chairman of the Local Committee, Dr. Craik, who, in reminding the meeting of the *conversazione* and reception to be given to the members of the Association at McGill College to-night, said that he wished them to consider this as University day. The grounds and buildings would be open all day for inspection, and it is hoped that all would take advantage of the opportunity to look into the Science Buildings and the Peter Redpath Museum, which in some respects could not be excelled on the continent. Their attention was particularly drawn to the collection of shells in the Museum. The medical buildings, with the modesty characteristic of the profession, were situated in the background. They would also be welcome this afternoon at the Royal Victoria Hospital. The ladies Dr. Craik reminded the gentlemen, were not to be left behind. And if any of the members wished to inspect the new incinerator at the Gregory farm, everything would be explained and made interesting to them through arrangements made by the city engineer. All who intended to go to Grosse Isle would require to send in their names beforehand. The boat would stop at Quebec on the way down, so that those who desire it may stop over till its return.

SECRETARY WATSON read the following telegram, dated Mexico, September 26, in response to the resolution sent by the Association on Tuesday to the Mexican *confreres* who were unable to attend:

"Special circumstances painfully prevented us from meeting you at Montreal. We hope to have the pleasure of shaking hands with you at our next meeting.

"MANUEL CARMONA Y VALLE,

"EDUARDO LICEAGA,

"DOMINGO ORVANANOS."

The next order of business was the report of the Treasurer, Dr. Henry D. Holton, of Brattleboro, Vt., which is as follows:

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| Receipts 1893, to Sept. 24, 1894 | \$2,154.37. |
| Cash received from sale of volumes | 74.00. |
| Cash received from annual dues | 1,405.25. |
| Total | \$3,633.62. |
| Disbursements, itemized total | \$2,266.38. |
| Cash on hand Sept. 26, 1894 | \$1,367.24. |

The report was referred to an auditing committee, consisting of Drs. J. N. McCormack, Henry I. Bahnson, and J. Berrien Lindsley.

The Secretary read a report on the subject of "A Journal of the American Public Health Association." He recommended the publication of a quarterly journal or magazine to be issued in January, April, July and October, to supersede the annual volume. A quarterly journal would cost

\$464 less than the annual proceedings, and these figures would secure 100 additional copies for distribution among libraries, etc. A journal of this kind would be more popular in character, and enhance the reputation of the Association, so that it would receive the recognition that it merits, as well as secure for it an increased power in sanitary matters. The suggestion was favorably received, but upon motion, it was referred to the Advisory Council for consideration, which met at 3:30 o'clock that afternoon.

Dr. E. R. CAMPBELL, of Bellows Falls, Vt., drew attention to the last paper read at last evening's session. He moved the following resolution:

"Resolved, That the American Public Health Association in convention assembled records its protest against the use of alcoholic liquor as a beverage, especially among the young, believing that such use is attended with great danger to the health, the individual and society."

The resolution was referred to the Executive Committee. The following resolution, moved by Dr. Henry Sewell, of Denver, Col., was also referred to the Executive Committee:

"Resolved, That a committee consisting of not more than five members be appointed by the President of the American Public Health Association to consider the best form of sanatoria for consumptive invalids, and the most favorable locations for the same within the United States, the report of the committee to be made at the meeting of the Association held in 1895."

Dr. GEORGE HOMAN, of St. Louis, Mo., offered the following resolution:

"WHEREAS, It is the sense of the American Public Health Association that the pollution of potable waters in America has reached such a point that the national governments should be asked to take cognizance of the matter with the view of devising means of prevention and relief; therefore be it

"Resolved, That this Association memorialize the Congress of the United States and ask that they shall authorize the appointment of a competent commission clothed with power to fully investigate the whole subject of the pollution of rivers and lakes by municipal and manufacturing waste, and provided with sufficient means to enable them to conduct the examination in such manner as shall be deemed best, the results of said examination to be published from time to time for the public information."

Which was referred without debate to the Executive Committee, owing to the lateness of the hour of adjournment at last evening's session.

Dr. J. G. ADAMS, of Toronto, presented a paper on "The Condition of the Children's Teeth of the Present Day, and the Effects of Decayed Teeth on the Health of the Children," which was read by title.

Dr. RALPH WALSH, of Washington, D. C., read a paper

ON VACCINE AND VACCINATION,

which was deferred from the Wednesday forenoon session. The reader maintained that there is absolutely no danger in vaccination so long as the virus is pure and the operation properly performed. During epidemics, vaccinations are hastily performed and often there is no after inspection. The lymph used may be very feeble or the operation badly done. The remedies are, honest responsibility resting upon the part of the propagation of vaccine, and the physician who uses it. The writer's conclusions summarized are as follows: So-called cow-pox is modified variola; the admixture of glycerin with vaccine lymph will destroy all "extraneous bacteria" without injury to its peculiar active principles; the admixture of glycerin with vaccine lymph not only destroys the extraneous bacteria but prolongs the activity of the lymph; the selection of the lymph and the simple but important operation of vaccination has not received from the profession the attention it deserves; the physician should see that each infant brought under his care is successfully vaccinated during the first year of its life, and each child again at 16, or better, to the point of saturation during infancy; the accumulation of unvaccinated material and consequently the increased danger of outbreaks of smallpox is caused by the general practitioner neglecting to perform his duty at the proper time.

The paper was briefly discussed by Dr. Roberts, of New York, who explained that the "raspberry mark" was due to a rupture of a capillary or several capillaries, during the operation.

The next paper on "Car Sanitation; the Present Sleeper," by Dr. JAMES PATTERSON, of Winnipeg, Chairman Provincial Board of Health of Manitoba, was on account of the absence of the author read by title.

DR. GRANVILLE P. CONN, of Concord, N. H., presented the report on Car Sanitation. (This report will be printed hereafter.)

In the brief discussion that followed, Dr. Gihon said the problem of car ventilation had been solved several years ago. He held that the railways were criminally negligent in failing to provide their cars with an efficient ventilator, for a suitable one had been tested by this Association at Charleston, S. C., a few years ago when it met there. The trouble was the expense; the railways must be made to overlook that in the cause of public health. The present unsanitary condition of railway cars is simply scandalous. When coming to Montreal he had been in a Wagner car, the air of which was so atrociously foul that he awoke in the morning with an unbearable headache. He would like some attention paid to the cars which with their filthy floors are simply hot-beds of disease, especially when the means of propagating consumption and other communicable diseases are considered. In France, spitting on the floors is prohibited. On this continent, syphilitics and others, are allowed to spit on the floors of street cars at their own will.

DR. H. B. HORLBECK, Health Officer at Charleston, S. C., indorsed very forcibly the remarks of the gentleman who had preceded him. Drs. Montizambert and Lee, also Mr. E. C. Joidan, of Portland, Me., coincided in the main with the views set forth in the chairman's report.

DR. CONN, in closing, said he thought there should be a federal head, such as a Department or Bureau of Health having authority over these matters. He thinks if a copper covered floor is provided in passenger cars and closets it would be the most modern and ideal method in which they could be kept clean.

DR. FELIX FORMENTO, of New Orleans, La., chairman, submitted "The Report of the International Committee on the Prevention of the Spread of Yellow Fever," of which the subjoined is an abstract:

The Committee expressed its regrets that neither Cuba or Brazil are represented at the meeting, also the absence of sanitary engineers on committee. The principal engineers and sanitarians of Cuba, Brazil and Mexico have been invited to give their views on prophylactic measures in their respective countries.

The report considered briefly the natural history, causes and nature of yellow fever, first positively recognized towards end of fifteenth century in San Domingo and Porto Rico, thence invading Mexico and Central American countries. In the seventeenth century it extended along the coast of the Atlantic as far north as Providence and Boston. It was fatal in New York in 1700 and raged a frightful epidemic in Philadelphia in 1793—(4,000 deaths in a population of 40,000 inhabitants). In 1761 it was first introduced in Havana; permanent in that city since. In 1853, from the seaports and localities near the sea, it extended in the interior at great distances, invading many Southern States. Type most malignant; large mortality. Same extension of the disease noted in 1867 and 1878, the latter the last extensive epidemic in the United States; disappeared in the North since early part of this century; occasionally a few imported cases.

In the South, yellow fever has existed almost every year up to 1878. The report gives the number of epidemics throughout the cities in the United States during the past half century. Permanent fever in Vera Cruz, Havana and Brazil; introduced in latter country as late as 1849, has become a secondary fever.

Interesting accounts of different visitations in American cities from 1693 to 1878. In the seacoast country the disease affects all ages and dates, but blacks and young children are less subject to the disease. The report speaks of the so-called immunity of the Creole or natives which really does not exist; they have become immune by a previous, generally mild attack. Children died in large numbers during epidemics (formerly) but their deaths were attributed to malarial, croup and pernicious fevers, etc.

Local favorable conditions for the development of disease; does not belong to the South, not indigenous in any part of the United States. Changing conflicting opinions in regard to quarantine, even in the South, as a preventive measure. No doubt exists any longer as to the possibility of protecting the whole country, of preventing the introduction of yellow fever among us by an efficient system of quarantine, such as exists in Louisiana; fourteen years' experience proves this; since 1878 not a case in New Orleans. Nature of the disease a specific microbe, not yet satisfactorily demonstrated, requiring special conditions of temperature, bad sanitary conditions, etc., for its development. Numerous interesting

examples given of its mode of transmission through infected articles, etc.; explains the so-called immunity of Creole adults and children.

Even in real yellow fever countries (where the disease is indigenous) this immunity does not exist, as is proven by numerous instances given by Dr. Ruiz, of Vera Cruz. The disease has gradually disappeared in the North by improved local sanitation, also in Norfolk, Charleston, Savannah and Memphis. The same results will follow in indigenous yellow fever countries. Extensive engineering works, which will change the local sanitary conditions of these countries may require the assistance of their government. Governmental interference is necessary.

In the meantime, every possible sanitary improvement should be adopted. Cremation recommended; proper disinfection of excretion; paving, drainage, sewerage work, removal of all organic refuse and isolation of the sick, etc. Additional reports should be made to secure the coöperation of the governments of Cuba, Mexico, Brazil, and Central American republics. The report is highly interesting in the vital question of stamping out yellow fever from this continent.

The report was briefly discussed by Dr. Horlbeck and Dr. S. R. Olliphant, of New Orleans, President Louisiana State Board of Health, who offered the following resolution which was referred to the Executive Committee:

"Be it Resolved, That it is the sense of this Association, that federal surveillance, control, or interference with State quarantine service as maintained, is unwarranted and meddling. That the test of the efficiency of a quarantine service should be its past record, and the confidence and approval of neighboring States and other quarantine officers. That the solution of the quarantine problem should be left to the local health authorities to be worked out in accordance with their individual requirements and all progressive steps encouraged so long as such advances are made within the limits of safety. That the formulation of regulations by the U. S. Marine-Hospital Service for control of State quarantine stations without conference with the local quarantine officials is to be deprecated, and can result only in conflict between State and National authorities. That the U. S. Marine-Hospital Service has rendered valuable assistance in the way of collecting and disseminating information bearing on quarantinable disease, and that it can become otherwise useful by rendering assistance when called upon."

FINAL DISPOSAL OF GARBAGE AND REFUSE,

Was the next paper announced, which was read by Dr. N. E. WORDIN, of Bridgeport, Conn., in which he advocated its destruction by incineration. He also recommended the use of domestic incinerators for the destruction of household garbage. In connection with this matter, the following resolution was offered by Dr. M. S. Inglis of Winnipeg:

"Resolved, That a committee of this Association be appointed by the Executive Committee for the purpose of promoting the collection and distribution of sanitary literature and health by-laws on, and regulations to, the members of this Association, to be known as the Committee on Distribution of Health Regulations and Reports. Said Committee to have power to make such financial arrangements with members as will cover the cost of such distribution."

This was followed by the reading of the report of the Committee on the Disposal of Garbage and Refuse, by MR. RUDOLPH HERING, C. E., New York, Chairman. He referred to the manner of the destruction of refuse in Europe, having just returned from there, where he found that incineration is about the only system employed to get rid of garbage. There are great differences in the refuse of Europe and of America, and for that reason systems which are efficient in one place may not be in the other. He had no faith in the schemes for the disinfection of garbage. The plan of separating or reducing the garbage also offers dangers, and, all things considered, incineration seems to be the best of all systems.

The next paper presented was

THE COLLECTION AND DISPOSAL OF THE REFUSE AND GARBAGE OF LARGE CITIES AND THROUGHOUT THE COUNTRY,

By COL. W. F. MORSE, of New York City, in which he remarked that New York had to deal with 6,000 loads of garbage a day, or 1,800,000 a year. The three systems at present in vogue there, are: Disposal by reduction, by cremation, and by dumping at sea; the latter method includes the use of electricity to disinfect the refuse, etc., by throwing off iodine and chlorine of the salt water; within the next six or

eight months New York will be able to announce which method is the most satisfactory.

DISCUSSION.

Dr. S. H. DUROIN of Boston, stated that he was trying to introduce in his city an appliance by which all householders could dry and burn their own refuse. His device was a small cylinder to place in the kitchen furnace flue. The speaker had one in his own house. The kitchen refuse is put in this receptacle and it is placed in position, and kept there for twenty-four hours. By that time the refuse is merely a mass of carbon which burns in the fire with a pure white flame. The next day's refuse is then enclosed in the receptacle, and so on from day to day. The appliance costs about \$4. He called the apparatus a drying "family garbage crematory," and exhibited photographs of same.

Dr. E. S. KELLY, of Minneapolis, said that no garbage in his city is emptied into the Mississippi River; it is removed daily from the city to distance of eighteen miles on railroad cars. So, too, are dead animals removed in a similar way and are taken in separate cars. His city expends \$40,000 a year to carry its refuse to this sandy tract. He mentioned, as an interesting fact, that an analysis of the water of the Mississippi below New Orleans showed it to be almost identical in composition with that of the river close to its source.

Dr. T. H. MCKENZIE, of Connecticut, offered a brief paper bearing upon this subject, which was in the nature of a written discussion containing in the main, analogous suggestions, and indorsing those already known.

The succeeding paper,

INFLUENCE OF CLIMATE OF CANADA ON HEALTH,

Was read by Dr. W. H. HINGSTON, in which the writer touched briefly on the geographical situation and the topography of the country, and then went on to show that, after a residence in the country of shorter or longer duration, a change in the constitution of a person could be observed. The high color which flushed the cheeks of some Europeans faded somewhat, and the skin became less soft, the hair became darker and more like the aboriginal type and the muscles were less prominent. The hot weather did not last long enough to produce any great disturbance of the liver and the cold was exhilarating. The ratio of mortality in Canada was lower than that of Great Britain, and, with the exception of Malta, this country was the healthiest station of the British army. Statistics gathered from the States showed that all constitutions were healthier as they approached the great northern lakes. Canada has no native malady. Most countries could boast of having some malady of their own; Canada had no such boast. If the health of a climate could be gathered from the natural increase of its population, Canada was one of the healthiest of countries, for the increase of its population was something enormous, especially one section of it, the offspring of 60,000 of which had, in a century and a quarter, grown to millions. There was a large death rate among children, the mortality being chiefly due to the fact that they were fed upon too strong food at too early a period. In conclusion, he said that the mortality in Canada was less in winter than in summer, which was different from most countries, and that consumption is arrested during the colder months of the year in Montreal.

The two succeeding papers were read by title, namely, "Mechanical Ventilation," by MR. RICHARD FLEMING, Engineer to the Montreal Sanitary Association; and "Breves Consideraciones sober la Fiebre Amarilla en Vera Cruz (Mexico) y su Profylaxis," por el Dr. GREGORIO MENDIZABAL, Orizaba, Mexico. ("Brief Considerations on Yellow Fever in Vera Cruz, Mexico, and its Profylaxis.")

The Association adjourned at one o'clock.

THURSDAY AFTERNOON.

The Association re-convened at 3 o'clock with the President in the chair, no less than twenty papers being announced on the program, of which the first two were read by title, namely, "Hygiene in Medical Education," by Dr. J. I. DESROCHES, editor of *Journal d'Hygiene Populaire*, Montreal; and "Instruction in Hygiene in Schools and Colleges," by Dr. C. O. PROBST, Columbus, Ohio.

A paper on

THE ADVISABILITY OF TEACHING THE RULES AND PRINCIPLES OF HYGIENE IN THE PRIMARY SCHOOLS BY MEANS OF OBJECT LESSONS,

was read in Spanish by Dr. JESUS E. MONJARAS, Inspector-General of Public Health, etc., St. Louis Potosi, Mexico.

The annexed abstract is a translation from the contribution, a novel feature of which was the suggestion to teach young children a collection of facts which form the bulk of hygiene, by means of toys and magic lantern slides, so as to deprive the pupil of the unavoidable aridity and dryness of books, with the hope that a great deal more is to be attained by dint of perseverance in showing the children toy disinfecting stoves, toy sanitary water closets of different kinds, toy models of drain pipes, etc., thereby forcing them to commit to their memory a large number of words which they can not otherwise possibly understand. A few phrases of explanation from magic lantern slides are easily stored forever in their tender minds. A doll-house properly ventilated, provided with suitable sanitary appliances, in which the ground is shown drained with toy pipes, gives them a perfect idea of how a dwelling house should be built according to the best principles of hygiene; better than twenty pages of hygienic printed matter. Toy manufacturers should be encouraged to devise hygienic contrivances which will be more useful in the instruction of young pupils than the usual methods employed; besides this, their utility will occupy many leisure hours of a child from infancy until they attain 8 to 10 years of age. After they grow older and having learned these object lessons, children should be given a good general knowledge of human anatomy with a view of teaching them how to prevent the human form from deformity; the composition of the air and water with the necessity of maintaining their purity should be demonstrated, and above all, boys and girls should be taught the elements of sanitary architecture. Every good citizen should know how to intelligently do his share in preserving the public health.

The following paper was then read by title: "On Teaching the Principles of Hygiene to the Young," by Dr. GEORGE G. GROFF, of the Pennsylvania State Board of Health. Then a paper on

IMPORTANCE OF TEACHING HYGIENE IN ELEMENTARY SCHOOLS

Was read by Dr. S. GAUTHIER, Medical Officer of Health of Upton, Quebec.

"In the country where I live," he said; "and where I have passed sixteen years of my life, practicing the art of medicine, I must admit that I have encountered great difficulties in putting into execution the rules of the Board of Provincial Hygiene.

"In several places, burying grounds immediately adjoining the church, and even with charnel-houses under the latter, are to be seen. In my village, situated on the border of a river, the ground presents a well-marked declivity towards the shore; the bulk of the population naturally massed around the church, which is situated on an elevation and the river is on the southeast, the cemetery at the back of it, the convent to the north and the college to the west. The natural drain of all these edifices winds its course towards that part of the village where the population is more dense, thus exposing it to the pestilential emanations of the surrounding establishments.

"The infiltration of the cemetery water, which works its course through the cellars of the habitations towards the river, together with the contents of the drains of the buildings mentioned above, is a real source of infection.

"I myself was made the target of public vengeance, when I protested against the erecting of a charnel-house in the cellars of the sacristy. I must add, gentlemen, that this plan was supported by the cure of the parish and approved by an able architect of the city of Montreal; happily, the authorities of the Council of Provincial Hygiene prevented the construction of such an abomination.

"Now, our citizens are to construct an aqueduct. As regards the promoters of the project itself, they undoubtedly deserve to be congratulated; but gentlemen, I feel confident that you will be very much surprised in learning that they omitted to utilize the same excavations for the drains."

The writer closed by stating that the best way to promote this subject is to force its special study in the elementary schools, and oblige the instructors to learn it by making it a part of the curriculum of academic studies.

A paper on

INSPECTION OF SCHOOL CHILDREN WITH REFERENCE TO EYE-SIGHT,

Was then read by Dr. T. D. REED, of Montreal. The writer maintained that it had been found that the conditions of town life generally, and the conditions of school life in towns especially, were distinctly unfavorable to the development and improvement of the faculty of vision. With the yearly

advance of studies in schools and colleges the number of defective eyes increases, from which it is concluded that part of the price of education as at present carried on, is damage to the delicate organs of sight. How necessary therefore that the benefits of the ophthalmic science should be afforded to the young as soon as education begins. The author pleaded for general introduction into schools of the simple tests recommended by the Anthropometric Committee of the British Association for the Advancement of Science. Refraction and eye-strain having been attended to he would urge the possibility of educating the eye in rapidity and accuracy of action. The Indian and other aborigines accustomed to exercise their vision in endeavoring to see distant game, or lurking enemies, acquire a sharpness and quickness of vision much exceeding that of modern city residents. Would it not be well to test systematically the vision of school children, and stimulate the exercise of it as a matter of competition. All the special senses are improved by exercise and many of the physical disabilities incidental to town life have been diminished by the popularity and prevalence of physical education. Prizes for accurate and extensive seeing should take a recognized place among those given at athletic contests and the first steps in such a direction should be taken at school.

The next paper in this series was

A FEW REMARKS ON SCHOOL HYGIENE,

Read by Dr. T. M. BRENNAN, of Montreal. The writer held that should such matters as that of hygiene in schools not be looked into, mankind may in a few generations more be nearly extinct as regards health, and men become merely walking columns of microbes, a conglomerate of all the actually known bacilli and a host of others newly hatched or spored by cross-breeding. What fun they would have with our cells! The only way to avoid such a perambulating microbial stage is to surround the child with all the protection available; make him strong for the combat. The satisfactory teaching of hygiene should be obligatory in all schools. All persons having charge of the rearing of children should have a sound knowledge of hygienic laws. The Doctor described the "entombing of children in convents and colleges, over-crowded and often without any efficient hygienic supervision" as deplorable. He did not wish to insinuate that all scholastic institutions were unhealthy, for certainly they are becoming more inhabitable, and things are better than formerly; but he affirmed that there are great things left for hygiene to do, even in some of the best institutions. He had seen girls contract grievous ailments from which they could have been protected by timely warning and proper care. No false modesty should arise and deprive the ignorant girl of her right to protection. Each punishment, too, should receive serious study from a moral and from a hygienic standpoint. The tobacco and alcoholic habits should be strictly dealt with, and their pernicious consequences brought out. This both in girls' as well as in boys' schools. In women the habit of tipping is far more prevalent and disastrous than is generally imagined. Within the last four months he had seen four women, each the mother of several children, and moving in good society, die from the effects of chronic alcoholism. The lecturer would like to see almost every child who enters school provided with a certificate from the family doctor setting forth the weak points in the child's nature. Nobody knows the constitution of a child better than the family doctor. In each school there should be a school physician endowed with power to act. There should be some system of general hygienic supervision. The support and cooperation of local and general boards of health and of the board of public instruction should be assured.

A paper entitled

AN EPIDEMIC OF ONE HUNDRED AND TWENTY CASES OF PARALYSIS IN CHILDREN

was read by Dr. ANDREW MACPHAIL, of Bishop's College. The paper contained an account of an epidemic of infantile paralysis, which occurred in the State of Vermont during July, August and September, and which Dr. MacPhail investigated. He first stated that the belief was held that it was an outbreak of cerebro-spinal meningitis, but he showed in the clearest possible manner that it was a true myelitis. He quoted the notes of 91 cases out of the 120. In some children the paralysis came on without any symptoms, in others there was a preliminary illness of a few days resembling indigestion. He described in detail the fatal cases, of which there were eighteen, and forty-two in which there was permanent paralysis. There were also notes of six cases in

adults, three of which ended fatally. He then referred to the origin of the malady with full statistics of temperature, rainfall and humidity, and geologic factors. There were besides twelve deaths from the same cause among horses, and fowls were likewise affected. In conclusion he dwelt upon the necessity for having in every State a properly conducted laboratory and a competent staff to deal with such outbreaks, and a board of health with authority to investigate epidemics and perform autopsies. The paper had additional interest from the fact that this is the first epidemic of the kind reported in America and the third which has occurred in any country. Dr. MacPhail refrained from expressing any views or propounding any theories till the pathologic work which he has in hand should be completed.

The following paper was read by title: "What Organization Ought to be Given to Boards of Health?" by ROBERTO GAZOL, C.E., Mexico, Mexico. It was followed by a paper entitled

A PROVISIONAL ARRANGEMENT OF CAUSES OF DEATH,

which was read by Dr. CRESSY L. WILBUR, Registrar of Vital Statistics, Michigan State Board of Health, Lansing, in which he explained the classification that he has adopted in the Michigan Registration Reports for temporary use, until a satisfactory modern classification shall be authoritatively introduced. Dr. Farr's system, the basis of the classification employed in most registration reports, is hopelessly antiquated. Many of its terms are obsolete and some are at present understood in quite other than their original meanings. The plea of uniformity has no weight at present in favor of the retention of Dr. Farr's classification, for scarcely any of the registration reports that employ it agree in the details of its use.

Two of the five great classes of Dr. Farr's original classification are especially objectionable at present, namely, "Constitutional Diseases and Developmental Diseases." The removal of tuberculosis, the type of the former class according to the pathology of fifty years ago, to specific infectious diseases, practically destroys the class. In like manner returns of "old age," "infantile" and "debility" should in most cases be regarded as equivalent to cause of death unspecified, and thus the class of so-called "developmental diseases," largely constituted of these indefinite forms, practically disappears. Such radical changes, rendered necessary by modern knowledge of the causation of disease, quite alter the relations of the old classes, and render a new system imperative.

The provisional arrangement illustrated was intended for use in Michigan in connection with the work of the State Board of Health. Deaths from disease (deaths from violence, unknown causes and still-births being separately taxed) are divided into two lists: 1, dangerous communicable diseases, as defined by the State Board of Health under the State law providing for their restriction; and 2, diseases not so defined at present. The latter list contains certain specific infectious diseases, as pneumonia, that will probably be eventually included in the first list. The object at present is simply to illustrate the work of the State Board of Health in the prevention of those diseases which it has undertaken to restrict. Ultimately a classification of diseases may be made somewhat as follows, only the broadest outlines being suggested:

TOTAL DEATHS FROM ALL CAUSES.

A. Deaths from disease.

1. Specific infectious diseases, including all diseases in which the chief etiologic factor is one or more vegetable or animal microorganisms.
2. Local or organic diseases, consisting of all those diseases dependent chiefly on changes in the anatomic or functional constitution of the body, and not due to a specific infection.

B. Deaths from violence.

The exact form that the new classification shall take is a matter that should be settled by the Registrars—National, State, Provincial and municipal—who will be called upon to employ it in their reports. An Association of Registrars of Vital Statistics was suggested for the purpose of settling this question as well as many other points of practical importance in registration in which greater uniformity is desirable than at present prevails. Such an association would encourage a feeling of the dignity and responsibility of the work, and lead men of special fitness to engage therein. Comparison is essential to the proper interpretation of results in vital statistics, and this demands closer association and cooperation on the part of officers engaged in this work in different localities.

The next topic of interest was the report of the committee on nomenclature of diseases, and forms of statistics, presented by the Chairman DR. SAMUEL W. ABBOTT, Secretary of the State Board of Health of Boston, Mass. The Chairman recommended that nothing be done until the various medical authorities throughout the country could be communicated with, and it was so ordered. This was followed by the reading by title of the subjoined half dozen papers: "Difficulty in the Exact Diagnosis of Pathogenic Bacteria," by DR. GEORGE ADAMI;

"Notes concerning the Nourishment of Children in Their earliest Infancy, exclusive of Nursing at the Breast," by Drs. S. Arthur Simard, and R. Fortier; "Ventilation of Schools," by J. E. Doré, C.E., of Montreal; "The Burial Ground," by Dr. J. A. Beaudry, Quebec; "Prevention of Venereal Diseases," by Dr. Elzéar Pelletier, Secretary Board of Health of the Province of Quebec; "Sanitary Value of Certain Waters," by Dr. R. F. Ruttan, Quebec.

THE ADVANCES OF PUBLIC HEALTH IN THE CITY OF MONTREAL,

Was read by Dr. L. LABERGE, Medical Officer of Health of the city. He described the organization of the Health Department of the city and its history. Twenty-five years ago the Health Department of Montreal consisted of a few inspectors, who visited the yards and lanes and ordered the citizens to execute themselves the necessary cleaning. In respect of sanitary regulations Montreal had been moving backward since the days of its foundation. Under the French rules the representatives of the king prescribed to the people certain sanitary laws and ordinances which were quite sufficient to meet the requirements of such a small village as Montreal then was. The streets and yards had to be cleaned at stated periods, butchers were directed to deposit the offal of their stalls only in certain places, etc. By the English conquest, the officers whose duty it was to enforce these ordinances were removed, not to be replaced until many years afterwards by a municipal government. The justices of the peace, whose duty it was to maintain law and order under the early English régime, felt that they had fully accomplished their task when they had punished the more brutal forms of crime.

With such a system Montreal fell an easy prey to every form of disease. The death rate varied from 35 to 43 per 1,000 annually, and the city was indisputably the most unhealthy in the whole of North America.

The first attempt to remedy this terrible condition of affairs was made in 1874, when Dr. Hingston was elected Mayor of Montreal as the representative of the medical profession.

One of the first works undertaken to improve the hygienic condition of the city was the construction of the great sewer along Craig Street. In the early part of this century Craig Street was still occupied by a stream, which was the natural drain of the eastern and northwestern portions of the city. One of the branches of the stream started near the western extremity of St. Catherine Street and ran along the ravine now occupied by Ontario Street down to Parthenais Street, where it joined the streams coming from the north and east, then turning west crossed Papineau road at Dorchester Street, and flowed into the Craig Street valley. The united streams then flowed west to Chabillez Square, where they fell into the stream flowing east from St. Henry, and turning south passed through the hay market and finally fell into the St. Lawrence near Custom House Square.

This Craig Street stream having become a public nuisance it was inclosed, about 1842, in a brick sewer seven feet in diameter, which started from St. Lawrence Street and flowed west to McGill Street and down to the river. The eastern part of the city was drained by a sewer constructed along Lacroix Street in 1845, and another along Colborne Street. The object of constructing a new tunnel along Craig Street, flowing east from Victoria Square, was to prevent the pollution of the water opposite the city and to provide for the future. The work was a difficult one and it occasioned much discussion. It was finally completed on May 13, 1878. It has a diameter of eight feet and a length of 8,765 feet and cost \$259,010.81.

The main sewers of the city are now considered adequate, but Mr. J. E. Doré, the City Sanitary Engineer, as well as other experts, complain of the large number of "dead ends" in the system of small sewers, the effect of these being to stop the circulation of air and to cause the gases to come up in the houses. Mr. Doré also, in this connection, complains of the want of ventilation in many houses, and says that this is due to the fact that Montreal has no by-law on plumbing. Such a by-law has been prepared by the Health Com-

mittee, and it now awaits consideration from the Council.

The beginning of the scavenger system also dates back to 1877. The work was then done by the Road Department, and was done on a very modest scale, the appropriation for that purpose being only \$7,000. As a consequence of improved methods the death rate has fallen from 37 per 1000 in 1872 to 24 per 1000 in 1892.

Mr. J. E. Doré presented a report on the ventilation of schools. Mr. Doré is a champion of mechanical ventilation. He concludes thus: Natural ventilation through the windows can be employed under certain climates; but here where the difference between the temperature of the rooms and that of the outside is enormous we do not believe that it is practicable. Under such conditions, the fresh air can only be heated by mixing with the vitiated atmosphere. And we have already said that it is highly important to avoid the mixture in so far as possible. The many arrangements devised such as perforated panes, English double windows the one open at the top and the other at the bottom, openings provided with screw wheels do not change the situation. If by any means the mixture of the two airs is prevented, the result is that the fresh air arrives cold. There remains then only ventilation through chimneys and through mechanical devices. We believe that the most satisfactory solution can be reached by combining these two systems.

Mechanical ventilation in cities is not now as difficult to obtain as it was years ago. The motive power necessary to run the ventilator can be electricity, which is so conveniently and cheaply distributed. The plant costs next to nothing and the running expenses are very low. As to the advantages of the system they are so well known that we need not dwell on them.

We conclude that the mode of ventilation in buildings devoted to educational purposes, is a mechanical system which shall cause a current of from 400 to 500 cubic feet per pupil to circulate from bottom to the top, the fresh air having been heated before its introduction to about 5 degrees below the temperature to be maintained in the room. The heating apparatus placed in the rooms to compensate the loss of heat through the walls should also be planned on this basis.

The remaining papers of the session were read by French colleagues; "La Myopie dans ses rapports avec l'Hygiène Scholaire," by DR. A. A. FOUCHER, of Laval University, in which he showed that the disease was more prevalent in the secondary than in the primary schools, and suggested that greater attention be paid to the matter of lighting schools and the clearer printing of school books.

"Durée physiologique du travail au point de vue Intellectuel et Physique," was read by DR. L. L. FORTIER. The only participant in the discussion was Dr. Hopkins, of New York, who while willing to acknowledge the great importance of this question of hygiene in schools, drew attention to the difficulties of teaching hygiene. Some knowledge of the physiology of sex is essential, but how is it to be taught? "How," he asked, "are you going to give the growing girl of from 14 to 16 a complete knowledge of herself and still leave her her modesty? How are we going to crowd the amount of work necessary, to do all the study considered necessary now, in the short school hours demanded by fashion nowadays and still feel confident that she at the end of the school session, will be physiologically and anatomically what she should be? How, too, are we going to remove that handicap from which the grown up woman suffers from the time she puts on the long skirt which makes prisoners of her most important limbs until she goes under the care of the specialist? How are we to give her the advantage which her brother possesses of indulging in healthy recreation?"

The speaker furthermore said in the course of a long practice among children he had never found myopia caused by study either in school or out. The reading of cheap novels he believed to be more responsible for the existence of the trouble than study.

The Association adjourned at 6:30 P.M.

(To be continued.)

Registration of Bakeries.—The London County Council has determined that the interests of the public require a regular and strict supervision of bake-houses. To this end, it has been ordered that a new system of permits or licenses shall go into effect, and that there shall be a periodical inspection by the inspectors appointed for that purpose.

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SATURDAY, OCTOBER 20, 1894.

THE ARMY MEDICAL DEPARTMENTS OF THE
EASTERN BELLIGERENTS.

Many members of the ASSOCIATION having expressed a desire to know something of the provisions made by the belligerents in the far East for the care of the sick and wounded of their armies and fleets, we have instituted inquiries at the Departments and Legations in Washington, D. C., to obtain authentic information on the subject. Details concerning medico-military matters in China are so meager that we must infer a corresponding imperfection in the provisions. A former Secretary of the U. S. Legation in Peking stated that there was no organization for the care of the wounded, and that the only medical officers in the service of China were a few Europeans who held special positions. There is no centralization in China. The armies of the various provinces are organized, armed and equipped at the will of their respective governors. According to information from the Chinese Legation, the armies of the provinces differ from each other in their medical service only in that some have none whatever while others have "a few doctors—foreigners, and some hospitals—small ones." As a rule the wounded of a victorious Chinese army lie on the field until succored by friends or comrades, or by camp followers or the non-combatants of the vicinity impressed into service for the emergency. In fact, battle-field conditions similar to those existing in Europe during the wars of the Middle Ages flourish at the present day in the "Flowery Land."

LI HUNG CHANG, Grand Secretary of State and Viceroy of the Province of Chi-li, whose official residence is at Tient-sin, and who is represented in official letters to our Government as the leading states-

man and patron of progress and enlightenment in China, formed in 1889 the decision to establish a medical service for the Chinese Army and Navy on the basis of the best Western models. The plan included a Medical Department to combine both services, military and naval, at the head of which was to be a foreign surgeon-general with an adequate staff of assistants, hospitals and dispensaries at various places, a medical school and native surgeons for the fleet and military stations of North China. The Secretary obtained from our Government a complete collection of the various official publications, for several years back, of the Medical Department of our Army and Navy. In April, 1891, he expressed his great pleasure in acknowledging this courtesy from our Government and his anticipations of benefit to the newly formed Imperial Medical Department from the timely gift. The army of North China is probably the only one which has attached to it the few small hospitals and foreign medical staff mentioned by the attaché of the Chinese Legation.

It is otherwise with Japan. Its progressive government, since its establishment in 1868 on the overthrow of the power of the Tai-kun by the Mikado and the daimios or provincial princes, has built up a modern empire on the insular barbarism of ages. Every military, naval and medical school of any prominence in every country of Europe and America has been visited by young Japanese students whose aim has been to gather knowledge for the benefit of their native country, and who are now leading her armies, commanding her war vessels and, like KITASATO, studying in the advance line of modern medicine. In 1872 a French military commission was imported to organize the Army of the Mikado on a European footing. The work was accomplished in eight years. Naturally the Japanese army bears manifest traces of its French origin in its uniforms, organization, drill regulations and in the grades of its military hierarchy. The infantry regiments have each a regimental surgeon, with an assistant surgeon for each of its battalions. But there is also a strong general medical staff, its *personnel* filling all grades from the surgeon-general who has the rank and pay of a major general, to the first and second class of infirmary privates who have no more pay and allowances than soldiers of the line. The Japanese medical service was as complete at the outbreak of the war as it could be made in time of peace. It included ambulance corps and field hospitals for the immediate treatment of the injured and transportation to general hospitals removed from the seat of war. The Japanese branch of the Red Cross Society has increased its membership greatly since hostilities were begun. No foreigner holds a commission in the Japanese army or navy. Candidates for positions on the medical staff must be natives of Japan.

After passing a competitive examination the candidates have to undergo two courses of study at the governmental medical school for which \$5,000 is appropriated annually in addition to the salaries of its five professors and three assistant professors. Communications are received daily at the legation in Washington, D. C., from young medical men anxious to volunteer for service in the war. The Japanese Minister appreciates the friendly sentiments of those seeking service, but explains that even Japanese doctors who desire to serve can be accepted only after examination and the regular courses of the Army School. The government is not under the necessity of employing any persons in addition to those who have been trained specially in the duties of military medical officers.

The Japanese troops are armed with the Murata rifle, invented in 1887, and named after its Japanese inventor. Its caliber is .315 inch and it carries eight rounds in its magazine. The bullet is of copper covering a core of hard lead. It weighs 238 grains and is fired with a charge of 36 grains of Wettern smokeless powder. It is probable that from the Army Medical Department of Japan we shall have our first reports on war wounds from small caliber projectiles as observed if not among their own men, at least in the cases of wounded Chinese prisoners.

WHY ARSENIC ONLY?

An apparently authentic statement has recently been made that the use of arsenic by women, to improve the complexion and personal appearance, has become so common throughout the country as to lead to an official investigation of the subject by Dr. CYRUS EDSON, Health Commissioner of the city of New York, and others. These gentlemen have been "filled with alarm" by the disclosures of their investigation, and "are moving to have heroic measures adopted to put an end to the pernicious use of the drug." It is further stated that, as a result of their efforts "the health authorities of thirty of the largest cities and of nine States have combined to crush out the growing evil;" that a bill has been drafted, to be introduced in State Legislatures, designed to impose restrictions, under heavy penalties, upon the sale of the drug, except on a physician's prescription; and that the investigation was undertaken none too soon, and no measures too severe can be adopted to stamp out a habit in which "has been discovered the secret of many a mysterious death and of many an untimely-filled grave."

This is a commendable and most befitting undertaking on the part of these gentlemen. But why "arsenic" only? The same publication which furnishes the foregoing momentous information also contained a short time previous an account of the murder of a rural visitor to one of these "largest cities" under the follow-

ing circumstances: He had dropped into a beer garden, where some women of the town, frequenters of the place, induced him to "treat" them to "refreshments," in paying for which he exposed a roll of currency; two of the women immediately left the place, went to a neighboring drug-store and returned in a few minutes with three powders of morphin; one of these powders was administered to the man in his next glass of beer, but not succumbing at once another powder was given him within thirty minutes, whereupon he became insensible and died in the ambulance *en route* to the hospital; the women were arrested and the two who purchased the morphin were tried, convicted of manslaughter and sentenced to the penitentiary—one for six, the other for eight years. And the druggist? He had violated no law and was guilty of no crime, either of omission or of commission, of which the courts of his locality take cognizance, and is still free to sell any lethal agent in his stock to any person in his discretion, without record or inquiry as to the identity or residence of the purchaser, credible assurance of its intended use or any other safeguard or restriction whatsoever, save that the article must be labeled "poison" and the person must *say* that he or she is more than 15 years of age and that the "poison is to be used for a legitimate purpose." But this same druggist may not, under severe penalties, sell an ounce of alcohol, whisky, wine or other fluid which may be used for intoxicating purposes—except on a physician's prescription—without being licensed so to do by the United States Government and by the municipality; nor without making, and keeping open for inspection at all times, a record of the name of the purchaser, his or her address, date of purchase, article purchased, quantity, name of salesman and intended use or purpose; nor shall he sell such article at all except for medicinal, mechanical, scientific or sacramental uses.

The condition is not peculiar to the city referred to, but is common, with few exceptions to cities, large and small, throughout the country generally. National supervision and State or municipal control interfere to prevent the druggist being an agent for the promotion of the "drink habit," but leave him practically unrestricted as the most efficient promoter of the morphin habit, the cocain habit, of chloral tipping, of opium smoking, of suicide and of murder.

Why single out the "arsenic habit" for official investigation by the heads of National and civic health services, and restrictive legislation? The whole business of the sale of poisons by druggists needs investigation and legislation, and none would welcome such action more cordially than the large majority of the druggists themselves. Such legislation should not only prohibit the sale or dispensing of any lethal or toxic agent except on a physician's pre-

scription, but should apply also to the refilling of such prescriptions without express authorization and to proprietary preparations containing such agents.

Here is a field in which the health authorities, not only of thirty cities and nine States, but of every city and of every State in the Union may find work; and there is no member of the AMERICAN MEDICAL ASSOCIATION who will not lend his assistance and bid them God speed!

THE TREASURER'S NOTICE.

Under the heading of "Association Notes" we again print the notice issued by our ASSOCIATION Treasurer who very properly gives the reasons why members in arrears should lose no time in promptly remitting the amount of their annual subscriptions due last June. Every sentiment of professional pride and ASSOCIATION fellowship should enlist our members in the good work of supporting the Trustees in their efforts to give the members and the medical profession of America one of the best medical journals in the country.

It should be a source of pride to the ASSOCIATION that its JOURNAL office is now prepared to do all the work required of it, but it must be remembered that heavy drafts on the ASSOCIATION treasury were made in order to accomplish it. The presses are paid for, and the new equipment has not a penny of indebtedness resting upon it, but it will require money to maintain the mechanical department, purchase news and keep up the standard. There will be no lack of funds if our members who were not in attendance at the last meeting will kindly respond to our worthy Treasurer's call without further delay.

CORRESPONDENCE.

Cataract Extraction an Office Operation.

Reply to Dr. T. E. Murrell by Dr. Charles W. Kollock, Charleston, S. C.

To the Editor:—In my communication to the JOURNAL some weeks ago, it did not seem necessary to enumerate and specify the reasons why extraction of cataract should not be performed in our offices or dispensaries, and the patient allowed to walk or ride some distance to his home immediately afterward. I thought that good reasons against such a proceeding would come quickly into any man's mind, but Dr. Murrell wishes them given and I shall therefore give them as they appear to me, and I think to many more who are and are not engaged in ophthalmic practice:

1. Most persons are more or less excited after an operation has been performed upon themselves, and as quiet is the best treatment for all forms of excitement it should always be advised, especially where so much depends upon the result.

2. No operator can know when he will meet with a case of fluid vitreous, and I feel sure that even Dr. Murrell will not contend that it is just as safe for such cases to walk or ride to their homes after an operation as to remain quietly in bed.

3. Many cataracts have been successfully extracted and after the operations have been entirely finished the eyes

have been lost from hemorrhage caused by the rupture of a retinal vessel. An atheromatous vessel may break at any moment, and certainly such an accident is more likely to occur when the heart's action is quickened by the exercise of walking rather than when the patient remains quiet.

4. A patient upon whom the operation has been performed does not usually see well out of the fellow eye and, though he may be assisted with the utmost care, is not as safe in walking or riding to his home through crowded streets as he would be in remaining perfectly quiet. The mere fact of having had an operation performed, upon the success or non-success of which useful vision or blindness depended would tend to make one nervous and therefore more liable to accidents. Again, the class of patients who are subjected to this experiment are, I take it, not among the well-to-do or wealthy, and more frequently walk than ride to their homes which are probably in the less fashionable quarters where uneven pavements are found and shaky steps must be climbed, and I am sure this can not be called a safe and harmless proceeding.

5. Much depends upon the success of this operation, for nothing can cause the feeling of desolation and misery that blindness brings. We have been enabled to restore useful vision in the majority of those cases by performing a "neat operation," but it really seems foolhardy after having performed the operation without a mishap, to subject the patient to the many risks which even those with good vision must run in a crowded city. It seems that any one of the above reasons is sufficient for not performing the operation in our offices and dispensaries, because they all show risks and why should we take chances in such momentous cases when they are entirely unnecessary? The operation is not one of emergency and can wait until the busy surgeon finds an off day or hour for its performance.

Dr. Murrell says, "every operation on the eye is attended by some risk, and we can not always foresee where the point of danger lies, but we usually see it afterward." He could not have made a truer statement, but it is poor comfort to a man who loses his eye by some accident happening on his way home after the operation, and if the Doctor lives long enough and continues his present practice he will have bitter proof of his words.

As I have said before, we have no right to subject our patients, be they ever so poor and humble, to any risks we would not take ourselves, and just here I may say that Dr. Murrell has seen fit to ignore my questions as to whether he would perform the operation in his office upon a patient from whom he expected to receive a good fee, and whether he would permit himself to be operated upon under similar circumstances. This is where the shoe pinches. Are we doing conscientious and honest work when we take these risks with the poor and do not with the rich and well-to-do? I shall not comply with Dr. Murrell's request to make a test of his method, for such a test would only prove how long it might be continued before losing an eye from unnecessary risk, and I am not at all interested in such statistics or experiments.

Finally, it appears that Dr. Murrell thinks I have made an ungenerous and unwarranted attack upon him. I can only say, that when he published his views he gave them to the public, and as such they are open to criticism. No personal motives have actuated my criticisms, and having expressed my opinion upon what I considered dangerous doctrines, I shall have nothing more to say.

Colleges In "Good Standing."

SHOSHONE, IDAHO, Oct. 12, 1894.

To the Editor:—Will you be kind enough to write me what

organization or body governs the medical colleges in "good standing" of the United States, and how the State is to know the legal difference between a diploma from a college in "good standing" from one "not recognized" or fraudulent?

W. H. BAUGH, M.D.

Answer.—Each State has its own laws on the subject. For a summary of them see this JOURNAL, March 10, 1894.

Woman's Medical College of Philadelphia.

PHILADELPHIA, PA., Oct. 11, 1894.

To the Editor:—In your issue of Oct. 6, 1894, I see that you have given the Woman's Medical College of Pennsylvania an extended notice, for which we are greatly obliged, but I beg to call your attention to a very serious error, viz., you have placed our reading room fee for each of the four years at \$50 instead of 50 cents, making a total of \$200 instead of \$2 for the course. May I ask you to correct this error and oblige,

Yours very respectfully, CLARA MARSHALL, Dean.

It was the derelict decimals.

PUBLIC HEALTH.

Imported Smallpox.—A case of smallpox was detected among the steerage passengers of the steamer *Kron Prinz Friedrich Wilhelm* arrived at New York on the 15th inst., from Naples. The vessel was disinfected and released after forty-eight hours detention, but the steerage passengers, 499 in number, were vaccinated and transferred to Hoffman's Island where they will be held under observation for two weeks.

Public Health Legislation.—At its recent meeting the Michigan State Board of Health resolved to ask the next Legislature of that State to enact laws prohibiting any person from teaching school or acting as a professional nurse without a certificate from a reputable physician that he or she is free from any communicable form of tuberculosis; and also prohibiting the sale of milk from cows that have not been examined by the tuberculin test and found free from the disease.

Statistics of Contagious Diseases.—The Council of Hygiene of Paris has decided (*Bulletin Médicale de Paris*) to issue a weekly bulletin of all contagious diseases reported in that city. Those interested in the sanitary condition of the French capital will thus have official information. In the *Bulletin* the term, "cholera," will be given under two titles, so as to avoid the confusion and uncertainty heretofore caused by failure to discriminate between genuine cholera and the choleric form diseases which are often reported as "cholera."

Vaccination with Animal Lymph.—Dr. Bordesen, in a paper read before the Copenhagen Medical Society (*Trans. Med. Soc., Copenhagen*), states that at the Royal Establishment for Vaccination among 1,221 children vaccinated with bovine lymph 99.84 per cent. of the inoculations gave a positive result and in 95.9 per cent. pustules were produced. In 1893 out of 24,335 vaccinations 95.8 per cent. were successful. He attributes these results to care in the production and handling of the lymph.

Memphis Sanitation.—The Tennessee State Board of Health *Bulletin* notes with approval that the city of Memphis seems to take the lead in that part of the world in a very important feature of public sanitation, to-wit: The summary destruction of buildings unfit for human occupancy. In the daily papers of that city are to be found, from time to time, lists of houses condemned by the City Board of Health and recommended to the City Council for demolition—which the

Bulletin says "usually follows." From being the unhealthiest city in the Mississippi Valley Memphis has become, within a dozen years or so, one of the most healthful; but it has only been by vigorous and persistent sanitary effort pushed, in the face of the most serious difficulties, by her medical profession and public-spirited citizens.

The Chaotic Confusion of the International Congress of Hygiene.—The special correspondent of the *Times* (London), September 14, last, attributes the chaotic confusion which characterized the ending of the Congress to three principal causes: 1, the overwhelming development of what may be called the picnic element. Social entertainments and amusements are a recognized part of these gatherings, and serve a useful purpose, when confined within proper limits, by bringing the members together in a friendly way; but when carried too far they distract attention from the business proper and make it impossible to carry out the proceedings in an efficient and orderly manner. A hundred distractions were organized to run simultaneously with the supposed business of the Congress, and the business went to the wall. Overwhelmed and wearied by the laborious pleasures to which the members were hurried, one after another, even those who took a real interest in the proceedings, ceased to follow them. 2, the abuse of the system of passing sectional resolutions. An enormous mass of resolutions were brought before the general conference, many of them hopelessly impracticable, some positively ridiculous, and others very ill advised. A compulsory eight-hour day for labor for instance, and free medical treatment for the poor at home as well as in hospital. If any respect is to attach to the conclusions of the Congress, as has been the case in some notable instances in the past, they must be few and practical, and passed with all the weight derived from a full sitting. 3, the enormous number of papers contributed. The agenda paper contained the titles of between eight hundred and nine hundred papers distributed over twenty-six sections, nineteen of which were devoted to hygiene and the rest to demography. In some sections many of the papers were not reached at all, and even so, there was no time for discussion. The reports of the various national committees were largely responsible for this state of things. These reports are one of the most valuable features of the Congress, but they are often exceedingly long, and before they have been got through every one is tired and all the time is gone. In the exceedingly important sitting devoted to diphtheria, for instance, the reading of the German, American and English reports fairly exhausted the patience of the crowded audience, keenly interested as it was in the subject. Surely it would be better to have abstracts of all the reports distributed and to take the papers themselves as read, passing on at once to discussion.

Prophylaxis and Cure of the Bacterial Diseases.—None but the most favorable reports of the new prophylactic and curative treatment of diphtheria continue to be recorded in our British and Continental exchanges. It has been adopted in the two hospitals for children in Berlin, and the municipal authorities of Dresden, Nordhausen, Christiana and several other cities have taken steps to supply their hospitals with the diphtheria antitoxin and to give free treatment to all diphtheritic patients. The Pasteur Institute in Paris, having expressed its regret at being unable to furnish the serum to every physician in France on account of its cost, *Figaro* opened a popular subscription for the purpose, which has since been followed by the insertion of a credit of 100,000 francs in the budget of the Chamber of Deputies, to be used, according to a dispatch of the 15th inst., in a test of the serum as a prophylactic. The British Institute of Preventive Medicine has also begun the production of the antitoxin on a large scale. Its production and use in this country, however, are still delayed, presumably, as heretofore intimated, on account of financial considerations. It is estimated that a plant for the production of the antitoxin would cost \$30,000—at least that is the sum appropriated for the purpose by the New York City Health Department.

While this application of Behring's and Kitasato's theory of the treatment of bacterial diseases by the serum of immune animals is thus pronounced a brilliant success, on the other hand, Dr. Viquerat's claims of similar success in the treatment of tuberculosis by asses' serum are being subjected to skeptical criticism. These claims rest, thus far, on the results of the treatment of twenty-five cases all told, and an analysis of the cases shows ten of them to be surgical disease alleged to be tuberculosis, but of which no proof is given; while in a number of the remaining fifteen cases grave doubts are expressed as to the accuracy of the diagnosis. Koch's unfortunate experience on similar lines is recalled in connection with a previous announcement by Viquerat himself, of a therapeutic discovery which proved to be a *fiasco*. It may be that Viquerat's work is not yet fully or correctly reported; those interested in the protection of the public health can not but hope for his success; and it remains that in such work lies the promise and the potency not only of curative but of preventive medicine in dealing with the so-called zymotic diseases. For this, among other reasons, it is gratifying to learn that the reported failure of the Haffkine anti-cholera inoculations at Lucknow has been greatly exaggerated. Dr. W. J. Simpson, Medical Officer of Health for Calcutta, recently submitted to the municipality a further memorandum detailing his experience during the previous three months in that city and the observations made on the recent epidemics in Cawnpore and Dinapore. These afford strong additional evidence of the protective value of Professor Haffkine's inoculations, and Dr. Simpson shows that the Lucknow failures "only teach the necessity of using virus of a higher protective power and of having a special laboratory for its preparation," which was wanting at Lucknow.

ASSOCIATION NOTES.

Treasurer's Notice.—Members of the ASSOCIATION knowing themselves to be in arrears will please send the amount of their annual subscription to the Treasurer, HENRY P. NEWMAN, M.D., Venetian Building, Chicago, without delay.

The great expense on account of the establishment of the new JOURNAL office, makes it more than ever necessary that our members should be prompt in their response to this notice.

SOCIETY NEWS.

Northwestern Wisconsin Medical Association.—The Northwestern Wisconsin Medical Association held its quarterly meeting October 9.

Ohio County Medical Society.—The Ohio County Medical Society of W. Virginia held a meeting in Wheeling, October 4, and the following officers were elected: President, Dr. H. B. Baguley; Vice-President, Dr. Harriet Jones; Secretary, Dr. Walden; Treasurer, Dr. E. A. Hildreth; Board of Censors, Drs. R. J. Reed, R. McC. Baird and Charles Frissell.

Clark County (Ky.) Medical Association held a most interesting meeting at Charlestown October 10. About twenty physicians were present. The morning session was taken up in a discussion of two interesting cases reported by Dr. F. M. Carr, and a case of cerebral tumor reported by Dr. I. N. Ruddle. The banquet was served at the Reeves House. The after-dinner speeches were witty and wise. In the afternoon Dr. Ruddle read a paper on "The Uses and Abuses of Ergot," and Dr. Cad Jones a paper on typhoid fever. The Association adjourned to meet in Jeffersonville the second Tuesday in April, 1895.

Eastern Kansas Medical Society held its fall meeting in Kansas City, October 9. There were sixty in attendance. The following papers were read: "Fractures of the Base of the Radius," Dr. George M. Gray, Kansas City, Kan.; "A Muscular Spasm," Dr. W. S. Lindsay, Topeka; "Ophthalmia Neonatorum," Dr. J. W. May, Kansas City, Kan.; "The Place of Education in the Treatment of Diseases of Women," Dr. Frances Storrs, Topeka; "Report of a Case," Dr. A. P. Tenney, Kansas

City, Kan. The next meeting will be held in Topeka in January. The officers of the Society are: Dr. R. E. McVey of Topeka, President; Dr. George M. Gray of Kansas City, Kan., Vice-President; Dr. R. S. Magee of Topeka, Secretary, and Dr. Ida C. Barnes of Topeka, Treasurer.

West Virginia State Association.—The West Virginia State Association of Railway Surgeons held its second annual meeting in Grafton, October 5. Dr. R. W. Hall, of Moundsville, was re-elected President for the ensuing year; Dr. A. H. Thayer, of Grafton, was elected Vice-President; Dr. J. F. Reger of Littleton, Secretary; Dr. W. F. Vankirk, of Grafton, Treasurer, and Dr. W. M. Sivey, of Tunnelton, member of the Executive Committee for three years. The Committee on Transportation consists of Drs. A. H. Thayer, chairman; R. W. Hall and J. F. Reger. The dues were fixed at \$1 per year. The next meeting will be on the first Thursday in October, 1895.

Railway Surgeons.—The first annual meeting of the Iowa Association of Railway Surgeons was held at Sioux City October 10.

Dr. J. N. Warren was chosen temporary chairman and J. D. McCrae, Jr., of Council Bluffs temporary secretary. The Association was permanently organized with the following officers: President, J. N. Warren, Sioux City; Vice-President, J. W. Philpott, Fort Madison; Secretary, Donald McCrae, Jr., Council Bluffs; Treasurer, J. M. Knot, Sioux City. Judiciary Committee, G. W. Coit, Missouri Valley; C. C. Bronley, Manchester; Dr. Adair, Anamosa. Papers were read by Dr. J. N. Warren, of Sioux City, on "Spinal Injuries;" "Anesthetics," Dr. A. C. Bergen of Sioux City; "The Hot Water Fad," Dr. A. M. Vail, of Rock Rapids; "Compound Fractures," Dr. Donald McCrae, of Council Bluffs.

The Wyoming County (N. Y.) Medical Association held a meeting in Attica, October 9. The meeting was called to order by the President, Dr. M. J. Wilson, of Warsaw, after which the proceedings of the last meeting were read by the Secretary, Dr. A. B. Straight, of Perry. The first paper was read by Dr. A. G. Ellinwood, of Attica, subject, "Thrombosis and Embolism;" followed by Dr. Frank R. Barross, of Attica, upon "Practical Points on the Elbow Joint." Dr. Burbanks, of Pavilion, presented an interesting paper upon "Quacks and Quackery," and Dr. C. R. Seeley, of Attica, gave a paper upon "Notes of Cases in Practice." An illustration of the value of "Antiseptics" was given by Dr. Stanton, of Varysburg, followed by an interesting article on "Peritonitis" by Dr. Hulette, of Arcade. Dr. M. J. Wilson, of Warsaw, closed the afternoon session by opening a discussion upon "Professional Work From a Business Standpoint." Among those in attendance were Dr. G. H. Peddle, Wethersfield Springs; Miss J. W. Finley, M.D., Castile; Dr. William Stanton, Varysburg; Dr. Fisher, of Arcade, Vice-President of the organization; Dr. Z. L. Stage, of Bliss; Dr. Parker Davis, of Darien. Among the new names presented to the organization for membership were Drs. Z. L. Stage, C. R. Seeley and Parker Davis. Upon motion of those present Dr. Frank F. Ellinwood, of Attica, and Syracuse, was made an honorary member of the Association. A banquet was served at the Edwards Hotel.

Vermont State Medical Society.—The annual meeting was held in Montpelier October 11 and 12. The following officers were elected: President, J. H. Linsley, Burlington; Vice-President, F. F. Chaffee, Strafford; Secretary, D. C. Hawley, Burlington; Executive Committee: J. H. Linsley, D. C. Hawley, and F. R. Stoddard (of Shelburne). Publication Committee: D. C. Hawley, J. B. Wheeler (and H. C. Tinkham. License Censors: E. S. Albee, C. M. Ferrin and H. S. Brown. The attendance was the largest in the history of the Society. Dr. Frederic C. Shattuck, of Boston, read a valuable paper on "The Modern Treatment of Typhoid Fever," and Dr. John C. Irish, of Lowell, Mass., presented one on the "Surgical Treatment of Uterine Neoplasms." The annual banquet was spread at the Pavilion Hotel at 10

p.m. Thursday and was enjoyed by about 150, including the members of the Society, the Governor of the State, V. A. Woodbury, of Burlington, also the Speaker of the House of Representatives and other officers of the Legislature. The Anniversary Chairman was Dr. A. P. Grinnell, of Burlington. The next annual meeting will be held in Burlington.

American Academy of Railway Surgeons.—The first meeting of the American Academy of Railway Surgeons will be held in the parlors of the Grand Pacific Hotel, Chicago, Nov. 9 and 10, 1894.

First session, executive, Friday, 9 a.m. Only charter members of the Academy admitted.

Call to order, by Chairman, Committee on Permanent Organization; election of temporary chairman; election of temporary secretary; roll-call of charter members; appointment of Committee on Constitution and By-Laws.

The Objects and Aims of the American Academy of Railway Surgery, by C. K. Cole, Chief Surgeon Montana Central Railway, Helena, Mont.; Reasons for the Organization of the Academy, by W. J. Galbraith, Chief Surgeon Union Pacific Railway, Omaha, Neb.; A Symposium on Permanent Organization, by R. Harvey Reed, Consulting Surgeon Baltimore & Ohio Railway, Columbus, Ohio; Opening of the discussion on these papers, by W. H. Elliott, Chief Surgeon Central Railway of Georgia, Savannah, Ga. Miscellaneous business. Adjournment.

Second session, open, Friday, 2 p.m. Nothing but scientific business transacted, and open to all interested.

1. Injuries of the Tendons in Railway Accidents.

(a) History and Symptoms, by J. B. Murphy, Chief Surgeon Wisconsin Central Railway, Chicago, Ill. Discussion opened by W. A. Adams, Chief Surgeon D. T. & Ft. W. Railway, Fort Worth, Texas.

(b) Diagnosis and Prognosis, by W. D. Middleton, Chief Surgeon C. R. I. & P. Railway, Davenport, Iowa. Discussion opened by Brise L. Riordan, Surgeon G. T. Railway, Toronto, Canada.

(c) Treatment, by Geo. W. Hogeboom, Chief Surgeon A. T. & S. F. Railway, Topeka, Kan. Discussion opened by Solon Marks, Chief Surgeon C. M. & St. P. Railway, Milwaukee, Wis.

2. Traumatic Neuritis.

(a) History, Symptoms and Differential Diagnosis, by A. P. Grinnell, Chief Surgeon Central Vermont Railway, Burlington, Vt. Discussion opened by Chas. H. Merz, Surgeon L. E. & W. Railway, Sandusky, Ohio.

(b) Prognosis and Treatment, by E. A. McGannon, Surgeon G. T. Railway, Brockville, Ontario, Canada. Discussion opened by J. H. Ford, Chief Surgeon C. C. C. & St. L. Railway, Wabash, Ind.

3. Treatment of Traumatic Aneurism, by G. S. Worley, Chief Surgeon J. St. A. & I. R. Railway, St. Augustine, Fla. Discussion opened by N. Y. Leet, Chief Surgeon D. L. & W. Railway, Scranton, Pa.

Adjournment.

Third session, executive, Friday, 8 p.m. Only charter members of the Academy admitted.

Report of committee on constitution and by-laws; appointment of committee on nominations; miscellaneous business.

Adjournment.

Fourth session, open, Saturday, 9 a.m. Nothing but scientific business transacted, and open to all interested.

1. Should a Railway Surgeon be Required to Procure a History as to the Cause of an Accident over the Signature of the Injured?

(a) Reasons Favoring such Report, by S. L. McCurdy, Surgeon P. C. C. & St. L. Railway, Pittsburg, Pa. Discussion opened by R. W. Bruce Smith, Surgeon G. T. Railway, Seaforth, Canada.

(b) Reasons Opposing such Report, by Geo. Chaffee, Surgeon L. I. Railway, Brooklyn, N. Y. Discussion opened by J. M. Dinnen, Chief Surgeon N. Y. C. & St. L. Railway, Fort Wayne, Ind.

2. The Best Method for Approximately Determining the Amount of Damage Sustained by a Traumatism from a Monetary Standpoint, by R. S. Harnden, Surgeon N. Y. L. E. & W. Railway, Waverly, N. Y. Discussion opened by John E. Owens, Chief Surgeon C. & N. W. Railway, Chicago, Ill.

3. The Best Methods for Determining the Value of Life when Death has been Caused by Accidental Means, by M. Cavana, Surgeon N. Y., O. & W. Railway, Oneida, N. Y. Discussion opened by A. D. Bevan, Chief Surgeon Iowa Central Railway, Chicago, Ill.

4. The Environments of Railway Surgery, by B. Merrill Ricketts, Chief Surgeon C. P. & V. Railway, Cincinnati, Ohio. Discussion opened by C. B. Kibler, Surgeon N. Y., L. E. & W. Railway, Corry, Pa.

5. The Use of Horse Hair in Surgery, by C. M. Daniels, Chief Surgeon W. N. Y. & P. Railway, Buffalo, N. Y. Discussion opened by A. C. Scott, Chief Surgeon G. C. & S. F. Railway, Temple, Texas.

Adjournment.

Fifth session, open, Saturday, 2 p.m. Nothing but scientific business transacted, and open to all interested.

1. Not a Case of "Railway Spine," by Webb J. Kelly, Surgeon C. C. C. & St. L. Railway, Galion, Ohio. Discussion opened by W. B. Rogers, Chief Surgeon K. C. & M. B. Railway, Memphis, Tenn.

2. Comparative Value of Plaster of Paris and Silicate of Soda as a Dressing for Fractures, by Milton Jay, Chief Surgeon C. & E. I. Railway, Chicago, Ill. Discussion opened by C. B. Parker, Surgeon L. S. & M. S. Railway, Cleveland, Ohio.

3. The Treatment of Burns of the Conjunctiva, by D. C. Bryant, Oculist, Union Pacific Railway, Omaha, Neb. Discussion opened by Wm. Thompson, Oculist Penna. Railway, Philadelphia, Pa., and J. A. White, Consulting Oculist S. Railway Co., Richmond, Va.

4. Traumatism of Joints, by R. H. Cowan, Surgeon N. & W. Railway, Radford, Va. Discussion opened by C. B. Powell, Surgeon C. B. & Q. Railway, Albia, Iowa.

5. Colloidion in Solutions of the Continuity of the Soft Parts, by N. A. Drake, Surgeon C. R. I. & P. Railway, Kansas City, Mo. Discussion opened by Chas. B. Fry, Surgeon Big Four Railway, Mattoon, Ill.

Adjournment.

Sixth session, executive, Saturday, 8 p.m. Only charter members of the Academy admitted.

Report of the committee on nominations; election of officers; selection of next place of meeting; miscellaneous business; adjournment to the banquet hall; banquet.

Adjournment.

TRANSPORTATION.

The managers of the various railroads have very cordially agreed to furnish the necessary transportation to enable the members of the Academy to attend the coming meeting. Those who need transportation will apply for the same at once through their proper officers.

NECROLOGY.

OMER T. GILLETT, M.D., of Evansville, Ind., at Colorado Springs October 5—G. A. Muller, M.D., at Menasha, Wis., October 5, aged 40.—A. B. Dobson, M.D., formerly of Iowa, at San Jose, Cal., October 1, aged 61. He was a Surgeon of Volunteers, during the civil war.—Benton J. Holm, M.D., of Bloomington, Mo., October 6.—D. B. Hill, M.D., of Lock Springs, Mo., September 30, aged 73.—B. J. Howe, M.D., of Bedford, Ind., October 6.—James Goodier, M.D., of Monroe County, Mo.—William H. Brooks, M.D., of Fort Wayne, Ind., October 13, aged 83 years.—D. C. Wilson, M.D., of Painesville, Ohio, September 26, aged 56 years.—G. W. Moody, M.D., of Huron, S. D., October 13. He was one of Dakota's earliest settlers and was President of the Territorial Board of Health. He had been surgeon for the Chicago and Northwestern Railway in Dakota for fourteen years.—Reid Alexander, of Topeka, Kan., October 8, aged 34 years.

MISCELLANY.

Change of Address.—L. W. Steinbach, M.D., has removed to 1309 N. Broad Street, Philadelphia.

For the Legislature.—J. H. Brownfield, M.D., of Fairmount, W. Va., has been nominated for the Legislature. The *West Virginian* says: "Dr. Brownfield's nomination was apparently demanded by everybody, and was enthusiastically received."

Foreign Body in the Bronchus.—Oneida County (N. Y.) Medical Society closed its semi-annual session October 9. Dr. Brownell, of Utica, reported a case of foreign body in the bronchus in the case of a boy 4 years of age. The boy was suspended by the ankles every few minutes during the night, and at 4 A.M., the foreign body (apparently corn husks) was coughed out. The child made a prompt recovery.

Injections of Blood-Serum in the Treatment of Diphtheria.—The experiments that have been made in Vienna, at the Children's Hospital, show that the injections of blood-serum have been followed by many successes. Children whose cases have been regarded as hopeless of recovery under the usual treatments, have been found to recover under this new treatment in the proportion of three recoveries to one death.

Appointments.—Dr. Dalby has been appointed Health Commissioner of Salt Lake to succeed Dr. Beatty.—H. J. Neely, M.D., has been appointed postmaster of Brush Creek, Pa.—E. R. Hardenbrook, M.D., of Buffalo, N.Y., has been appointed house surgeon of the New York State Industrial School at Rochester.—E. C. Jacobs, M.D., of Milwaukee, has been appointed assistant physician at the Northern Hospital for the Insane at Oshkosh, Wis.

On the Administration of Chloral to Young Children.—Dr. J. C. Wilson places much reliance on the soothing influence of chloral hydrate over the irritations of scarlet fever. As a rule, the drug is easy of administration and well borne by the stomach. I have found its acrid after taste best masked by the administration in Abergier's syrup of lactucarium diluted, thus:

R. Chloralis gr. xxx.
Syrup, lactucarii (Abergier) } ññ ʒjss.—M.
Aque }

Sig.: A teaspoonful in iced water every two, three or four hours.

The administration of nourishment immediately after the medicine is desirable. The sleep-inducing properties of the drug manifest themselves rapidly, but are not prolonged; therefore, its repetition at intervals of two or three hours is called for.

Bequest for Autopsies.—Professor Verga, of Milan, describes a curious institution in that city, somewhat resembling the Society for Mutual Autopsies in Paris. It is a bequest made to the city authorities in 1881, by P. M. Loria, a citizen of Milan, to defray the expenses of autopsies for poor families, the survivors of which wish to ascertain the true causes of death and the weaknesses and organic degenerations which menace their descendants. M. Loria also hoped that these autopsies would remove one of the principal obstacles to cremation, by proving that death was due to natural causes. During the last year thirty-two autopsies were made by Professor Verga—twenty-two males and ten females; two-thirds of these were of persons over 60 years of age. The conditions of the bequest provide that any specimens remarkable from a pathologic or anthropologic standpoint shall be preserved—the former in the hospital museum, the latter in the civic museum.

Dr. Robinson Wins a Suit.—Dr. Robinson has been buying tickets and refusing to pay an extra fare between Alameda and Oakland for years. His suits have been innumerable and always ask for \$200 and costs.

He contended for the right to buy stop-over tickets between San Francisco and Alameda by which he could stop at Oakland and afterward go on to Alameda. Superior Judge Hunt of San Francisco gave judgment in favor of Robinson, and the Supreme Court sustains it. This will probably settle the matter and give the Doctor a goodly sum. A Bretz, the Popular candidate for the Assembly, has not been idle during this time, but has evidence that will net him about \$1,500 or \$2,000 in like suits. When the Seventh Street locals

commenced collecting fares, Dr. Robinson made several vain attempts to ride without a ticket, and now he will undoubtedly take a turn at that case. The decision is of the utmost importance to all Oakland and Alameda people. Dr. Robinson thought that the decision might affect the standing of the State Railroad Commission, but it did not, according to the report given to the press.

Semeiotics in Fiction.—Dr. A. Conan Doyle, the famous novelist, who is visiting this country to enjoy the plaudits of a contemporaneous posterity, has achieved his success by use of the qualities which make the successful physician or surgeon. A master of semeiotics—the science of signs or symptoms, *medicæ*. symptomatology—he created the character of "Sherlock Holmes," the ideal detective, and endowed the creation with the skill and penetration in interpreting the endless significance of small details which made his preceptor, Dr. Joseph Bell, of the Edinburgh University an object of wondering admiration to his students. Conan Doyle was especially struck with this faculty of Dr. Bell's and with the seemingly marvelous insight into his patients, the result of circumstantial evidence built up on little details usually considered insignificant or entirely overlooked. This, Dr. Bell was wont to impress upon his students as the foundation of diagnosis, and Dr. Doyle, who proved himself an apt pupil, has turned it to good account in his works of fiction—works which have very probably contributed more to "the gayety of nations" than his skill as a physician could have done.

Dangerous Sting of the Conorhinus.—In *Insect Life* for September, a California correspondent of Professor Riley states briefly his personal experience with a sting or bite of a cononose (*Conorhinus*). This writer was stung in the night time while he was in bed, upon the middle toe of his left foot. He first gently rubbed saliva over the toes in order to possibly ease the itching sensation, but this continued and gradually spread over the foot and thence upward. The instep, legs, thighs and loins, where large flat blotches were raised were affected. It finally extended further up the hands and arms; his lips swelled; his neck, nose and eyebrows itched and swelled on scratching, and his scalp was a mass of lumps from the same cause. He stood this as long as he could and then went out to a water ditch and soaped and bathed his body in cold melted snow-water, and applied some bacon grease thoroughly. A little later he became sick at his stomach and took a strong cup of coffee. About 6 o'clock in the morning the itching abated, but the swelling remained on his hand and foot until the next day. In a later letter the writer states that he has noticed that the *Conorhinus* is attracted by carrion, and he explains a large number of the poisonous effects of the bite by the mechanical conveyance of putrid animal matter to the wound made by the beak of the insect.

Faith Curists may be Held for Trial in New Jersey.—A Mrs. Glenn, of Palmyra, New Jersey, whose patient died while under a faith-cure treatment, will be tried under a law passed by the last session of the Legislature. The patient was a woman, aged 17 years, who had had pulmonary tuberculosis for some time. The claim was made by Mrs. Glenn that by abandoning the use of medicines, and by a reliance on the faith healing methods, she had been able "to put a new lung into a patient who had been given up to die by Dr. Pepper." But the poor deluded patient grew progressively worse and died. This was followed by a condemnatory verdict by a coroner's jury and the arrest of the illegal practitioner. This is the first case under the new law. The New York *Herald* reports the following interview with Dr. Watson of Jersey City:

"Dr. W. Perry Watson, of Jersey City who is Secretary of the State Board of Medical Examiners and who drafted the General Medical bill which is now a law, said in reply to an inquiry: "The medical law is working well and I fail to find any of the faith curists and mind healers who were beginning to operate quite extensively in this State. In Jersey City those whom I did know have quietly taken down their

signs and gone over to New York. The law has worked well in preventing the fraudulent practitioners from operating here, and particularly those who came over the river. The State Board will prosecute them wherever they are found."

An Army Promotion Board.—A board of officers consisting of Lieutenant-Colonel Charles R. Greenleaf and Johnson V. D. Middleton, Deputy Surgeon-General, and Captain William L. Kneidler, Assistant Surgeon, has been appointed to meet at San Francisco, Cal., for the examination of certain army medical officers with a view to determine their fitness for promotion to the grade of Captain. The officers ordered before the board are First Lieutenants Charles Willcox, Harlan E. McVay and Euclid B. Frick. These examinations are a recent requirement of the War Department. Formerly a lieutenant and assistant surgeon became entitled to the relative rank, pay and emoluments of a captain of cavalry by virtue of the expiring of his fifth year of service. Now, he, like all other officers of the staff or line below a certain grade, has to pass an examination to demonstrate his fitness physically and professionally to perform the duties of the higher grade. Examination is first made into the physical condition, and if this is found defective the board immediately concludes its inquiry in the case by finding and reporting the cause which in its judgment has produced the disability and whether the disability was contracted in the line of duty. The professional examination covers army regulations, customs of service and methods of the medical department; Hospital Corps administration and drill; hospital management; camp, post and hospital sanitation; and such professional subjects as have been developed by new views, experiments, operations, observations, etc., during the five years of the young officer's lieutenancy.

Status and Pay of Japanese Army Surgeons.—The Surgeon-General of the Imperial Army has the rank of major-general and the same amount of salary, 300 yen per month, the yen being equivalent to about 75 cents of our money. Surgeon inspectors, whose position is analogous to that of colonel and assistant surgeon-general in the U. S. Army, have the rank of colonel and a salary of 193 yen per month, or 3 yen more than a colonel of cavalry receives, and 15 more than a colonel of infantry. Surgeons of the first class rank as lieutenant-colonel and their pay, 143 yen, bears the same relation to that of a regimental lieutenant-colonel that the pay of an inspector does to that of regimental commanders. Surgeons of the second class with the rank of major draw 93 yen monthly. Assistant surgeons of the first class and pharmacists of the same grade have 52 yen or the pay of a captain. Assistants and pharmacists of the second class rank as first lieutenants and have the pay of that grade, 32 yen. Assistants and pharmacists of the third class have the rank and pay, 26 yen, of the second lieutenant. These medical, like other officers of the army, have increased pay when assigned to special duty; those on duty in the War Department, for instance, having an increase amounting to about one-third of the regular salary of their grade. They have, in addition, certain emoluments such as are given to officers in the army of the United States as increased pay for length of service, commutation of quarters, etc., and a retired pay or pension when unfit for service by disability from accident, disease or age. The Hospital Corps of the U. S. Army has only three grades: private, acting hospital steward and hospital steward; but the Japanese have better facilities for discriminating between good and indifferent men. The infirmary sergeant-major has 6,950 yen per month, the sergeant 5,019, the corporal 3,680, the private of the first class 1,612 and the private of the second class 1,369, with clothing and other allowances and increased pay for second and subsequent enlistments, as provided for troops of the line.

New Ruling by the Illinois State Board of Health.—From the following communication in which names are omitted from the original, it will be seen that the Illinois State Board of Health will not recognize Dental, Pharmacy or Veterinary Colleges as entitled to recognition for *any part* of a medical college course:

CHICAGO, Oct. 7, 1894.

Last Saturday a graduate in veterinary science who has never attended a medical college hitherto, called on me, professedly on your suggestion, to inquire whether he could legally graduate from your College at the end of one course of lectures. I turned to page 21 of the Fifteenth Annual Report of the State Board of Health and read to him from the minutes of the January meeting, 1892, as follows:

"*Veterinary Colleges not Recognized.*—The Secretary presented a communication from the clerk of the ——— Medical College, with an inclosure indorsed by ———, asking for a ruling" etc., etc., and in answer to this communication, it was "Resolved, That the Illinois State Board of Health declines to recognize the degree of Doctor in Veterinary Science as the equivalent of any part of the minimum requirements fixed by the Board as characterizing a medical college in good standing, etc."

I infer that you had overlooked or forgotten this ruling and, as I have some reason to think you are not familiar with a more recent ruling of similar import and wider application, I make free to quote from page 19 of the Sixteenth Annual Report:

"Resolved, That the Illinois State Board of Health declines to recognize the degree of Ph.G., D.D.S., or V.S., as the equivalent of any part of the minimum requirements fixed by the Board as characterizing a medical college in good standing within the meaning and intent of the Illinois Medical Practice Act."

"This Board does not recognize a licensed pharmacist as on a different plane from any other non-graduate in medicine."

"That as to 'persons holding certificates of examination,' the Board holds that they should establish the fact of four years of study and three full courses of lectures before being granted the degree of M.D."

I have the records and addresses of a number of students belonging to the categories referred to, whose applications for advanced standing in the ——— College were rejected—in some instances, regretfully—on account of the foregoing rulings.

WM. E. QUINE, M.D.

The Defenses of Great Britain against Cholera.—The *Daily Graphic* of September 25 gives the British public a view of the official methods of protecting the United Kingdom against invasion by cholera. It speaks in glowing metaphorical terms of the medical officer of the Local Government Board, Dr. Thorne-Thorne, seated, as a general, in his room at Whitehall calmly noting on his maps the progress of the enemy, deliberately making preparations to meet and avoid its attack on Great Britain, and sending out his lieutenants and aids-de-camp to destroy the advanced scouts of the invading force, which, in spite of all vigilance, sometimes succeed in gaining an entrance at the seaports.

Information is first obtained by telegraph through the Foreign Office or from the British Consuls abroad that an infected or suspected ship has left an infected port. Directly the vessel arrives at a British port it is boarded by the port medical officer of health. All the cholera cases are at once taken off the ship and placed in hospital, and further, all suspected cases are detained forty-eight hours in order that it may be seen if they develop cholera. The rest of the passengers are allowed to depart after they have given their names and the addresses to which they are going. The medical officer of health of the town or district named is then notified that such a person will arrive, and on arrival he visits him and keeps him under surveillance until all danger is past. If the suspect sicken of cholera, or even of diarrhea, he is at once isolated, his clothes are burned, all discharges are disinfected, the drains, etc., of the house flushed with disinfectants and precautions taken to avoid infection of the water supply. In this way each case of cholera all over the country is detected and watched, and the spread of

the disease arrested from the outset. Thirty-five cases of cholera were imported into England in 1892 during the period that Hamburg suffered so severely; and of these six occurred among persons who had left the seaport of arrival in a condition of apparent health; but owing to this system of surveillance the exact whereabouts of each was known, the disease treated and its spread arrested without delay. This was the history of cholera in England in 1892. Since then the medical inspectors of the Cholera Survey have been engaged in visiting the ports all round the coast and those inland towns where a heavy enteric fever mortality gave an indication that they might be suitable places for breeding cholera, owing to their various sanitary neglects; in fact, all places where the water supply was subject to pollution. This work has been done quietly and without publicity—perhaps too much so; the corporations or sanitary authorities meet the medical inspectors; the faults of imperfect sanitation are pointed out to them and they are advised how to provide the available remedies so as to make the population of whose health they have charge safe against the invasion of cholera.

From the point of view of this great improvement in local and general sanitation the *Graphic* speaks of "that blessed word cholera. Cholera scares have been, in fact, blessings in disguise, and have done more than anything else to improve the health conditions of this country." Much credit is given to the medical officers connected with this service. Their work is characterized as truly admirable. "It demonstrates once more, if any such further demonstration is needed, how great are the services quietly and devotedly rendered by medical men, not only in the cure, but also in the prevention of disease. The port medical officers have time and again spent days and nights on the water, sleeping on board ship so as to be ready at a moment's notice, regardless alike of personal risk and individual comfort. The really heavy work has fallen, to a great extent, on them, and no one acknowledges their distinguished services more emphatically and enthusiastically than Dr. Thorne-Thorne himself, who loses no opportunity of doing justice to them. The medical inspectors of the Local Government Board have also been incessantly on the alert, traveling by night and working by day, and although the cholera scare has temporarily passed away their vigilance is not relaxed and the Sanitary Survey is still going on." The health officers of London, Newcastle-on-Tyne and Hull, Drs. Collingridge, Armstrong and Mason, are specially mentioned in the article for their earnest and valuable services.

Hospital Notes.

THE AUGUSTANA HOSPITAL of Chicago is to issue an edition of 10,000 circular catalogues.—The Children's Hospital of Buffalo, N. Y., held its annual meeting December 9. The old officers were re-elected.—A meeting was held in Sangerbund Hall, Brooklyn, to organize a German Hospital, October 8.—Dr. E. E. Montgomery, after fifteen years' service in the Philadelphia Hospital, resigned and his place was filled by the election of J. M. Fisher, M.D., who is an instructor in gynecology at Jefferson Medical College.—The New York Foundling Hospital celebrated its silver jubilee October 17. Since its foundation it has received 25,697 infants and 5,000 needy mothers; out-door employment has been given to more than eleven hundred nurses and \$3,000,000 has been paid them.—Francis B. Keene, of Milwaukee, has donated to the Episcopal Diocese of that city the Keene homestead to be used for a hospital. It will be known as the Keene Memorial Hospital, the donation being made in memory of his father, the late Dr. Keene.—The new Consumptive Hospital, established by several New York women, will soon be ready to receive patients. The Hospital is founded for the reception of consumptives, working girls, that they may receive treatment without the loss of time from their daily labor.

Washington Notes.

MEDICAL SOCIETY OF THE DISTRICT.—At the regular meeting of the Medical Society, Dr. Irving C. Rosse read a very elaborate and scientific paper entitled, "Some Medico-legal Features of the Schneider Case." He differs with the experts on insanity for the prosecution, taking the ground that the

defendant was insane at the time of her execution. H gives the results of *post-mortem* examinations and criticises the ruling and charge of the presiding judge. Dr. W. K. Butler presented a large calculus from the tonsil of a young negro boy. Dr. Joseph C. Price, of Philadelphia, was invited to read a paper before the Society during the present month.

The Committee on Typhoid Fever presented its report as laid before Congress and published by the Public Printer. This is now a public document and as such will be distributed.

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—At the meeting of the Board of Directors on the 10th inst., Hon. John W. Foster, ex-Secretary of State, and Mr. John B. Wight, Secretary Washington Board of Trade, were elected to membership.

THE CHILDREN'S HOSPITAL.—The annual report of the Children's Hospital was submitted to the Commissioners this week through Col. John Tracy, Superintendent of Charities. The income of the Hospital during the year amounted to \$25,221. Of this amount \$10,000 came from the government; \$4,400 from the J. C. Hall fund; \$1,300 from subscribers; \$1,000 from the charity ball and \$8,521 from contributions. The ordinary expenses of the Hospital amounted to \$19,194; \$5,000 was paid on the debt during the year, leaving a balance due of \$22,000. Had it not been for the contributions there would have been a deficiency, which would have compelled the directors to limit the number of admissions so that there should be at no time more than forty white and forty negro children in the Hospital. An infant ward has been added with a limit of twelve infants. An appropriation of \$15,000 is asked for the support of the Hospital during the next fiscal year. The number of patients treated during the year was 379, 41 of whom died. The dispensary patients numbered 3,051.

THE GARFIELD MEMORIAL HOSPITAL.—A meeting of the Board of Trustees of the Hospital was held on the 9th inst., with the President, Mr. Justice Harlan, in the chair. Reports were read showing the operations of the Hospital during the previous year, and the rapid growth of the institution during that time. The demand for accommodations for patients has led to the opening of four wards since March of this year; these have filled as soon as ready, and there is still need of more room.

During 1893, 515 patients were treated in the Hospital. During nine months of 1894, from January to October, 573 were admitted. The cases treated come from nearly every State in the Union and from the city and county. Over sixty cases of typhoid fever alone were treated during the year, the larger number of these being admitted during July, August and September of this year. In one instance four members of one family suffering from typhoid fever were received and treated. One hundred and fifty surgical operations were performed during the past eight months.

So many applications were made to the Hospital for treatment by poor patients who were not ill enough to be admitted to the wards, that it was decided to begin a free dispensary service. This was opened July 12, 1894, and from that date to October 1, 403 cases have been treated.

The large central building erected for the administration and for the accommodation of the nurses has added greatly to the architectural beauty of the Hospital and to the comfort of the business management. The training school is also located here. The number of nurses on February 1 was fourteen; on October 1 twenty-seven. Regular instruction is given by a corps of lecturers and by the Superintendent of the school, Miss Nevins, during the winter and spring months, and after a two years' course of instruction the nurses receive a diploma. The Ladies' Aid Society has ren-

dered valuable service during the year. They have supplied thirty sets of bedroom furniture; twenty for the nurses' rooms and ten for ward C. They have also supplied linen for the wards, and curtains and awnings for the new buildings. The rooms of the Superintendent of the training school have been furnished throughout by Miss Edwards. The ladies have also in contemplation the erection of a new operating room, a building that is much desired on account of the inconveniences of the present room. A pathologic department has been established for the purpose of scientific study. It is proposed to establish at no distant date a nurses' directory and home in connection with the training school.

Medical Staff: Consulting Staff, Drs. William W. Johnston, President; Nathan S. Lincoln, James W. H. Lovejoy, Henry S. Yarrow.

Attending Staff: Drs. Geo. N. Acker, Samuel S. Adams, G. Wythe Cook, Henry D. Fry, Arthur A. Snyder, J. Ford Thompson. Drs. Swan M. Burnett, diseases of the eye and ear; Joseph H. Bryan, diseases of the throat and nose.

Chief Resident Physician, Dr. A. L. Stavely. First Assistant, Dr. Middleton S. Elliott.

Superintendent of the training school for nurses, Miss Georgia M. Nevins.

Ladies' Aid Association. Board of Managers: President, Mrs. John A. Logan; first Vice-President, Mrs. John M. Harlan; second Vice-President, Mrs. Julius C. Burrows; third Vice-President, Mrs. Henry A. Willard; fourth Vice-President, Mrs. David J. Brewer; fifth Vice-President, Mrs. Earl English; Corresponding Secretary, Mrs. Anderson D. Johnston; Recording Secretary, Mrs. J. Frank Aldrich; Treasurer, Mrs. Thomas L. Tulloch.

HEALTH OFFICERS' REPORT.—The reports of mortality received at the Health Department show a decrease in the number of deaths during the past week as compared with the previous week. The death rate fell from 22.9 to 21.7, and infant mortality declined from a total of fifty to that of forty of those under 5 years old. The four deaths from pneumonia present an early indication of the presence of this malady. There was a material decline in the number of deaths from diphtheria, and the week's reports show a remarkable absence of all the other dangerous contagious maladies.

THE PUBLIC SERVICE.

ENLISTMENTS IN THE ARMY HOSPITAL CORPS.

On October 2 the Surgeon-General of the Army issued a circular of information for persons desirous of entering the Hospital Corps of the Army. A number of vacancies occur from time to time in the various grades, which are filled in part by enlistment from civil life and in part by transfers of desirable men from the line. All enlistments are for the grade of private, but provision is made for the speedy promotion of those who show themselves to be in earnest, intelligent, capable and trustworthy. Not only does service in the Hospital Corps offer excellent pay, but it at the same time gives a training which will be of great usefulness should the member at any time return to civil life; if, however, he have promotion in view, it opens to him the most valuable position attainable by an enlisted man in the United States Army. Applicants for enlistment must be between the ages of 18 and 30 years, unmarried, of good character and habits, able-bodied, free from disease, and must be able to speak, read and write the English language. Such minor defects of vision as may be corrected by glasses are not regarded as a bar to enlistment. The pay is \$18 per month for the first year, increased with subsequent years of service; but intelligent men look rather to promotion to Acting Stewardships and Stewardships open to them after one year's service as a private soldier. Those who have had special training in civil life as students of pharmacy or of training schools for nurses may not be required to serve the full year of probation. As the members of the Corps receive from the Government quarters, rations, clothing, bedding, etc., the monthly money allowance practically represents what remains of the wages of a man in civil life after the payment of the ordinary expenses of living, clothing, etc. The United States takes care of its soldiers in sickness, and continues their pay and allowances during that time. It also insures their lives and health, for if the former is lost because of disease or injury incident to the service dependent relatives will receive pensions, while on the other hand, if a soldier is permanently disabled he is entitled to pension, the amount depending on the extent of the disability. After thirty years' service the retired list of the Army is open to them with three-fourths of the pay of the grade

held at the time of retirement. Applications for enlistment, accompanied by testimonials as to character, physical soundness, special knowledge (as of pharmacy, cookery, mechanics, etc.) should be addressed to "The Surgeon-General, U. S. Army, Washington, D. C." (who authorizes enlistment); or candidates may apply in person to any recruiting officer of the Army, or preferably to the medical officer at any military post or station.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Oct. 6, 1894, to Oct. 12, 1894.

Capt. GEORGE E. BURNELL, Asst. Surgeon, will be relieved from duty at David's Island, N. Y., by the commanding officer of that post, on the receipt by him of this order, and will then report in person to the commanding officer, Ft. Hamilton, N. Y., for duty at that post, reporting by letter to the commanding General, Department of the East. By direction of the Acting Secretary of War.

Capt. C. N. B. MACAULEY, Asst. Surgeon, extension of leave of absence granted in S. O. 55, Dept. of the Colorado, Sept. 14, 1894, is further extended one month. By direction of the Acting Secretary of War.

Major CURTIS E. MUNN, Surgeon, upon abandonment of Mount Vernon Bks., Ala., is ordered to Benicia Bks., Cal., relieving Capt. OGDEN RAFFERTY, Asst. Surgeon. Capt. RAFFERTY, on being relieved by Major MUNN, is ordered to Presidio of San Francisco, Cal., for duty.

First Lieut. CHARLES E. B. FLAGG, Asst. Surgeon, relieved from duty at Presidio of San Francisco, Cal., and ordered to Angel Island, Cal., for duty.

Major VAN BUREN HUDDARD, Surgeon, relieved from duty at Ft. Spokane, Washington, and ordered to Ft. McPherson, Ga., for duty at that station.

Major JAMES P. KIMBALL, Surgeon, upon abandonment of Ft. Marey, N. M., is ordered to Ft. Wingate, N. M., for duty. Upon arrival of Major KIMBALL at Ft. Wingate, Capt. C. N. B. MACAULEY, Asst. Surgeon, will take station at Ft. Apache, Ariz., for duty, relieving Lieut. M. W. IRELAND, Asst. Surgeon. Lieut. IRELAND, on this being relieved, will take station at Ft. Stanton, N. M., relieving First Lieut. F. R. KEEFER, Asst. Surgeon. Lieut. KEEFER, on being relieved, will proceed to and take station at Washington Bks., D. C.

Major CURTIS E. PRICE, Surgeon, upon abandonment of Ft. Supply, O. T., will proceed to and take station at Ft. Sill, O. T.

First Lieut. ISAAC P. WARE, Asst. Surgeon, is relieved from duty at Ft. Supply, O. T., and ordered to Camp Eagle Pass, Texas, for duty. Upon arrival of Lieut. WARE at Camp Eagle Pass, First Lieut. ALEXANDER N. STARK, Asst. Surgeon, will return to his proper station at Ft. Sam Houston, Texas.

Capt. E. F. GARDNER, Asst. Surgeon, upon abandonment of Ft. Mackinac, Mich., is ordered to Boston, Mass., for duty as attending surgeon and examiner of recruits, relieving Major M. W. WOOD, Surgeon, who, on being thus relieved, will proceed to take station at Boise Bks., Idaho, to relieve Capt. WILLIAM STEPHENSON, Asst. Surgeon. Capt. STEPHENSON, on being relieved, will proceed to and take station at Vancouver Bks., Washington.

Major MARSHALL W. WOOD, Surgeon, is granted leave of absence for twenty-five days, to take effect upon his relief from duty at Boston, Mass. By direction of the Secretary of War.

Capt. FRANCIS J. IVES, Asst. Surgeon, having proceeded with troops to Ft. Ethan Allen, Vt., is relieved from further duty at Ft. Sheridan, Ill., and will remain on duty at Ft. Ethan Allen until the arrival there of Capt. AARON H. APPEL, Asst. Surgeon, when he will report in person to the commanding officer, Plattsburg Bks., N. Y., under the requirements of par. 10, S. O. 221, A. G. O., Sept. 20, 1894. By direction of the Secretary of War.

First Lieut. GEORGE D. DESHON, Asst. Surgeon, upon arrival of Major JOSEPH K. CORSON, Surgeon, at Ft. D. A. Russell, Wyo., will be relieved, and ordered to Ft. Logan, Col., for duty.

Capt. ALFRED E. BRADLEY, Asst. Surgeon, upon abandonment of Ft. Sully, S. D., is ordered to Ft. Keogh, Mont., for duty.

First Lieut. HENRY A. SHAW, Asst. Surgeon, upon abandonment of Ft. McKinney, Wyo., is ordered to Ft. Niobrara, Neb., for duty.

Capt. JEFFERSON D. POINDEXTER, Asst. Surgeon, upon abandonment of Ft. Bowie, Ariz., is ordered to Ft. Riley, Kan., for duty.

LETTERS RECEIVED

Anderson, Olive, Andover, Ill.; Allbee, E. S., Bellows Falls, Vt. Bennett, E. O., Eloise, Mich.; Battle & Co., St. Louis, Mo.; Baum, Mrs. F., Kansas City, Kan.

Connor, P. S., Cincinnati, Ohio; Cutter, J. A., New York, N. Y.; Chicago Polyclinic, Chicago, Ill.; Chambers, J. H. & Co., St. Louis, Mo.; Caverly, C. S., Rutland, Vt.

Drevet Mfg. Co., (2), New York, N. Y. Ewing, F. C., Bartels, Ia.

French, Pinckney, St. Louis, Mo. Holmes, Edmund H., Philadelphia, Pa.; Hummel, A. L., Philadelphia, Pa. (3); Hogan, S. M., Montgomery, Ala.; Hopkins, J. G., Thomasville, Ga.; Hooper, F. H., New Bedford, Mass.; Hoollopeter, J. H., Houston, O.

Houghton, R. E., Midland, Texas. Jaugblut, H. C., Tripoli, Iowa.

Kendig, E. V., Hayesville, Ohio; Kenyon, E. L., Chicago, Ill. Lord & Thomas, Chicago, Ill.; Listol Chemical Co., Chicago, Ill.

Mellier Drug Co., St. Louis, Mo.; Maxwell, Allison, Indianapolis, Ind. New York Post-Graduate Medical School, New York City; Newman, H. P., Chicago, Ill.; Northwestern University, Chicago, Ill.; Nowlin, A. Hutto, Texas; Nichols, M. M., Hupeland, Cal.

Portman, A. E., White Oaks, New Mexico; Peck, George, Elizabeth, N. J.; Pantzer, H. O., Indianapolis, Ind.; Parmele, Chas. Roome, New York City.

Ruth, C. E., Keokuk, Iowa; Rhu, A., Marion, Ohio; Rownd, F. L., Dighton, Kan.

Sternberg, Gen. M., Washington, D. C.; Scollard, J. T., Milwaukee, Wis.; Saunders, Enno, St. Louis, Mo.; Schadle, J. E., St. Paul, Minn.; Snyder, H. J., Macungie, Pa.

Trimble, J. R., Baltimore, Md.; The Dollber-Goodale Co., Boston, Mass.

Vernon Geo. W., Morehouse, Mo. Weer, H. H., Bluffton, Ind.; Weinbaugh, G. W., Fort Wayne, Ind., (2); Wyman, Walter, Washington, D. C.; Wilber, Geo. D., Denver, Col.; Welch, W. H., Baltimore, Md., (2); Wilkinson, Geo., Omaha, Neb.

Yoakum, F. E., Denver, Col.

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No. 17.

ORIGINAL ARTICLES.

THE NEW PHARMACOPŒIA.

Read in the Section on Materia Medica and Pharmacy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY JOSEPH P. REMINGTON, PH.D., F.C.S.
PHILADELPHIA, PA.

The wide-spread interest in the last revision of the United States Pharmacopœia, both in this country and abroad, and the fact that the AMERICAN MEDICAL ASSOCIATION and the American Pharmaceutical Association are especially represented in the Decennial Convention for revising the book, seem to be good reasons for the presentation in this Section of certain information regarding the work which may be of especial interest to physicians. The Convention which met in Washington on May 7, 1890, was by far the largest and most representative body ever assembled for the purpose of revising a National work of this character. All incorporated universities, medical and pharmaceutic colleges, medical and pharmaceutic State Associations and bodies connected with both professions with the United States Army, Navy and Marine-Hospital Service sent delegates to prove the interest which existed in providing a representative and authoritative guide for the selection and preparation of the armamentarium of the physician. The most important change recommended by the Convention was the entire abandonment of the antiquated, confused and unscientific system of weights and measures which has harassed the souls of pharmacists and physicians for centuries, and the acceptance of the metric system with the principle now thoroughly established in English-speaking countries of weighing solids and measuring liquids. This change received the almost unanimous vote of the Convention; the previous convention having largely paved the way for the action by adopting the principle of parts by weight in the Pharmacopœia of 1880. The fears that many expressed at the time, that the Pharmacopœia would not be accepted by pharmacists because of the introduction of the metric system have fortunately not been realized; there have been up to this time many more of the books disposed of than in any previous revision, and every day witnesses an increase in the number of pharmacists using the metric system in making preparations. There can be no question of the ultimate acceptance of the metric system, for its simplicity, conciseness and freedom from confusing characters must finally win the support of all.

The action of the Convention in excluding from the book those synthetic remedies which can not be produced otherwise than under patented process, or which are protected by proprietary rights has been probably more criticised from a medical point of view than any other.

It is difficult to convince those not engaged in commercial pursuits and not understanding the principle involved, of the evils which would follow if official sanction were bestowed on the immense number of remedies now exploited, and at present in favor with the medical profession. America has proved easy prey for the synthetic operations of European chemists who have flooded the country with their products which in many cases have realized enormous profits to the monopolies controlling them. One of the principal objects of a Pharmacopœia is to establish standards, to prove the identity and purity of the substances admitted; in order to make such operative, it is necessary to have more than one source of supply or manufacture. The manufacturer controlling a specialty is a law unto himself and can change the standard of purity of his product whenever he wishes. If the Pharmacopœia were to admit a proprietary remedy, and fix a standard of purity for it, and the manufacturer to suit any purpose that he might have in his mind chose to market an inferior product, no redress whatever could be secured. With all other remedies not so controlled, a preparation not conforming to the official standard may be rejected and a purchaser can buy a better article from other sources, but in the case of patented or proprietary substances the maker's authority is greater than that of the Pharmacopœia, and it would be a case of "take what I give you, or go without." If the Pharmacopœia of 1890 had given its official sanction to 50 synthetic remedies in common use, the Pharmacopœia of 1900 would probably have to admit 500 of equal standing, owing to the precedent having been established. Those who use proprietary specialties must take them on the *ipse dixit* of the maker, and stand or fall by what he chooses to give them.

The new Pharmacopœia contains now nearly 1,000 articles, 92 which were previously official having been dismissed, while 89 new ones have been introduced; the duty of deciding the admission and dismissals devolved upon the members of the committee who were physicians, it being the opinion of the general committee that they were the best judges of the relative importance and value of the various remedies in common use, while the pharmacists were better able to establish the standard of purity and contrive the formulas for the various preparations of the drugs which the physicians had selected. It will be readily conjectured that it was no easy task to determine upon the articles to be admitted and place the ban upon others which the march of progress had doomed to dismissal. To aid them in arriving at just conclusions, reports had been presented to the previous committee from various parts of the country, and from a number of incorporated medical and pharmaceutic bodies throughout the United States, and although a criticism like this is occasionally heard from a physician: "I never used in my life such

and such an article," it will undoubtedly be found that the substance in question is placed in the Pharmacopœia because it was shown to have been in demand in some part of the country; and the name on the title page of the book: "The Pharmacopœia of the United States of America" must be constantly borne in mind, for if this title is to be justified it must represent the demands of the whole country and not those of one particular section.

The history of the remedies in common use would, if written, contribute many pages of interest to members of both professions; many galenical preparations, for instance, trace their origin from some favored prescription of a well-known practitioner. A particular combination of remedies proving valuable to a physician is communicated to some of his friends and before long it has a local reputation; in time this extends beyond the city or town and it may, before its life-work is over, enjoy the distinction of admission to the National authority. Having been accepted in this way, it must not be supposed that its time of probation is over; it can not be said of it, in the language of the poet-laureate:

"Men may come and men may go,
But I go on forever."

A preparation remains in the Pharmacopœia only as long as it proves useful and until it is displaced by something better, but it often happens that preparations which have been of great service in the past and have been replaced in the more progressive centers of therapeutic knowledge can not be safely dismissed from the Pharmacopœia because of their extensive use in other parts of the country, which have not yet thrown off the old and taken up the new. These considerations must be taken into account before condemning the admissions or rejections. It is not within the scope of this paper to refer to that portion of the revision which especially concerns pharmacists, yet even a cursory examination of the work would indicate the amount of labor expended upon the chemical descriptions, assays, the experimental work upon the strictly pharmaceutical preparations and the botanic researches. The committee have been guided by a conservatism which, while holding fast to the proved and the true, has not been so obstructive as to prevent the acceptance of progressive subjects where these were justified by results.

It will doubtless be a source of congratulation to the members of this Section to know that financially the work has been equally successful, the plan of having the committee publish the work at its own expense, and then putting the price at as low a figure as could be afforded has had the effect of largely increasing the use of the book, and a sufficient balance has been left in the hands of the committee to expend for research work and for settling a number of mooted points for the next revision.

In concluding this brief summing up of the work performed in the revision of the last Pharmacopœia, it will not escape the observation of the members of this Section that the successful character of the work which has been done proves the necessity for the continued effort of those who have been laboring for years for closer scientific and professional relations between physicians and pharmacists; during the whole time of revision entire harmony has existed; the opinion of the majority has always prevailed, but the minority have always been given a respectful hearing and, in almost every case, after

thorough consideration was given a subject under discussion the minority cheerfully joined the majority. If such results proceed from the work of a committee, composed almost equally of physicians and pharmacists in a work of this important character, the question may be most pertinently asked: Why can not physicians and pharmacists solve in the future the many perplexing problems which confront both professions, by adopting the methods used in the revision of the Pharmacopœia of the United States of America?

THERAPEUTIC ACTION OF POTASSIUM PERMANGANATE.

Read in the Section on Materia Medica and Pharmacy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY H. I. JONES, M.D. L.R.C.P.

MEMBER CALIFORNIA STATE MEDICAL SOCIETY; SAN FRANCISCO COUNTY MEDICAL SOCIETY; AMERICAN MEDICAL ASSOCIATION.
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In bringing this subject before the Section it is not the object or aim of this paper to consider the relative value of this salt, but to present a summary of how we stand in regard to the advantage which may be derived from the application of it to the cure of disease. Singleness of action in a drug is as valuable as singleness of purpose in a man. The profession has become tired of empiricism; it is anxious to know the pathology of disease, because its therapeutics can then become rational.

Permanganate of potash is, as you all know, a dark purple prismatic crystal, freely soluble in water, forming a rich purple solution. It is often objected that permanganate of potash is so quickly decomposed on coming in contact with organic matter that its action is feeble and transitory; this objection can not be maintained, as in reality a very definite influence is exerted on the blood. When it is injected locally for the bite of a venomous serpent the poison is destroyed by a process of oxidation. Given internally in small doses, say two or three grains, well diluted, it exerts no irritating effect on the mucous membrane of the stomach, but if administered in a large dose, or in a concentrated form it produces local heat and a sense of burning pain. It was once stated that it can not act beyond the stomach, because its oxygen must then be appropriated by the organic matter contained in that viscus, but there is good evidence that it does produce a marked systemic effect. The investigations of Binz, of Berlin, and others, have cleared the matter up. Binz, in personally experimenting on the action of this salt, found his respiration deeper and easier, and a general feeling of well-being and exhilaration after medicinal doses, and attributes them to the liberation of nascent oxygen, or rather ozone, during its decomposition. Sydney Ringer and others have shown by their writings, the stimulating powers of this salt. In amenorrhœa, due to deficient activities, it promotes the function in a very remarkable degree. It is best adapted for those cases characterized by torpor and anemia.

Dr. Robert Bartholow, in his excellent clinical lecture some years ago, finds as the result of a large practical experience, that it is best given in the form of compressed tablets without any excipient. A small dose repeated at short intervals, a grain or two every half-hour until four to six grains have been

taken, is preferable to this quantity at one dose. When made into pills, care should be taken not to combine any vegetable or animal ingredient.

Permanganate of potassium is contra-indicated whenever an acute congestion of a general condition of sthenic reaction exists. It is obvious that a power which can stimulate the sexual apparatus, must when exerted in other directions, prove equally effective. From its irritating effect it must not be given in acute gastritis, but will be found of great value in chronic gastric and gastro-intestinal catarrh, accompanied by fermentative changes in the food. Eructation of gas and vomiting of yeast-like material are promptly relieved by the administration of this salt. The permanganate checks fermentation of food elements prone to this process. It promotes oxidation in the tissue undergoing metamorphosis. According to clinic investigation, uric acid in the urine is converted into urea. Physiologic deduction has shown that it is of great value in lithemia; the hepatic form of glycosuria.

Dr. Bartholow states that there is no remedy more effective for obesity and digestive disorders than this salt. I have myself, (some years ago, when in general practice) used it in functional amenorrhœa with brilliant success. I have also found it excellent in catarrh of the bladder to wash out that viscus. For the qualitative analysis of drinking water we found it an excellent companion when on the march in the East Indies; by adding a few crystals of this salt to the suspected fluid, it confirmed the information when the drinking water contained organic matter, by turning it of a reddish dirty color. As a bath in skin disease, it is found to act with great benefit, 1 gram to one bucket of water. It is of great value as an antidote in phosphorous poisoning. It acts by coming in contact with the phosphorus in the stomach and converting it into ortho-phosphoric acid (Bokar). As an antiseptic it is more desirable than corrosive sublimate, because it is non-toxic and has great oxidizing power and is a true disinfectant.

Recently, Dr. Moor, of New York, in the *Medical Record* of Feb. 17, 1894, publishes his clinical experiments. According to his views, morphin is rapidly oxidized by the permanganate even in the presence of peptones and albumen. He pronounces permanganate of potash a reliable antidote for morphin. He gives .60 to .90 dissolved in half a pint of water, repeated at intervals of thirty minutes. Cases are reported in the same journal from different parts of the country in which permanganate of potash is employed hypodermically. In the *Medical News* of May 5, 1894, a physician from Pittsburg, Pa., reports a case where a patient had taken two ounces and a half of laudanum, of unknown strength, three hours before admission to the hospital. In addition to the usual treatment including coffee, hypodermic injection of atropin, artificial respiration and so on, and when the case seemed hopeless, repeated injections of a half saturated solution, in doses of 8 grams were administered at intervals of half an hour; after the fifth injection the patient recovered. No doubt if such a powerful oxidizing agent as potash permanganate is brought in contact with morphin a mutual destructive reaction would take place, but the question arises does it follow into the blood after the morphin is absorbed? Can it have a physiologic as well as a chemic action?

Since writing my paper, I read an editorial in the

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for May 19, commenting on Dr. Moor's article. It states that "it is possible that when hypodermically administered although decomposed in the tissues, the nerve centers may be influenced by some of its products, but even so, it would not be permanganate *per se*, but something else that does the work."

"VIBURNUM PRUNIFOLIUM."

Read in the Section on Materia Medica and Pharmacy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY H. R. HOLMES, M.D.

PORTLAND, OREGON.

It has been said that drug medication is a popular delusion of the nineteenth century. In these days of polypharmacy, the value of a single drug can not be always satisfactorily decided. The commerce of drugs, too, suggests so rapid an introduction of new remedies that even the names of many are quickly forgotten.

It is rare that a remedy is discovered which will occupy an entirely new place in therapeutics. The reliable effects of remedies now being introduced and those, the actions of which are yet to be studied, will be proven, and yet seldom may it not be said that these can, at best, but substitute those whose offices have been faithfully fulfilled for long periods of time. Since we have so many drugs credited with such similarity of action surely choice will ramble, hence the reason that the true value of some of our most valuable remedies is at times not strongly emphasized.

Cerna considers viburnum prunifolium briefly among the new remedies and it may appropriately appear here, for Bartholow in his "Materia Medica and Therapeutics," published in 1886, neglects its mention, and H. C. Wood in his exhaustive treatise on "Materia Medica and Therapeutics," published as late as 1889, leaves it out entirely.

Although Dr. Edward Jenks in 1876, published his observations on "The Influence of Viburnum Prunifolium in Diseases of Women," and although before he had written of it, it had really only a reputation in preventing abortion, he invited the attention of the profession to its great value in all uterine disorders characterized by the loss of blood.

It is not my purpose to consider viburnum prunifolium or black haw botanically, more than to say that it is a beautiful shrub growing about as large as the common osage orange, and is said to flourish in the Southern States, east of the Mississippi, but it does not grow sporadically on the Northwest Pacific slope. Like the cinchona tree, the bark is the part which yields the medicinal virtues. It has a specific action on the female reproductive organs and is anti-menorrhagic and anti-metrorrhagic. Infusions and decoctions may be used, but in these days of refined chemistry there is a fluid extract which requires no further recommendation than its simple mention. Parke, Davis & Co's. fluid extract is the preparation which I have mainly relied upon, but their compressed pills and tablets of the solid extract have also attracted my notice, and I shall proceed to prescribe them, providing they prove particularly pleasant to the palates of patients.

The liquor sedans containing black haw, golden seal and Jamaica dogwood combined with aromatics, is

an excellent preparation, to which in certain cases, ergot may be profitably added.

My practice, all things being equal, is to prescribe black haw to prevent abortion; to control menorrhagia and metrorrhagia from uterine fibroid or edometrial fungosities; as a sedative in ovarian congestion and its ordinary consequences, etc., and too, in almost all kinds of pelvic irritation, congestion and inflammation. May I just here inject the remark that had Hodge, a quarter of a century ago, known the value of our remedy, he would have been gratified by its influence in the treatment of what he termed "irritable uterus." Not willing to suggest to what class this remedy more properly belongs, I desire to consider it from a purely clinical point of view and will proceed at once with the narration of a few illustrative cases:

Case 1.—Mrs. M., age 30; married eight years; called me in January, 1892; had within last six years aborted four times at fourth month; general appearance healthy; about four months advanced in pregnancy; within last two hours had a smart uterine hemorrhage as was usual about this period in her gestations. Ordered patient to bed, and prescribed a drachm of fluid extract viburnum every hour until three doses were given. Within three hours all hemorrhage had ceased; a week later the patient was walking about, taking a dose of her medicine three times a day, which she continued about a week longer. Two months later patient had another similar attack with similar result on same treatment. The forward march of her gestation was without remarkable event, and in June following she was delivered of a healthy male child.

Case 2.—Mrs. S., age 29; married one year; called March, 1893; had metrorrhagia for three years to the extent of keeping her in bed half the time. Thorough examination resulted in diagnosis of submucous fibroid of uterus, size of hen egg. Squibb's fluid extract of ergot was given ʒj, *ter in die* for two months, while patient was kept in bed with very little perceptible effect on quantity of flow. A drachm of fluid extract of ergot with the same amount of liquor sedans being prescribed daily the patient who had been bed-ridden for half the time for nearly three years, within a fortnight was able to be up and about and is now enjoying what she calls good health. At menstrual times the flow lasts four days and is about right in quantity. Sometimes when undergoing unusual fatigue about menstrual time, the flow increases although the remedy has excepting then been discontinued. She has learned on such occasions to rely on her tonic as she terms it and so far it has checked any undue freedom of flow. So much for viburnum prunifolium so far in this case. To be sure this patient may in time to come need Apostoli's electrical treatment; she may require oöphorectomy, or Martin's operation of ligation of the uterine arteries, or hysterectomy, but these propositions are at least deferred.

Case 3.—Mrs. B., age 22; consulted me August, 1892; began menstruating while racing for a prize at college six years ago and eight months following a severe spell of scarlet fever. Soon after, though her memory is not precise on this point, she found herself irregular in her turns and has been so ever since, but for the last three years has flowed very freely about every three, four or five weeks; the period lasting usually as long as eight or ten days. Examination shows a retro-displaced uterus, a granular erosion about the os uteri, a conoidal cervix and pruritis ani. Patient was advised to take ether and allow the conoidal cervix to be treated surgically as well as the endometrium to be curetted, for chronic endometritis had been diagnosed and dilatation of the sphincter ani was also proposed. However, as the extremely nervous state of the woman made her regard any mention of operative procedures with intense dread, she was put on the following prescription:

| | | | | |
|---------------------------------|-----|----|--|----|
| R. Ext. ergot fld | ʒvj | 24 | \| | M. |
| Ext. vibur. prun. fld | ʒjj | 64 | | |
| Tr. nucis, vom | ʒjj | 8 | | |

Dose: A teaspoonful three times daily. Within three months a steady improvement had announced her relief from anemia; menstrual flow was not excessive or painful; the rectal congestion and pruritis ani had subsided. Early in 1893, Mrs. B. became pregnant and in November was delivered of a healthy male child. The sphincter ani and

recto-vaginal septum for an inch and a half above it were torn. These have, by surgical interference, been repaired and the patient appears to be in good health.

Other cases could be cited, but the variety brought forth, it is hoped, will serve sufficiently to illustrate the therapy of this valuable remedy.

SOME OF THE USES OF CHLORALAMID.

Read in the Section on Materia Medica and Pharmacy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY CHARLES C. BROWNING, M.D.
HIGHLAND, CAL.

So many excellent and exhaustive articles have been written regarding the use of chloralamid since its introduction, that I will confine myself to a brief mention of observations in regard to a few conditions in which it has been reported of value to others and proven as such to myself. In one condition I go more into detail, because I have not seen a report of its having been used in this condition by others. Its utility is favorably reported in several conditions not herein mentioned.

I began the use of chloralamid in 1890 while a member of the medical staff of the New York City Asylum for the Insane, and have used it with satisfaction in the following conditions, viz., neurasthenia, hysteria, pleuritis, phthisis, typhoid fever, melancholia, mania, dysmenorrhœa, epilepsy and disorders due to organic diseases which were not accompanied by an extreme degree of nervous excitement or pain, especially in diseases of the digestive and genito-urinary systems. I have also used it with good result in irritable condition of the nervous system due to cigarette smoking.

I have frequently had it happen, that in cases of neurasthenia several nights' sleep would follow the administration of a single dose.

In typhoid fever I have found it especially advantageous on account of the absence of any depressing influence on the circulation, and it was suggested by Dr. Clevenger, of Chicago, in a paper published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, March 10, 1894, that we have "an almost wholly nutrient hypnotic in the compounding of chloralamid,"—that is, one which supplies material which has been exhausted in the nerve centers. This quality materially adds to its usefulness in a disease accompanied by such great exhaustion. I have seen convalescence established after a few hours' rest procured by a single dose, when other drugs had failed in doses which were regarded safe. The delirium which had previously existed would be absent on awakening, the temperature reduced, the pulse approaching the normal and sleep would again come without the aid of hypnotics.

In melancholia accompanied with hallucinations which produce only a mild degree of excitement, and in the mild forms of mania, chloralamid has proved useful in my hands.

In these cases, which had frequently required some hypnotic every night for a long time, or get no sleep during the night, I have been able after using chloralamid for several successive nights, frequently to suspend its use for several nights and the patient still sleep well. In most cases I have at least been able to gradually reduce the dose. In cases where I have used it for several months continuously, I have noticed no ill effects on its withdrawal. This class of cases usually require from 30 to 40 grain doses. In

cases of melancholia with frenzy and mania, cases attended with much excitement, chloral hydrate is more satisfactory on account of its more rapid and decided action.

In nervousness accompanying disorders of the uterus and its appendages, I have found 10 or 15 grain doses taken after each meal to reduce the nervous irritability during the day, and rest at night to follow without any unpleasant symptoms.

I have not had opportunity to test its curative powers in the treatment of epilepsy, although its use in this connection has been suggested. However, I used it in one instance in which it appeared to exert marked influence in controlling the seizure; a summary of the case will give a better idea of the results obtained:

Patient, female; age 42 years. Was in the epileptic ward of the New York City Asylum for the Insane. Had been an inmate of the institution for seven years. Had been subject to epilepsy since childhood. Convulsions usually occurred in groups of ten or twelve in twenty-four hours, after which she would not be affected for several days or weeks.

Jan. 15, 1891, had nineteen convulsions which always began on the right side of the face, extended successively to the right side of the neck, right arm, right lower limb, and finally became general. They were always accompanied by a cry and complete loss of consciousness. The pupils remained unchanged. The character of the convulsions was such as to point to cortical irritation. January 16, there occurred sixty-one convulsions of the same character as above described. After about forty-eight hours the convulsions were confined to the right side of the body. This continued three days longer, after which they were confined to the right side of the face and neck. While the convulsions had become less extensive they had become more frequent in spite of numerous remedies employed, until the 25th inst., when between the hours of 7 o'clock A.M., and 7 P.M. there occurred 150 convulsions. During this day she took 2 drachms of chloralamid in six doses. That night she slept from 8 P.M., until 6:30 A.M., and had no seizures. The pulse and respiration were normal, notwithstanding her exhausted condition.

On awakening the convulsions reappeared with less frequency at first, but gradually became more frequent until during the twenty-four hours from 7 P.M. of the 28th inst., until 7 P.M. of 29th inst., there occurred 447 seizures. Patient was very much exhausted and as she would partly regain consciousness, would murmur, "so tired, so tired." Chloralamid was again administered. This time half drachm doses were given every six hours. After the second dose she slept about one hour, during which time the convulsions ceased. They commenced immediately on awakening. After third dose she slept three hours. After sixth dose the patient slept six hours, until awakened. The chloralamid was continued every six hours in same doses. On being aroused would answer questions rationally, say she had had a good sleep and was getting rested. Continued to have convulsions when awakened which grew lighter and less frequent until February 3, when they ceased, having had 3,242 convulsions in eighteen days. After resuming the use of chloralamid the convulsions occurred as follows, to wit: On the first day 168; the second 143; the third 95; fourth, 22. She was kept sleeping continually three days longer, making five days in all, she had slept, excepting when aroused every six hours.

At no time was there noticeable any depression of the circulation or respiration. She would at all times answer questions rationally, eat what was prepared for her and attend the calls of nature when aroused. Secretions appeared normal. About twelve hours after taking last dose she awakened of herself. Complained of slight headache. Was drowsy during the day and slept well the following night. Next morning awoke feeling refreshed and rapidly regained her former health.

I have not had opportunity to again test the drug in this manner as I was compelled, on account of ill health, to sever my connection with the institution, and have since been able to engage in practice to a very limited extent until recently.

Much depends on the manner of administration of chloralamid, and to this may be attributed a portion,

at least, of the disappointments experienced by some in conditions which have been reported favorable to its use by others.

The dose as generally stated is from 1 to 3.50 grams for adults. I most frequently begin with a small dose and increase as I find necessary to produce the desired effect. Sleep usually follows the administration of the proper dose in one or two hours and is of six to eight hours' duration. If a feeling of lassitude follows, it is probable that a smaller dose will suffice and be free from any unpleasant symptoms.

It should be administered dry only when stomach digestion is good. It should then be given in a fine powder, not in the crystals in which it occurs in commerce, and immediately after the ingestion of food, while the contents of the stomach are acid.

Good results have been obtained by administering it with an alcoholic beverage during the interim of digestion, but this mode is less reliable. When administered in powder it should be placed dry on the tongue or in capsule and washed down with water, whisky or wine. The only advantage in giving it in powder is to avoid the taste, which is neither very disagreeable or persistent.

The preferable manner of administration is in solution. It may be dissolved in alcohol in proportion of 1 grain to 1½ minims. It is slowly dissolved in water and more readily in water to which about 3 minims of dilute hydrochloric acid to each 1 gram of chloralamid to be dissolved has been added. These solutions may be diluted with water or other agreeable vehicle for administration. In no case must it be dissolved by aid of heat or administered in hot liquids. It is incompatible with caustic alkalies and the alkalin carbonates.

As compared with chloral hydrate, it may be said that chloral is more rapid and powerful in its action and is to be preferred in cases attended by extreme degrees of pain or nervous excitement, notwithstanding its well-known disadvantages. Chloralamid is safer, less disagreeable to the taste, free from disturbance of the circulatory and digestive systems, and free from depressing after effects. Sulfonal is followed by more languor and general depression.

In conclusion, I desire to quote approvingly from the excellent paper of Dr. Clevenger before referred to, regarding its hypnotic action:

"It would be folly to expect that any single remedy for insomnia would be available in all instances, for just as sleepless states may be caused by any of the multitude of maladies to which the body is liable, so must there be numerous appropriate measures of relief, when relief is at all possible. The advice, to seek and remove the cause of sleeplessness is sensible enough, though in too many instances the cause is only conjectural. Nevertheless, a rational system of hypnotic use can be secured on a physiologic basis, and with far more satisfactory results if we duly regard the cause of the loss of sleep and existing bodily conditions. For example, a dose of ergot in some hyperemic states may relieve pain or cause sleep by lessening the vascular tension upon which these disabilities depended. A hot bath may distribute the circulation and act derivatively upon organs which, when congested, caused the distress and wakefulness. Massage acts similarly when scientifically applied, and when unskilfully made use of may add to the discomfort; for example, if derivation from the head is set up by massage it will

relieve cerebral hyperemia, but add to cerebral anemia, so this method must be resorted to with full knowledge of the physiologic results aimed at.

"In a general way, we may classify hypnotic action as accomplished by derivation, such as by removing irritative quantitative causes; by elimination of quantitative or qualitative causes, as of some toxic agent; reconstructive action by re-supplying parts in states of defective nutrition; sometimes by minimizing activity until rehabilitation can overtake waste with supply; by restoring normal function as with digitalis or alcoholics. The least desirable of all methods being such as merely stupefy and overload the circulation with effete or poisonous material through interfering with elimination, or by destructive changes induced in nerve tissues or the blood upon which the nerves depend for sustenance.

"So eliminative functions should be kept in good repair, if possible, when almost any kind of a hypnotic is given, particularly such as are likely to add some toxic material to the system; but the ideal sleep procurer would be one that abstracted nothing from the nervous system that it contained normally, nor added thereto anything deleterious; and as sleep is a process of repair or feeding of the nerves and their ganglionic centers, still more effective would be whatever caused sleep by repair of such waste; and unless credible evidence to the contrary appears in the course of time, we are in possession of such a hypnotic in chloralamid."

PRESCRIBERS AND DISPENSERS.

Read in the Section on Materia Medica and Pharmacy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY W. M. SEARBY, Ph.C.

SAN FRANCISCO.

The courteous invitation given by the AMERICAN MEDICAL ASSOCIATION to the American Pharmaceutical Association to be represented by delegates at this important gathering and the further courtesy of requesting some of these delegates to read papers, would seem to indicate a generous out-stretching of the hand on the part of your ASSOCIATION toward ours. On behalf of the American Pharmaceutical Association I accept, therefore, the proffered hand, and reciprocate the desire for more cordial relations between these two branches of science and art—medicine and pharmacy. And I avail myself of this opportunity to make an effort in the direction referred to; for it is not to be denied that, while professedly friendly, and actually so in the main, there is yet a good deal of friction at certain points, and unfriendly remarks are sometimes heard, and ungenerous actions indulged in by members of these two great bodies toward each other. Occasionally these expressions find their way into the journals, but more frequently they are not out-spoken and therefore can not be replied to by the party who might feel aggrieved thereby. The proper way to deal with wrongs, real or imaginary, is to look at them dispassionately and if possible to let the injured parties meet and frankly discuss whatever differences there may be between them.

Medicine and pharmacy are so dependent upon each other that they should go hand in hand, and should not allow minor differences to alienate them from each other. It has seemed to me that of late the tendency has been more than ever towards an un-

friendly feeling between the members of the two professions. Physicians of prominence are known to be so inimical to pharmacists, as to openly advocate doing away with drug-stores altogether, and I have heard pharmacists, accomplished men, who for a life-time have scrupulously kept those ethical observances which are due to physicians, declare that in their opinion doctors cared nothing for druggists and would "down" them if they could. Recently a prominent medical journal has thrown out a hint that doctors might stock their offices with ready-made prescriptions as a kind of retaliation upon druggists for prescribing. As an offset to this, graduates in pharmacy finding that they can not obtain their share of prescription business without paying commission which they can not conscientiously do, are taking degrees in medicine in order to practice both professions, still further crowding medicine without relieving pharmacy. It seems to me that this tendency from two opposite directions, to unite the practice of medicine and pharmacy in the same individual is a retrogressive movement; and I venture to suggest that a more dispassionate view of our respective grievances is necessary if we would check the evils of which we complain.

Let us consider, then, in the first place, who should prescribe medicine? Upon this point there can be no two opinions. The physician by his knowledge of *anatomy, physiology, pathology*, and the other branches of medical science in which he has been educated, is the only competent person to diagnose disease and to prescribe treatment. But is he the only one who does prescribe? By no means. Many people prescribe for themselves, and if they are told the same truth concerning medicine, that has become proverbial as applied to law, namely, that he who is his own doctor has a fool for his patient, they are apt to become indignant and reply that they know what they are about. There is another large class of persons who take pleasure in prescribing for their friends, and these persons again can not be made to believe that, so far as the case in hand is concerned, they do not know more than all the doctors. The evils of such prescribing as this can not be reached by codes of ethics or by any measure of reform instituted by physicians and pharmacists.

But there is a certain amount of prescribing done in drug-stores by men who lay no claim to a medical education, and whose practice in this regard can not be defended. Reputable pharmacists, as well as physicians, are anxious to see this irregular practice abated, as it is an infringement upon the province of physicians and therefore unfair, and also has the effect of lowering pharmacy in the esteem of the public as well as of physicians. In what way can this counter-prescribing be lessened? I suggest in the first place that it can not be checked by scolding or by retaliation, but rather by cultivating more cordial relations between the two professions, and by a certain degree of concession on both sides. It is to be borne in mind that any retaliatory measures adopted by physicians in this matter will affect the reputable pharmacists who are not doing the counter-prescribing, while those who are transgressing will not be affected thereby.

It is not to be forgotten in a discussion of this question that some physicians are inordinately sensitive on this subject, so they would prohibit the dispensing of almost all drugs and medicines that are

not ordered by physicians. Whatever our views of the case may be, whether we like it or dislike it, the fact can not be denied that the American people will not submit to such stringent regulations. You can not compel an American citizen to employ an architect when he wants to build a dog-kennel. In regard to the use of drugs and medicines they feel themselves free to consult a physician or not, according to their own judgment, and can not be driven into it, by the combined efforts of all the doctors and druggists in the country. Again, those who have had much experience behind the counter in a drug store, will bear me witness that even when there is the most conscientious and scrupulous regard for the rights of physicians and the most painstaking adherence to medical ethics, it is still impossible to answer many of the questions that are daily put to the druggist in regard to the nature, property and doses of medicines without appearing to suggest the use of certain ones in specified cases. Not only is the druggist consulted in regard to disinfectants, antiseptics and many other hygienic and remedial agencies, but his opinion is frequently asked in regard to the nature, use and doses of drugs, the best method and time of administration, etc. A refusal on his part to give the desired information would be attributed by the majority to ignorance, and by the remainder to boorishness. As a business man he can not afford to allow his patrons to leave his store with any such misapprehension concerning himself or his establishment. Furthermore, there are a few slight ailments which the public absolutely expect a druggist to prescribe for, which do not partake of the nature of medical treatment, since the patient diagnoses his own case, such for instance, as a morning headache, slight bruises or trifling injuries; in fact, any such ailments as people are in the habit of prescribing for themselves. The druggist, when requested, is expected as a matter of course to suggest a remedy, and there is no more thought of medical treatment than when a bar-keeper mixes, a "pick-me-up," or a shoe dealer selects for you a shoe that will not hurt your corns. When physicians interpret ethical relations so rigidly as to prohibit druggists from performing these trifling courtesies for their customers, they widen the breach between the two professions, having no experimental knowledge of the injury the pharmacist does himself if he declines to render this service. The conscientious druggist is between two fires. On the one side are customers expecting information which he could readily give, and abundantly satisfied that any advice he might offer would be given rather as a friend than as a medical adviser. On the other side stand the medical profession jealous to a degree, lest by giving any advice whatever he prevent the applicant from consulting a physician. He has to fall back on his common sense, which will lead him to gratify such requests as are reasonable in the direction I have intimated, and yet to avoid assuming the functions of a medical man.

If we now ask the question, "Who shall dispense medicines?" the answer is no less positive than that given to our first query. The pharmacist is the proper dispenser of medicaments. This statement will bear no more qualification than my previous assertion that the physician is the proper person to prescribe. And yet there are circumstances in which physicians may dispense medicine with advantage to themselves and their patients. Common sense again puts in a

plea and prevents a too rigid application of the general custom of separating prescribing from dispensing. It is necessary for the doctor in some cases to secure immediate relief for the sufferer, and so the pocket case and hypodermic syringe are his constant companions, more frequently used than the surgical instruments which were formerly his chief or only *vade mecum*s. The greatest stickler for the keeping apart of medicine and pharmacy can not raise any valid objection to a physician having in his office or in his residence a few remedies for emergencies, nor is a doctor to be classed among the old fogies because he chooses to control the use by his patients of such drugs as morphin, chloral hydrate and cocain, by dispensing these himself in tablet or other convenient form, so long and so long only as the need of their use exists. Other cases will suggest themselves to the minds of those present, where physicians may advantageously dispense remedies for temporary use. But these exceptions to the general rule do not constitute an argument for the abrogation of the rule itself.

The drift of the times in all professions and businesses is toward specialism. Particularly is this the case in the practice of medicine in which we have almost every organ of the body a subject of special study, and every class of diseases treated by specialists. If the study of medicine is so large, so vast, so difficult, so comprehensive, that no man can accomplish it all, why should the physician seek to add to his already over-burdened curriculum a knowledge of pharmacy? Medicine can not be correctly dispensed without an underlying knowledge of chemistry, pharmacognosy and pharmacy to a degree that is quite beyond the attainments of the average physician, I think I might say, of any physician, who at the same time keeps himself abreast of the times in his own profession. The sciences upon which pharmacy is dependent are advancing with strides no less marked than those of medicine. Pharmaceutic manipulations and processes are continually being improved, and these improvements are largely dependent on a better knowledge of organic chemistry and of the constitution of drugs. Busy pharmacists even find it difficult to keep pace with the times both in these branches of knowledge and in the improved methods of administration; how then shall a physician, already overburdened with his practice, keep himself up in these studies?

Strictly speaking, then, physicians are the only ones who should prescribe. Any deviation from this rule, such as I have hinted at, would only apply to trivial, common, every-day experiences, and the pharmacist should always use his influence as far as he can, not only to avoid prescribing himself, but to dissuade his customers from doing the same. He should seek to check the pernicious habit many persons have of repeating their own prescriptions *ad infinitum*, and particularly of allowing these same prescriptions to be repeated for the benefit of other people, "friends of the family," and so on. A great injury is often done to physicians by this practice, and it must be admitted that where the medicine is not of a dangerous character, such as preparations of cocain, morphin, chloral, etc., druggists are not as careful to prevent repetition as they ought to be in justice to the doctors. Only by a more friendly relation between them can this habit be checked.

But while holding that physicians should do the

prescribing and pharmacists the dispensing, I would call your attention to the fact that much of the prescription-making and compounding is done by a class of persons who are enemies of both physicians and pharmacists. I refer to the large army, which is daily increasing, of proprietors of pharmaceutical specialties. This class of persons are not owners of corner drug stores or physicians in legitimate practice, but wealthy corporations and private individuals who trade upon the weaknesses of humanity, particularly upon those of physicians. Able to command unlimited capital, they hire physicians to act as decoy ducks to bring other doctors within range. Their immense wealth and patronage enables them to subsidize medical journals, if indeed they do not own them outright, and by the power of money and plausible presentations and representations enlist a large portion of the medical fraternity in their service. Playing upon the ignorance of some, the indolence or recklessness of others, they have succeeded in bringing the practice of medicine in the United States to such a pass that the modern druggist's prescription-file is a curiosity, owing to the large percentage of orders for special preparations, many of them of unknown composition, most of them made by unknown processes. If these preparations were any better than those made by the intelligent pharmacist, surpassing the latter either in their purity or elegance, there would be some reason why physicians should so commonly prescribe them; but as a class the articles I refer to are in no way superior to similar preparations made by reputable pharmacists. There is some slight excuse for their prescribing by name certain polypharmic remedies because the trouble of writing out a long formula is of some consequence to a busy man, but the days of polypharmacy are passing away, and many of the prescriptions for special preparations call for one article only. A lazy prescriber is a good subject for the medical drummer, but the latter has a better friend in the ignorant one, who is content to let the manufacturer of pharmaceutical specialties do his prescribing for him. This class of men, with one stroke of the pen write a prescription, copying the directions from the printed circulars with which they are so abundantly supplied. Medical men generally are fully aware that this class of prescribing is injurious to the druggist, whose profit on such prescriptions is no larger than the drygoods man's profit on dress goods, notwithstanding the responsibility the druggist has to bear, arising from the powerful nature of some of these medicines.

I do not wish to be understood as objecting to a physician's specifying the name of the maker of a few articles that are of superior quality to those usually made by good pharmacists, nor to such as by their greater attractiveness in appearance, taste, etc., make them more acceptable to the patient. It is the province of the pharmacist to aid the physician to overcome the repugnance many persons have to nauseous doses and nasty local applications, by preparing medicaments so as to be as agreeable as possible without sacrifice of effectiveness. I am objecting to secret or semi-secret preparations with copyrighted names, and to the thousand and one ready-made elixirs, syrups, solutions, etc., most of which are no better than those made by any good pharmacist. Physicians are not generally aware of the injury they do themselves by sending out such pre-

scriptions. Any druggist who will be candid enough to admit the whole truth will bear me witness that a large portion of their more intelligent customers soon find out that their prescriptions in such cases call for a ready-made compound, the name of which they find some means of ascertaining. Should the medicine prove beneficial, they not only take it themselves on future occasions when similarly affected, but recommend it to their friends. Soon these specialties, which are practically patent medicines, secure a large sale, chiefly through the influence of physicians who were the first to introduce them favorably to the public. When this has been accomplished, the proprietors usually cease catering for the patronage of physicians exclusively, and advertise their wares indiscriminately like any other quack medicines. Thus, in one way or another such preparations as Scott's Emulsion, Fellows' Syrup, Bromo-caffeine, Listerine, Bromidia and many other compounds, some of them harmless and some dangerous, have passed out of the hands of physicians and are bought by persons who use them without medical advice. These are not poor people, but mostly of the well-to-do class, who are able to pay the doctor's bill, and who when sick do not think of asking a druggist for advice.

Now where is the necessity for a physician prescribing such compounds? Does he not know enough of materia medica and therapeutics, of the properties and doses of medicines to select his own remedies? Of what avail is all his instruction in these branches of medical education, if, when he engages in practice he lets the patent medicine manufacturer or the manufacturing pharmacist do his prescribing for him? And of what use to the pharmacist is his education in pharmacognosy, chemistry and pharmacy, if he has nothing to do when putting up a prescription but to count out a few ready-made pills or hand out a bottle of ready-made elixir?

The professions of medicine and pharmacy are both suffering from the inroads that are being made upon them. The outlook for both is discouraging. The young practitioner is shut out from practicing among the poor, by dispensaries and clinics that are now doctoring millions of patients every year, who have no right to claim eleemosynary service of this kind. He can not get practice among the rich because he is unknown; the wealthy preferring to employ eminent physicians for whose services they are well able to pay. So the young medical graduate waits, and waits, often eking out a precarious existence, "living as a gentleman on forty pounds a year." The pharmacist's legitimate occupation is already invaded by the substitution of ready-made pharmaceuticals of every kind, by the free dispensaries and clinics, as well as by the fraternal societies who furnish medical attendance for a song and medicines at cost. Yet, while both professions are already injured and still further threatened we are ready to quarrel over trifles, when we should join hand in hand for material advances against our common foes. Once more, let me plead for a little common sense. Let us stop our quarreling about trifles and come to some agreement whereby, in a general way we can defend and protect each other. Let physicians be careful about prescribing pharmaceutical specialties, let them frown upon the unprofessional puffing which these preparations receive in the medical journals. Let us see that dispensaries and

clinics are not abused, to the despair of the young practitioner and the grievous injury of the drug trade. On the other hand, let pharmacists be more cautious to avoid exercising the functions of physicians by declining to give advice when asked for it, except in most trivial matters. In fine, let physicians and pharmacists observe the Golden Rule, and their relations will be more pleasant and their calling more profitable.

DISCUSSION.

DR. F. E. STEWART, of Watkins, N. Y.,—called attention to the fact that pharmacy as now conducted in this country is a trade and not a profession, and therefore can not be recognized in scientific and professional bodies. It was his opinion that pharmacy should drop all claim to proprietaryship in its preparations; it should publish its working formulæ, and do away with secrecy. When they do this, pharmacists could be recognized as professional men, and secure a standing in scientific and professional circles. He also called attention to a paper of his own on the same subject, entitled, "A New Medical Specialty," published in the *Medical and Surgical Reports* for 1880, or thereabouts. In this paper, he had maintained that pharmacists should graduate in medicine and then practice pharmacy as a medical specialty. If pharmacists would graduate in medicine and practice pharmacy in a professional manner, then they could join the Section on *Materia Medica* and Pharmacy of the AMERICAN MEDICAL ASSOCIATION, and we would have a Section worthy of the name. Some time ago the *Druggist's Circular* published a paper of mine entitled, "Is Pharmacy a Profession or a Trade?" A prominent firm of pharmacists in Baltimore read this paper and determined to start a pharmacy run on the principles therein enunciated. They did so, eliminating from their business the proprietary medicines, fancy goods, soda water, cigars and other things not belonging to the pharmacy. The success of this firm has been remarkable, and it has secured the indorsement of the entire medical profession of Baltimore.

DR. FRANK WOODBURY, of Philadelphia,—said that there are tradesmen in all professions, and that in pharmacy just now the question is: "Who shall rule; the tradesmen or the professional men?" He was glad that the American Pharmaceutical Association had accepted the invitation of the AMERICAN MEDICAL ASSOCIATION to send a delegation each year to this Section on *Materia Medica* and Pharmacy. There had been too much neglect of pharmacy during the past in medical schools. There is even at present such ignorance of pharmacy upon the part of physicians that their prescriptions are the laughing-stock of the pharmacists, on account of the ignorance displayed, both of pharmacy and chemistry. On the other hand, pharmacists exhibit much ignorance of the physician's responsibility by their willingness to prescribe. There are many little things the pharmacists might do to aid patients who come to their drug-stores for help, but when a patient comes in the store and calls the pharmacist "doctor," and asks him to prescribe, he should at once repudiate the title and frankly say that he is not a doctor but a pharmacist, and refuse to take the responsibility. Whether physicians should dispense their own remedies or not, is a question that must be answered by circumstances. The custom of physicians dispensing their own remedies is not an improper one but it has been a failure as the rule, in the large cities, but in the country, where the facilities for dispensing on the part of the pharmacist are poor, it is a different matter. I would have the pharmacists study medicine so that they can appreciate the responsibility of the physicians as prescribers, and then they would do well to refuse to prescribe, but adhere strictly to

their specialty of dispensing medicines. This would solve many difficulties. In some countries, the pharmacist and physician is combined, notably so, in Central and in South America. Young graduates in medicine, educated in both departments, might practice both for a time until established, and then branch off into either specialty as the circumstances directed.

The firm referred to by the last speaker have won the respect of the medical profession of Baltimore beyond their expectations. The friendly feeling for this house manifested in that city is a strong argument in favor of the idea that the ordinary pharmacist is an enemy to the physician. In England they prosecute through the medium of the pharmaceutical societies, those pharmacists who prescribe over the counter, the practice being forbidden by law under severe penalties.

SERTHERAPY; INOCULATION WITH SERUM IN TYPHOID FEVER.

A CASE FOLLOWED BY RECOVERY.

BY ALFRED C. GIRARD, M.D.

MAJOR AND SURGEON, U. S. ARMY, FORT SHERIDAN, ILL.

The treatment of various disorders with toxine inoculations is as yet in its infancy—it may turn out to be a fallacy. It can not be denied, however, that it has in a number of well-authenticated instances achieved remarkable results, and there is sufficient justification for its use, at least in sickness where all the usual remedies have proved unavailing.

When a number of such cases shall have been collected in the literature, establishing favorable effects, this method of treatment will find more general introduction and the statistics of a larger number will then assign it its proper place. This is my reason for publication of this case:

J. F. H., aged 23, after two weeks of prodromal symptoms—headache, general aching, irregular chills followed by short attacks of fever, loss of appetite, was admitted to hospital with a temperature of 103.4, severe headache, loose discharges, heavily coated tongue, roseola over abdomen—a marked case of typhoid fever, result of common infection with twenty others under my care.

After a week of gradual defervescence, the temperature rose to nearly 106, with general aggravation of all the symptoms, especially a large number of alvine discharges, and remained, with slight irregular defervescences due mainly to application of cold and to antipyretics, in the neighborhood of 104 degrees for two weeks. The countenance became pinched and dusky—profuse sweats several times daily—total loss of consciousness with muttering delirium and subsultus tendinum—involuntary discharge of urine and feces. Dissolution appeared only a question of hours.

The treatment had been the usual one, successful in twenty other cases of the same epidemic, excepting one case of perforation.

In this extremity I determined to give the patient a chance with inoculation of serum, as reported by W. E. Hughes and W. S. Carter in their paper on "Injection in Pneumonia and Typhoid Fever of Serum from Convalescents," in No. 6 of the *Therapeutic Gazette* (June 15, 1894), to which I refer for the rationale of the treatment. They report only three cases, of a rather mild type, with injections on the twelfth day, (in two of the cases repeated twice on succeeding days), with steady defervescence resulting.

The serum was obtained either by venesection or by blistering from convalescents, in whom somewhat less than two weeks had elapsed since the end of fever.

I selected a convalescent who, after a typical case of typhoid had been free from any "temperature" for seven days. The skin was carefully disinfected and a blister raised with cantharidal plaster, from which eight cubic centimeters of serum were received into a sterilized test

tube. This was injected subcutaneously in the abdominal skin of my patient.

No immediate marked effect was expected or observed in the general condition, but the temperature rose no more than up to 102, except the second day, when it rose to 102.8, but fell to 100.5; the third day it rose to 103.4 and fell to 100.5; the fourth to 101.8 and fell to 98.4; rose again to 101 on the fifth day, and thereafter with slight changes remained normal. The patient gradually recovered consciousness and is now, nineteen days after injection, although extremely reduced after his fearful ordeal of twenty-seven days of fever, on a fair way to recovery.

This may be a case of *post hoc, ergo propter hoc*; but on the other hand it may be an additional evidence in favor of the toxine treatment.

There seemed to be no agent at work, outside of a dispensation of Providence, to account for this steady improvement at that particular time, and the result appears to be as clear as most clinical observations.

NOTES ON LITHIUM.

BY ENNO SANDER, Ph.D.

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When Augustus Arfvedson, a Swedish student at Upsala, presented to his friend and teacher, the celebrated Berzelius, the new substance that he had separated from the rare granitic mineral *petalite*, found at the mines of Utoë in Sweden and which he had determined to be an alkali, he requested Berzelius to suggest a suitable name for it. After much thought, they finally decided to call it lithium (Greek, *lithos*, a stone), because it was the first alkali that had been obtained directly from the mineral kingdom.¹

Lithium, symbol *Li*, the elementary substance, appears as a silver white, soft metal, whose specific gravity is only 0.59 or about six-tenths the weight of water; it is consequently the lightest of known metals. Its chemical equivalent is 7, and its atomic volume 11.9. In the spectrum it is recognized by a beautiful bright red line.

While lithium does not occur free in nature, it is found in a certain class of micas, ingredients in the primordial rocks,² in company with its congeners, potassium and sodium. The composition of these micas is more or less definite and consists, in the main, of aluminium, the alkalies (lithium, sodium, potassium, and even caesium and rubidium), small quantities of iron, and manganese combined with silica and fluorine. Where, however, aluminium is replaced by iron or manganese or both of them, phosphoric usually replaces the silicic acid; as, for instance, in amblygonit, lithiophilite, triphylin, etc. The lithia micas which are found in the granitic rocks of New England have been fully described by F. W. Clarke, of the United States Geological Survey,³ whose report contains also a number of analyses of the most important specimens. They are met with all over the world, although seldom in sufficient quantities to render the extraction of lithium profitable. These granitic rocks become gradually disintegrated under the combined influence of water and the atmosphere with their accompanying gases, and the ingredients rendered soluble by the influences named are leached out, and the solutions stored up to reappear in mineral springs. These, flowing into brooklets and thence into rivers, finally reaching the ocean, permeate the alluvial soil, and from this are taken up by growing plants. From the latter they

pass into the animal organism, and thus it is that mineral constituents, like lithium, are distributed throughout nature, organic and inorganic. Sometimes they occur in such minute quantities that their presence is discoverable only by means of the spectro-scope, that wonderful instrument by which we are enabled to analyze the light of the fixed stars and declare their constituent elements, though the agency through which the message comes to us, light, may have been thousands of years on its way.

Although the minerals, in which lithium occurs, are found in the primordial rocks of almost every region of the earth, they occur but sparingly, generally in small masses; embedded in the granitic rocks, which carry very small proportions of lithium, from a mere trace to, at the utmost, 10 per cent.

It is not the intention of the writer to enumerate in this paper the various minerals in which lithium has been found, nor to give its percentage in these minerals; however, it may be interesting to the reader to know that a large percentage of them are found in the New England granites; but, as has been stated, in few of them only does the element occur in such quantities as to make them commercially available in the production of lithium salts. The same is true of the most of the European granites. Two of these minerals only appear to be thus available, triphylin and lepidolith. Triphylin is a mineral in which the alkaline and metallic bases are combined with phosphoric acid. It is found in large discrete masses in the granite of Rabenstein in Bavaria, and is easily decomposed and well adapted to the manufacture of lithium salts.⁴

The bases in lepidolith are combined with silicic acid. It occurs principally in the decomposed granitic masses of Bohemia and Moravia. Since its discovery the world has drawn from this source its principal supply of the salts of lithium.

Filsinger⁵ describes the processes used by Schering in the preparation of lithium carbonate, including the treatment of the mineral, which are very similar to the methods of H. Müller (see above) and others. The following is a *résumé* of the processes referred to: Lepidolith, pulverized and levigated, is made into a thin paste with sulphuric acid carrying a portion of nitric acid, and the mixture is kept in a warm place, with frequent agitations, until lumps have been formed. Heat is now applied until the free acid is driven off, and the residue is calcined. The mass, while still hot, is leached with boiling water, which leaves an undissolved residue of almost pure silica. The liquid thus obtained is treated with potassium sulphate which, combining with the alumina present, forms crystals of potash alum. The liquor drawn from the alum crystals is concentrated by evaporation during which process alum continues to be formed. Finally, lime is added to precipitate any possible residue of alumina, from which the liquid is filtered off. Barium chloride is now added to the filtrate, and the sulphates present converted into chlorides. The liquid is drawn or filtered off, evaporated to dryness, and the mass treated with dilute alcohol. From this solution the alcohol is recovered by distillation, and the watery residue treated with ammonium oxalate, which precipitates the lime, iron, etc., still in the solution. The liquid filtered off from the precipitates, and containing all the alkalies in the form of chlorides, is further concentrated and the concentrate treated with ammonium carbonate. This

throws down the lithium in the form of the carbonate salt (Li_2CO_3) which is washed with alcohol of 60 per cent. and thus freed of impurities. By this process lepidolith yields about 8 per cent. of lithium carbonate, equivalent to 1.51 per cent. of metallic lithium.

For a score of years after its discovery by Arvedson, as mentioned in the beginning, lithium received but little attention. Berzelius gave it a bare mention in 1824, and it is merely alluded to by others, who found it in the waters of various springs in Bohemia and elsewhere. In 1841, Lipowitz published a paper in the *Annales de Chimie et de Pharmacie*, in which he reviewed the combinations of lithium with various acids, and dwelt particularly upon its marked affinity for uric acid, with which it forms an acid salt, "the most soluble of all the urates, being soluble in 60 parts of water at 122 degrees F., and not separating therefrom on cooling."⁶ Dr. Alexander Ure, in 1843, refers to it as a remarkable solvent of sodium urate, but his use of the substance in practical therapeutics was rendered impossible by its scarcity and high price, and it was not until 1858 that it again attracted any attention in therapeutics. About that year Sir A. B. Garrod writes that he "commenced the administration of lithium salts as an internal remedy, both in cases of uric acid diathesis connected with gravel, and likewise in chronic gout, and was much gratified at the results." But he subsequently adds, "the great bar to the free use of lithium salts in medicine has been their expense."⁷

The price of the remedy, however, does not seem to have deterred Garrod from its continued use, since we find him, in the treatise referred to, devoting a very considerable space to a review of the important therapeutic results personally obtained by him from the use of the salts of lithium, and their undeniable superiority over any other alkaline salts whatever, for both internal and external exhibition. An indorsement so unqualified, coming from such high authority, as a matter of course at once attracted the attention of the medical world to the remedy, and gave an immense impetus to experimental investigation with lithium salts in therapeutics. It is seldom, however, that the individuality of an investigator or observer is sufficiently pronounced to carry universal conviction of the truth of his observations or conclusions, especially in researches of this description; and here we find the medical profession at once divided as to the correctness and value of Garrod's conclusions. A controversy was inaugurated, on both sides of which talent and learning were enlisted, and which has brought about a very decided advance in knowledge of the behavior of the alkalies in general, and especially towards uric acid. We need not dwell on the merits of this discussion, but pass to more modern matters.

The behavior of lithium carbonate toward uric acid, and its influence upon the solubility of the urates in the human economy, have in many instances without doubt, been greatly exaggerated, a fact due mainly to the lively imagination of owners of certain mineral springs, who herald their waters not merely in the daily press but in medical and trade journals through advertisements, in which to quote Dr. A. C. Peale:⁸ "The fact that the water contains lithia, if only a trace, is made prominent by the incorporation of 'lithia' into the name or designation of the spring."

Louis Siebold rose against these unwarrantable ex-

aggerations and usurpations in a paper on "Medical and Chemical Misconceptions about Lithia," read before the British Pharmaceutical Conference in 1889, the substance of which is that the lithium compounds "owe their place in the materia medica originally to the observation that, as compared with potash or soda, a smaller amount of lithia suffices to form a soluble salt with uric acid, and that this salt is more readily soluble in water than the corresponding potassium and sodium salts. From a chemical point of view, its greater antacid or neutralizing power presents itself as owing to its low atomic weight." "It follows from the atomic weight of lithium and potassium that 74 parts of lithium carbonate possess the same acid saturating power and are likely to dissolve as much uric acid as 138 parts of potassium carbonate." This saturating powers however, is confined only to the carbonate and indirectly to the citrate, (which becomes converted into the carbonate within the organism); but "it is extended to a number of mineral waters containing lithia, generally mere traces of it, notwithstanding the fact that what there is of lithium in these waters generally occurs there as chloride or sulphate, salts which neither directly or indirectly act as alkalies and possess no solvent action on uric acid."

While such rational arguments are convincing to all reasoning men who, in fact, never entertained a different opinion to that expressed by Siebold, they are eminently dissatisfactory to those who prate of "God-given," "Heaven-endowed" fountains of health, "medicines wrought in the laboratory of Nature," and who are ready to apotheosize lithium and place it in the firmament alongside of Hygeia, or with the benign goddess of Greek mythology who hovered over mineral springs and endowed them with healing virtues. This idea seems still to be a favorite one with some mineral-spring proprietors, whose cards and advertisements display conspicuously the winged female with scanty drapery and small regard for the proprieties.

The occurrence of lithium in natural waters is necessarily limited, not merely on account of the limited amount in which it is found, but more especially on account of its existence *always in combination with the most insoluble constituents of the primordial rocks*. One need not, therefore, be surprised at finding that the average content of the lithium salts in mineral springs is not more than 4 parts in 100,000 of water, or say 1 grain in $3\frac{1}{4}$ pints.

"Despite the long list of 'lithia springs,' whose advertisements we find in the medical and secular journals of the day, the actual number of those containing upward of four grains of lithium bicarbonate (equal to about two and five-tenths grains of the dry carbonate) to the gallon, is but fifteen,"⁹ and this amount has been reduced by more recent analyses in which more accurate methods for the estimation of lithium were followed.

The physiologic investigations of the last decade into the nature of uric acid, and the importance of the rôle played by it in the human economy have maintained and even intensified the interest in the therapeutic value of the behavior of the salts of lithium towards this acid, first introduced by Garrod and sustained by his successors. The opposition to the views of Garrod, which sprung up years ago, culminated two years since in an elaborate work by Dr. Alexander Haig ("On Uric Acid," 1892), who

undertook to prove experimentally on his own person that lithium administered for the elimination of uric acid from the system, not only failed to accomplish the purpose, but "diminished the excretion of uric acid." In defense of this position he quotes from Rose to the effect that lithium forms "insoluble compounds with phosphate of soda and triple phosphate of ammonia and soda, salts generally present in animal fluids." The work of Rose has not been accessible to me and I, therefore, am not in a position to assert whether or not Haig properly quoted or understood him, but I find that Dr. Halberstadt asserts that "sodium phosphate causes, in not too attenuated solutions of lithium salts, a crystalline precipitate of normal lithium phosphate;"¹⁰ and Sir Dyce Duckworth¹¹ states that "the normal and bi-urate of lithium easily dissolve in alkaline fluids, also in phosphate of sodium."¹¹

This is in accordance with my own experience, but I found also by actual experiment that no precipitation took place, even after several days, when such solutions are further diluted to 1 part in 250 or more parts of water before being mixed. When we take into consideration the minute amounts of sodium phosphate and lithium salts that can possibly meet in the blood-serum at any given moment, and that each meeting must occur in rapid motion, we must conclude that other causes have been instrumental in producing the results of Dr. Haig's experiments.

Another protest against the conclusions of Haig was recently published by a well-known French pharmacist, M. P. Ardoue, in *L'Union Pharmaceutique* (quoted in the *National Druggist*, Vol. xxi, p. 162), who records a case of gouty rheumatism, in which he had examined the urine of the patient before, during and after treatment, and determined a very decidedly favorable action of lithium salt in the excretion of uric acid.

The four experiments of Gorsky ought to be mentioned also, which he carried out in the year 1889 at the laboratory of Loersch at St. Petersburg on healthy men, each lasting twenty-four days, and by which he arrived at the conclusion that "carbonate of lithia administered in gradually ascending doses, from 2 to 8 grains a day with an effervescent water, increased the daily amount of urine and with it the daily amount of the excretion of uric acid;" and, he continues, "it is very probable that lithia favors the transformation of uric acid into urea, and hence by freeing the system from the acid, promotes a more energetic cellular action." It would therefore seem that the usefulness of lithium salts as a therapeutic agent had not yet outlived itself; but, on the contrary, that the salts will long continue to be employed as a great alleviator of human suffering.

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¹ Just now while most physicians are better acquainted with the therapeutic properties of lithium than with its history as an element, I deem it proper to resurrect the true etymology of the word, as I find that many members of the profession connect its derivation with its solvent properties towards the stone-like concretions formed in the kidneys and bladder by uric (formerly called lithic) acid. This remarkable property, which earned for it the significant appellation of "lithontriplic," was not discovered until twenty-five years after the separation and naming of the element—a discovery, which while a mere coincidence would have been hailed with delight, had it occurred in other days, by the adherents of the "doctrine of signatures," who believed that every substance in nature, which possesses any medicinal property, indicates the same by some well-marked characteristic or appellation. Thus eye-bright (*cyprasin officinalis*) was deemed sovereign in diseases of the eye; saffrage as a lithontriplic, etc.—(The author.)

² Dienlafalt, Comptes Rendus, March 24, 1879.

³ Bulletin 42, U. S. Geological Survey, 1883.

⁴ H. Müller, Annales de Chimie et Pharmacie, Vol. cxx, p. 253.

⁵ Archiv der Pharmacie, Vol. viii, p. 200.

⁶ Ann. Chim. et Pharm., vol. xxxviii, p. 352.

⁷ Treatise on Gout and Rheumatic Gout, by Sir A. B. Garrod, first edition, 1860, third edition 1877, pages 368-369.

⁸ Dr. A. C. Peale, Classification of Mineral Waters, May, 1887.
⁹ Dr. Frank L. James, Lithium in Mineral Waters, St. Louis Med. and Surg. Journal, vol. lvii, p. 24, July, 1889.
¹⁰ Neues Handwoerterbuch der Chemie, vol. iv, p. 137.
¹¹ Treatise on Gout, 1859, p. 33.

TREATMENT OF POTT'S DISEASE.

A Clinical Lecture delivered before the New York Post-Graduate School and Hospital, Sept. 26, 1891.

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There is some difference of opinion in the profession in regard to Pott's disease and lateral curvature of the spine, and their treatment. Only a few years ago certain gentlemen in the profession claimed that they cured lateral curvature of the spine after serious bone changes had taken place. It is needless for me to say that their statement is incorrect. I am willing to concede that it is much easier to treat patients with Pott's disease of the spine or lateral curvature, in private practice than in clinics; but lateral curvature when treated even in private, when bone changes have taken place, can not be perfectly cured. That it may be arrested and the physiologic curves remedied, and the patient rendered comfortable, is true of almost every case. Then our aim in the treatment of lateral curvature is directed more particularly to the prevention of the increase of deformity than to the cure of pathologic changes which have taken place in the vertebra from pressure.

In regard to the causes of lateral curvature, I believe that curves occurring high up in the vertebral column, either in the dorsal or cervical region, are nearly always congenital or rachitic. A rapidly growing girl, who sits in awkward positions, or stands in such a manner as to constantly curve the spine, will no doubt develop lateral curvature. The curves which occur in the lumbar region are more frequently due to this cause, a shortened limb or a twisted pelvis, than any other. These, to my mind, are the most frequent causes of lateral curvature. Paralysis of the muscles undoubtedly produce many cases. The serious curves with which we have to deal are located more frequently in the dorsal region, for the reason that, as the spine bends, there is a change in the ribs and in the muscles between the ribs; and before a curve of this kind can be remedied it is necessary that the deformity of the ribs shall be overcome. This is practically impossible according to our present knowledge.

The deformity in lateral curvature is produced by absorption of the vertebra from pressure. As the spine bends, rotation always takes place in the direction of curves. Then we say that nearly all cases of lateral curvature are to be considered as cases of lateral rotary spinal curvature. When more than one curve occurs it is then called double lateral rotary spinal curvature. One of the most common symptoms of lateral curvature is the projecting shoulder-blade and the drooping shoulder. These are cases that find their way to various bandagers, who adjust worthless appliances, and the apprehensions of the mother are put at ease by such charlatans until after a year or two, when the orthopedist is consulted, he finds an incurable curve in the vertebra produced by absorption. Then the projecting shoulder-blade, the drooping shoulder, the prominence of the ribs on one side of the vertebra—as the patient is bent forward—the absence of pain and

spasm of the muscles, the general good health of the patient, are symptomatic of the deformity under consideration. And the case which I present here illustrates well the points which I have tried to emphasize. How different from this other case which I present to you; a child 12 years of age with Pott's disease in the third dorsal vertebræ. This child has pain in the thorax, anteriorly; difficult breathing; walks with that peculiar gait of Pott's. When it stoops to pick up an object it crouches down. The slightest pressure on the head produces pain; bending forward of the body elicits a cry; when the body is moved, as you see, it moves in mass, indicating that all of the muscles of the body are affected by spasm, producing the rigid spine, and then when the patient is bent backward and the head lifted, almost total relief of the symptoms.

You will observe that there is also a slight bony prominence in the third dorsal, projecting posteriorly. From these symptoms you would have no trouble in making a diagnosis of Pott's disease of the spine. It is your duty to make your diagnosis before the deformity appears, and to do so in a child only 1½ years old is sometimes quite difficult. But if you will observe these points you can always make a diagnosis even though the child can not speak to you: There will be the night cries; screaming of the child when the mother lifts it; bending forward of the body elicits pain anteriorly from the point of disease; the patient placed upon its back when lifted to an upright position with the hand under the head rises with a rigid spine; patient in the sitting position, you standing behind it, will present a rigid spine when bent from side to side; if the disease is located in the lumbar region the good old doctor has probably treated the case for worms; if in the dorsal region, for asthma. But when the symptoms which I have enumerated are present, although there is no deformity as yet of the spine, you would be quite certain of making a diagnosis of Pott's disease. So you see that there is a vast difference between the symptoms of lateral curvature and Pott's disease.

As regards the principle of treatment of each: In lateral curvature of the spine, effort is made to develop the muscles of the back by massage and proper gymnastic exercises. The patient's physical condition is rendered strong by appropriate food and exercise; and in cases where deviation of the spine amounts to more than one-half of the diameter of the vertebra, a support to prevent absorption of the vertebra at point of curvature is most emphatically demanded. In Pott's disease of the spine, however, the principle of treatment is entirely different—it consists in absolute immobilization and extension to the point of comfort to relieve the pressure between the diseased vertebræ.

The deformity in lateral curvature is produced by pressure on one side of the vertebra, resulting in absorption. In lateral curvature of the spine I believe the plaster-of-Paris corset, or the wood corset with lacings so that they can be removed at night, are the best forms of brace yet devised. The aluminium corset is excellent but expensive. In the muscular forms of curvature, corsets with steel stiffening, particularly for young girls, I have found very satisfactory. These appliances are made while the patient is suspended to the greatest amount possible. This relieves the pressure upon the bodies of the vertebræ and stops absorption. The corsets are removed at

night—the patient while in a recumbent position being in the position of extension. When the patient is in an upright position, with the corset adjusted, pressure is relieved and absorption must necessarily stop.

Now in Pott's disease of the spine the patient is fixed in an apparatus while in the position of suspension, to the point of comfort. The corset which is adjusted, is not allowed to be removed; it is put on and permanently worn. *It has this advantage over all steel braces which, to my mind, are almost absolutely worthless, in that the nurse or mother can not remove it.* It is worn with comfort, and holding the spine as it does in an extended position, and fixing it better than it can be fixed in any other way, ankylosis will take place.

No brace or corset of any description can be applied effectively to a child under 3 years of age, owing to the narrow hips, that will support the spine. For that reason I have devised a plaster-of-Paris portable bed, in which the child is placed. This enables the nurse to carry it into the open air, and is better than confining it to a bed in a close room. Bonet's wire cuirass, used by Dr. Sayre, is a most efficient apparatus but is more expensive than the plaster-of-Paris portable bed and is no better. If the disease is located above the third dorsal vertebræ, no corset or brace without the aid of the jury-mast can be adjusted so as to be a support, owing to the fact that the weight of the head and shoulders operate upon the point of disease or curve. In such cases the jury-mast should always be so adjusted, as to transmit the weight of the head through the corset to the hips. *All of the arguments which have ever been advanced against the use of the corset amount to nothing in the presence of an established fact. You will observe that this child with lateral curvature, after the corset is adjusted is two and a half inches taller than without the corset. If anybody can explain to me what makes this child taller, outside of the support he is given by the corset, I will concede that the corset does not support. Until this question is answered I will continue to believe that the arguments advanced against the support of the corset are all fallacious.*

To make proper corsets from plaster-of-Paris, suitable material must be used. H. B. Claffin & Co. make for me a special crinoline known as No. 100 hospital crinoline. It has the proper amount of sizing and material and a total absence of indigo. The plaster-of-Paris I have had the White Dental Manufacturing Company, of New York, put up in fifty pound tin packages, fresh from the oven. This cloth and plaster-of-Paris, when properly united, makes a perfect plaster bandage. Tear the crinoline into strips six inches wide and six yards in length; draw the cloth over a pile of plaster-of-Paris on a table, and with the hand rub off all excepting enough to simply fill the mesh of the cloth; roll the bandage loosely, that it may take water quickly, and it is simply perfection. A tight fitting shirt must now be adjusted to the patient. The shirt which we now use is a long stocking, and costs about 25 cents a yard. Mr. Ford, of Thirty-second Street and Fifth Avenue, New York, furnishes it to us. It fits perfectly tight and a piece can be cut off at any length. It comes in three sizes. Allow the patient with lateral curvature of the spine to suspend himself to the greatest possible extent. In Pott's disease, use the arm-pieces, and suspend the patient to the point of comfort. The dinner-pad has been placed under the

shirt; three or four bandages are now placed in water; one of these is wound snugly around the body just above the crest of the ileum, making two or three turns, then the hips are enveloped down to the great trochanter,—use one or two bandages at this point. Begin at the bottom of the corset each time, and roll on the bandages up to the arm-pits, rubbing each layer until there is no longer air in the meshes of the cloth. Six bandages will do for a child under 7 years. From eight to twelve for adults. When the plaster is setting, stand behind the patient and gently crowd the corset in over the crest of the ileum and firmly against the ribs. After the corset has firmly set, remove the dinner-pad and spring the corset antero-posterior, to throw it off the antero-posterior spinous process, otherwise excoriations will surely follow. Cut the corset off at the bottom and top; leave it on permanently in case of Pott's disease. In lateral curvature cut off the corset, trim the edges with lacing, and you have an elastic, light and durable spinal brace.

If the patient desires a wood corset, fill the plaster-of-Paris corset with plaster, which makes a cast of the body, upon which the wood corset is made.

The corset in Pott's disease should be worn from six months to a year without removal. In lateral curvature it should be removed each night. Proper exercise, forcible redressment, gymnastics and so on, as already mentioned, should be used.

If an aluminium corset is desired the plaster-of-Paris cast is sent to the foundry, the anvil is made, and upon this the aluminium is worked. This undoubtedly is the most beautiful corset made.

I wish to present to you a case of club-foot operated upon by Phelps' method. Before the operation the child walked on the outside of his feet. You see now the feet are as perfect as it is possible to make them. The child walks almost perfectly, with nearly perfect motion of every articulation of the foot. Some have criticised the operation by saying that paralysis and a sensitive scar is the result. I think I can now speak authoritatively, because I have operated over three hundred times and I have not observed either. I have seen some feet which, from bad shoeing, after years have resulted in a moderately flat foot, but not enough to inconvenience the patient. This case had been treated in the Fifty-ninth Street Dispensary for four years with braces, and the result was entirely unsatisfactory. Three months ago we performed this operation making this simple cut, as you see, through which we divided everything contracted, and forced the bones into their normal position, and the foot into the super-corrected position. The child wears the plaster-of-Paris shoe, which extends a little over the ankle, over which an ordinary shoe is worn. This will be continued for one year when, as a rule, these cases have passed the period of relapse. I consider it bad practice to treat any case of club-foot for years with any form of brace when the patient will allow us to operate. The results are not so good as when following this operation.

One word more, and then I have done. No case of club-foot should be operated upon by any form of osteotomy until subcutaneous tenotomy and open incision with great force has been employed. After this, the various forms of osteotomy find their place. In my series of nearly three hundred cases, osteotomy has been necessary in nearly 12 per cent. of all the

cases, and in nearly all of these three hundred cases, operations of various kinds or prolonged instrumental work had been employed. Several of them had had the astragalus removed. Others had had cuneiform resections performed. But with this small cut that you see and dividing the contracted soft parts, all of these feet were placed in the super-corrected position, with the exception of 12 per cent. It is true, great force was required in many of them.

NOTE.—In this series of 300 operations if we had resorted to osteotomy there would have been twelve funerals, as the mortality from osteotomies is about 4 per cent.

40 West 34th Street, New York.

CRANIOTOMY IN MICROCEPHALUS.

Lecture delivered to the Post-Graduate Medical School, Chicago, 1893.

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The era of aseptic surgery has not only brought about important changes of old operative methods and simplified our surgical apparatus, but it has also given a stimulus to bold undertakings in surgery.

A large group of operations, which we could designate with the collective name of plastic operations, in the broad sense of the word, and which have the ideal purpose to correct the errors and faulty works of nature, have made an immense progress; but not only the common malformations as cleft palate, congenital dislocations, etc., have been attacked surgically, but the most delicate organ of the human body, the brain, has been a field of speculation by surgeons. Malformations and retarded development, mental disturbances of many kinds were considered and subjected to surgical experiments, and many of these experiments proved to be a success. But as it always happens in such instances, the use of these operations was extended over cases that were quite different from those for which they originally were indicated, and so it came that the operation seems to be discredited in the opinion of many conservative and even progressive men of our science.

The French surgeon, Lannelongue, first tried to operate on an idiotic microcephalic child, and he called the operation craniectomy. It was an operation designed to relieve the brain of the child of the restraining pressure from a prematurely ossified skull, by removing a strip of the skull capsule and allowing the brain to develop. The plan was based on hypothetic grounds entirely and on wrong suppositions partly, but it was successful, and though nobody could exactly explain the success, this latter was an undeniable fact and sanctioned the undertaking. The experiment was carried out time and time again, by truthful and scientific men, but with various results, and caused on the one hand an unjustified enthusiasm; on the other a sad disappointment.

Whoever reads the following expressions of authorities—and both men whom I am going to quote, are authorities recognized in the world of science—does not know whom to believe. Verneuil, the great French surgeon, who has witnessed the results of Lannelongue's cases, adds to the paper of this author, which he presented before the Academy of Medicine of Paris, the following remarks: "I call the attention of the members of the Academy to an entirely new operation that gives the greatest honor to the distinguished surgeon who has inaugurated it and carried

it out with success. We have not to deal here with an empiric task undertaken by chance (*tentative faite au hazard*), neither with a human vivisection which is done too often nowadays. The resection of a piece of the cranial skull for microcephalus is a perfectly reasonable idea inspired by the anatomy and pathologic physiology, and it has, as it was *a priori* to be expected, given a remarkable result. Undoubtedly the undertaking seems to be bold and will remain so, but it is less rash if we consider the benignity of operations in children, the simplicity of our operative apparatus, and above all the extreme broadness which the practice of antiseptics allows to our surgical undertakings. I have seen the little girl this morning myself, and I have examined another child who has recently undergone the same operation. Both are doing marvelously well. From to-day on, we can count on the operative success of the craniectomy as M. Lannelongue has performed it. As to the therapeutic success the future will decide, and besides the last word is not yet spoken about the technique and the improvements that can be brought about."

This critique, of Verneuil's, an authority of high rank is very flattering.

One year afterwards we read Bourneville, an authority in nervous diseases and hear to our surprise:

"Generally speaking it seems to me that the surgeons have little knowledge about idiocy in its various forms. We find as reasons for undertaking such an operation as craniectomy the following: The condition of this child is so deplorable, that there is hardly a risk to undertake any operation at all, which gives a chance for relief (Wyeth) and another: As far as I think, it is a very lucky invention, for if we can not help such children it is better for them to die than to live such a miserable existence. (Keen). These are surgical views *fin de siècle*. We have to condemn them. The medicine we were taught, has the mission to cure, to better or relieve the sick that are trusted to us, and not to assume the function of an executioner. If there is a law from the social standpoint, that orders to kill all idiots it is not our business as physicians; leave this to the public executioner. But there is no such law. The physicians have always tried to ameliorate the physical and moral conditions of the idiots and imbeciles. The surgeons ought to visit the institutions for these unfortunates in the United States and in England, and see how these poor human beings are educated. They ought to read what is published about the pathology of these disturbances and they will be convinced that their action is not justified in a large number of cases."

Reading two such entirely opposite views on one subject, we are apt to be at a loss as to what to do. So it was with me when I first met a case that I thought belonged to this class of malformations. I undertook it to study up on this question to the fullest extent, and the fruit of these studies is the following paper.

In going at the subject I had to study the literature, which is quite extensive, for the pathologic part of it was a well-known matter of controversies and discussions and has accumulated an extensive literature from very competent and diligent observers; and the literature on the therapeutic measures has assumed large proportions since Lannelongue's publication. To this I had a modest experience of my own. I thought to make this a critique of what has

been done, gathering the single observations and calculating what may be done in the future. There are several questions to be answered:

1. What is microcephalus?
2. What is craniectomy?
3. What is the possible physiologic connection between one and the other?
4. What was done so far, and how were the results?
5. What are our objective conclusions in regard to the advisability and outlines of indications for the operation?

From what I read in the respective articles, it would seem that microcephalus is a type as strongly and well defined as any pathologic condition, for instance cleft palate, but this is not so. There is a chaos of pathologic views and facts are thrown together with so many hypotheses and symptoms that it is hard to form an opinion about the true pathology of this malformation. Historically the question and investigation developed as follows: The large group of idiotic individuals showed that there were some of that kind whose heads even to the non-scientist appeared as too small, and the small size of the head was accused as the cause of the idiocy. Darwin's theory, which brought about so many changes in our thoughts in regard to the development and relations of different classes of animals has brought the microcephalus question to the foreground. In the development from the highest animal, the monkey, to man, there seemed to be a gap, which to fill, the lowest human being, the Bushman of Middle Africa, seemed to fail. Here some interpreters of natural development found that the microcephalus—the homo animal *Blumenbachii*—was the right individual to fill that gap, and scientific men argued pro and con in hot discussion. Men like Gratiolet, Rudolf Wagner, Sander and others sought to prove the contrary, but Carl Vogt, who wrote the most extensive paper on microcephalus, has scientifically developed the theory of the descent of microcephalus. He measured the surface of the brain, covering it with stanniol paper and then measuring the same, he weighed the brains, he compared the brains of microcephalus with those of monkeys, the details of which would lead too far—and he seemed to prove that we have atavistic forms in our microcephalic individuals and that they form the link between the monkeys and human beings. These assertions brought the microcephalus into discussion. But Wagner as well as Vogt had not studied on good pathologic material and they did not base their studies as well on pathologic facts as scientists could with all improved methods of examination during our latest time. Giacomini, of Torino, is one of the latest authors who gave a comprehensive study on this subject. He points out that among the microcephali there have been counted many different varieties of cases, some, where there was no brain (Starr's case), which ought to be classed as anencephalus, and others where the brain weighed 950 grams (Krause); such a case comes near the normal. But it is not right to classify the degrees of microcephalus by the size of the skull or brain, because this simply gives relations and nothing else. The central nervous system is the main indicator. Two questions arise to the author: Is microcephalus a type and can it be explained by the theory of descent?

Giacomini had rich material in the museum of

the Anatomical Institute of Torino. Of his two predecessors who wrote about this question, one had only one brain at his disposal (Rudolf Wagner—microcephalus of Iena), and the other none at all, but only plaster-of-Paris casts of skulls and brains (Carl Vogt). Giacomini observed eighteen cases and examined the bodies carefully. They ranged from 7 to 66 years in age; the brain weighed from 171 to 968 grams. There existed no type, no typical microcephalic brain, but as many different microcephali as there were different brains. This uncertainty of symptoms causes the absence of a typical microcephalus, and as there are no points of distinction there is no grouping and no classifying. Weight and capacity of the brain have nothing to do with the abnormality and they have to be discarded as points of division. The impossibility to deduct conclusions of the higher intelligence of normal individuals by the size of their heads prevents us also from forming an opinion regarding abnormal individuals, but the relative weight of different parts of the brain is of more importance because of the harmony of the development. To diagnose a case of microcephalus proper, it is essential that pathologic conditions or brain lesions be absent; microcephali with pathologic conditions are designated pseudo-microcephali. For instance, if a brain is smaller because of porencephaly, or hydrocephalus chronicus internus, or sclerosis, it is a morbid condition and not a congenital disturbance.

As to the etiology of the microcephalus proper, there have been several theories:

1. The atavistic or descendance theory, that is the theory that the history of the development of the single species is repeated in the history of the embryonal life of the newborn, and that this newborn can with one leap take the shape and form of its representative. (Charles Vogt.)

2. The theory of arrested development, which means that the development of the individual regarding brain and skull, suddenly stops during the embryonal life on account of some impediment, and from that point on remains at that stage of development all the rest of the life. (Wagner, Gratiolet.)

3. The theory of premature ossification of sutures and fontanelles and the consequent pressure of the brain. This theory has been supported by none less than Virchow and has overshadowed so much any other that it is hard to part with it. In fact, it seemed to be the most probable and least difficult to understand, and this is the theory upon which the plan of our surgeons was built though indirectly. Nevertheless, this hypothesis is to be rejected and even Virchow and Lannelongue gave it up as untrue. The reasons for this are manifold. First we do not find this premature closure of sutures in all cases of microcephalus. Carl Vogt, who has studied forty-two cases of microcephalus and whose work on this subject has received the Godard prize from the Academy of Paris, found the sutures perfectly open in three cases of young microcephali, and not quite ossified in seven adults. Dr. John von Mierjewski, of St. Petersburg, examined a splendid case of microcephalus of a fullgrown man (Mottey) and found the sutures grown together only partially. Besides this, other authors have made the same observation, while in many other cases the ossification was perfect. But Giacomini points out another reason for the improbability of this hypothesis and that is, that

there exists some smallness of the spinal cord and medulla oblongata with every true case of microcephalus, but at the same time a normal canal for these centers. Why is this, if the ossification of the sutures is primary and the microcephalus secondary?

4. Hydrocephalus chronicus internus has been accused by some authors of causing the abnormality, but inasmuch as Giacomini in none of his cases has found such a pathologic condition this theory can *similariter* be discarded.

5. Smallness of the carotid foramine which prevent the blood from giving enough nutrition to the respective tissues, has been another theory favored somewhat, but it shares the fate of the last one because of the coexistence of the micromyelia, while the circulation of the spine is not impeded and the spine nevertheless affected.

6. It remains, therefore, only the agenesia cerebri; that is, the opinion which is upheld mostly by Giacomini and which I think is correct, that the microcephalus is of purely central origin; that there exists an arrest of development of the brain and spinal cord, where all the constituent parts are less developed. The cylindraxes of the nerves are smaller in number and size, the convolutions are smaller (microgyria), *en tout* the brain is only a model of the real one—a brain *en échelle réduite*. This is the true microcephalus; all other forms are combined.

For instance, in my second case, in which I was able to do a careful anatomic examination, I found that I had to deal with a microcephalus with enormously enlarged ventricles, so that when the fluid had escaped the shell of the brain collapsed and folded in on some points, like the occipital region, as it can be readily seen on the specimen. This was a case of microcephalus combined with hydrocephalus chronicus internus.

The conclusions about microcephalus briefly we would say are:

- a. Microcephalus is essentially an agenesia of the central nervous system.

- b. Deformity of the skull is the consequence of the same.

- c. There is always micromyelia co-existing.

- d. The agenesia can start at any period of the embryonal life.

- e. Pathologic changes can occur at the same time. (Giacomini).

The symptoms of microcephaly are as different as the representatives of the abnormality. They attracted the attention of the anthropologists first. Blumenbach called them human animals, because they were similar in their actions to monkeys with the expression of human beings in their faces. In psychologic respects they were not similar one to the other; one is active and agile, very skilful in climbing up a tree, with physical strength, an active and expressive mimic in the face. Others are awkward, walk lazily and interruptedly, with very feeble mind, but they understand everything belonging to the necessities of their life, have some combination and can talk some words. Others can not talk at all. Physically they have a splendid healthy appearance, their sexual qualities being not developed at all or being developed to more than usual vivacity (Weise and Schüttendreyer, two cases of Charles Vogt).

But if we look at the table that I have prepared, we do not find these symptoms mentioned in the respective cases and we must ask ourselves, why?

The cases which have been operated show almost idiocy of the lowest kind, and only a few cases are imbecile individuals of the character mentioned above. They have the symptoms; they can not walk, nor talk, can not even sit, must be fed, do not pay any attention to what is going on around them. They belong to great extent to the early youth and infancy, where many of the first mentioned symptoms can not be developed yet at all.

But there is one important point which seems to me to have great weight as to the practicability of the operation, and that is whether the symptoms existed since birth or began to develop later on. Some of the most striking results as in Case 11, of the table, are obtained in the cases, where symptoms appeared after a period of apparently normal development elapsed. We will refer to this point later on more emphatically.

The prognosis of the microcephalic idiot up to late years was very *triste*, and has not gained very much yet by the operation. Nothing could be done very often for them, and all that was done was to educate them. Lannelongue introduced the surgical treatment, the craniectomy.

What is craniectomy? Etymologically the operation consists in removal of the cranium, as thyroidectomy consists in the removal of the thyroid gland. Keen finds this illogical and suggests the term craniotomy, but this is insufficient, as well because it does not indicate the removal of the strip, but the incision only. We will use therefore the term, craniectomy, as do most of the writers.

Lannelongue first removed a longitudinal or antero-posterior strip on one side of the skull. Since that time the operation has been modified many times. The strip has not been made exactly longitudinal but curved. There has been taken out a parallel strip on the other side of the skull (double craniectomy). The two strips have been combined by a third one, crossing the skull, so that we distinguish a V-, U-, and H-shaped craniectomy. The preparations for this operation are as usual for brain operations. The head is shaved thoroughly the evening previous, washed and covered with an antiseptic dressing. The anesthetics are administered very carefully as there are cases of shock on record. The skull is exposed by an incision of skin and periosteum according to the plan of the operation. Some surgeons remove the periosteum over the strip of bone that is to be taken away, in order to prevent the formation of bone at the place of the removed strip, but in most of the cases the formation of bone failed to appear even when the periosteum was left. The first incision into the skull generally is made with the trephine and then the excision is continued both sides of the hole with a special forceps. I have used a modification of Luer's double cutting forceps. Care has to be taken not to lacerate the dura mater which is likely to happen in crossing the sutures. The dura mater has to be freed first from the bone, which can expediently be done by one of the blades of the *rougeur*. As much care has to be taken not to lacerate the venous sinuses.

In most of the cases this has been sufficient to complete the craniectomy, and the purpose has been regarded as fulfilled; in others, the dura has been opened and pathologic products as cysts, hematomata or tumors have been removed. But this latter operation does not belong to craniectomy. There is no drainage used, except the dura had been opened

and the serum had to be drained off. The dressings are as usual. The hemorrhage is usually slight and can be checked by pressure and ligature. Esmarch's bandage is very effective to check excessive hemorrhage.

What are the consequences of the operation immediately after?

The operative result is, if the operation has been done aseptically, a good one; primary union usually. Does the skull enlarge any? Some observers have noticed such an enlargement and given it in figures (Ransohoff and others, see table). Unless the incision is very long if longitudinal, or if the incision is curved, so that it forms a flap on one side (V-shaped or U-shaped craniectomy) there is no possibility of enlargement of the skull. If we compare the skull to a firm globe, of which a strip has been taken out, we can see readily that the cavity of the globe can not enlarge much, if the incision is not very long and the coherent part is similar in its action to an elastic charnière-joint. So it is with the skull, and the conclusion is therefore, that the incision must be very long in order to be effective. Such a strip would go from above the eyes down to the occiput. The linear craniectomy is therefore without value even if very long, and only the curved incisions whether single or better, double, are to be considered as able to enlarge the cavity of the skull. The figures that have been recorded as proofs of the enlargement can not be taken in earnest, for the measures of an eighth of an inch in such cases can be brought about by other causes than the enlargement of the cranial cavity. The bone does not re-appear on the place where it was taken out. Sometimes the dura bulges out and shows clearly that there is a hyperpressure on the cranial contents.

So far extends the operative result, and it is in most cases very good. What is the curative result? This question I shall answer after having recorded the cases.

Now, is there any reasonable causal connection between such an operation as the craniectomy and the abnormality for which it has been used—the microcephalus? and is it justified to extend the operation over other non-microcephalic cases of idiocy, as it has been done in some instances?

As I stated in the first few lines, Lannelongue has used the operation to enlarge the head, though he knew that the premature ossification of the sutures had nothing to do with the arrested development of the brain. He simply thought that the opening in the skull should give an impulse to the brain, and so it seemed really to happen. We may say the connection is as follows: Microcephalus is of central nervous origin; premature ossification of the sutures is only a consequence of the arrested development, but afterwards this prematurely ossified skull prevents the brain from developing and so we arrive at a *circulus vitiosus*, where the cause becomes the consequence and the consequence the cause. If we take out one link of that vicious circle, we have broken that circle and the brain can develop again. We see that it is not absurd to make a craniectomy for the development of the brain, but must not think it verbally true that we free the imprisoned brain by that operation.

But how is it to be explained that the operation was a success in cases of non-microcephalic idiocy? If we review the single examples in which it was

performed, we find that the inaugurator himself has enlarged very much the field of indications.

In his paper about this matter read before the Congress of French Surgeons, 1891, Lannelongue says that he thinks that the premature ossification is only a morbid state of the bones due to hereditary syphilis, alcoholism and rachitis, just as well as the rest of the pathologic changes of the brain, partial sclerosis, hydrocephalus, etc. Even in cases where no ossification of sutures took place, there are pathologic changes to be found as too narrow fontanelles or sutures, partial obliteration, the bones thickened. These symptoms Lannelongue found in three microcephalic skulls, which he had chanced to examine, and these symptoms led him to make such cases, if they even were not quite typical, indications for craniectomy. They belonged to the series of pathologic subjects of arrested development and the operation seemed to be successful. He therefore puts down the following indications:

1. Primitive lesions of the brain, which are not recognized by us very early, because the functions of the brain surface are not developed in early infancy, but in later periods.

2. Secondary (*tardifs*) lesions, which occur at the age between 4 to 6 years, and are consequences of diseases, entero-catarrh, whooping cough, erysipelas, etc.

3. Traumatic influences (during birth). It is not certain, whether a part of the idiocy is not due to such a compression during delivery.

4. Congenital affections as described by Lannelongue and Ménard (*Maladies des Bourgeons de l'Embryon*, 1891), the intra-uterine compression on account of lack of waters. This compression is to be distinguished from that caused by delivery in this way, that the diameter is not shorter in one and longer in another direction by compensation, as after childbirth, but that it is smaller in all directions.

5. Meningeal hemorrhages, occurring during birth and consecutive pathymeningitis, atrophies and porencephalies—in other cases there is some serous accumulation and the opening of the skull will remove it quicker.

6. Hyperostoses of the skull caused by syphilis; then the thickening of the skull consecutive to hydrocephaly.

7. Pathologic changes of the brain itself; that is, atrophies caused by mal-development on account of bad circulation; in this case the opening of the skull will bring a new relaxation, an increased conflux of blood and better development.

8. Furthermore, in cases of limited or general sclerosis, well known in the adult, which Bourneville has studied and described under the name of sclérose cérébrale tubéreuse hypertrophique.

The fact is undeniable, it was useful to remove a strip of the cranium; but what the causal connection between operation and result may be can not be stated with exactness.

I should think that the following process takes place: Physiologically the fontanelles and sutures gradually ossify and are perfectly solid at an advanced age. If the brain stops developing further at an early age the sutures ossify as in old age; but if the brain is freed by an operation, a new conflux of blood and a new impulse of development occur, and if this new growth keeps on and is aided by the

pedagogical method then the child improves and keeps on improving. But in some cases the operation does not help or it helps only for a time, and then the child falls back to the old condition of idiocy; in these cases the development and improvement seems to be comparable to the nearly burnt out coal, that flashes up once more if blown into, though the material is burned up, and then dies out altogether.

(To be continued.)

A CASE OF SINGULTUS TREATED SUCCESSFULLY WITH NITRO-GLYCERIN.

BY E. GRISWOLD, M.D.

SHARON, PA.

This troublesome spasmodic condition, whether we term it a disease, or only a symptom, may well be classed as one of the opprobria medicorum; presenting as it does in its clinical history the appearance of a spasmodic disease, and in its therapeutics almost negative results as regards the action of antispasmodics and nerve sedatives, the practitioner may well inquire after a new explanation of its pathology and a new departure in its treatment. Most practitioners of large experience have doubtless met with cases in which this singularly annoying and debilitating condition has continued for many days, even running into weeks, in spite of their best therapeutic efforts, with scarcely any intermissions, unless asleep, and which sleep came but seldom and was transient. Any *new* remedy or *any* old remedy whose successful application to the treatment of this condition is new, deserves the attention of the profession.

There are some things in pathology and in practical medicine that science, so far as we have been able to apply it to our professional work, has not made clear. We are obliged to work experimentally in cloudy fields. When therefore experiment meets with success in an individual case we should follow its line until we discover whether or not the success is a coincidence or a result. Inasmuch, however, as opportunities are rare for carrying on such experiments, I desire to report my result (or coincidence) and to ask the profession at large to try the remedy and do likewise.

On August 2, ultimo, a man aged 50, who formerly had been a habitual drinker for many years, asked advice. He was haggard, despondent and discouraged. His tongue was coated, voice feeble and pulse frequent and weak. His mind, however, was tolerably clear but a little sluggish. He hiccupped continuously, but managed with considerable effort to give the following history:

For nearly two years he had abstained, by the aid of the *pledge* made to his confessor. Six weeks previously he had begun a drinking debauch which he continued for about three weeks, when his stomach gave way and his bodily functions became generally perverted. Hiccoughs were now added to insomnia and he sought medical relief. He could only get a little sleep and an arrest of the hiccoughs when deeply under the influence of morphin; but the sleep was transient and the hiccoughs returned as soon as he awoke. He felt far more disturbed by the hiccoughs than the insomnia, and had taken prescriptions from several physicians without relief. Believing that he had already taken all the ordinary remedies, and knowing their uncertainty and inefficiency from former experience, an excursion through the mental materia medica for a new one was made, which resulted in the following prescription:

R. Pill nitro-glycerin 1-150 gr. No. xii. Sig.: One pill at intervals of 3 hours.

The first was taken at 9 A.M. In half an hour the hiccoughs ceased. At 12 M. he took the second pill and some cabbage soup. Shortly after finishing the soup the hiccoughs re-

turned and continued until about half an hour after taking the *third* pill at 3 P.M., when an intermission took place. This lasted until about 6:40 P.M., or forty minutes after he took the *fourth* pill, followed by more cabbage soup; when the hiccoughs again returned. He was seen a few minutes after this return, and the fifth pill given, there being then about an interval of an hour between the fourth and *fifth* pill. In less than half an hour the hiccoughs left him and have not since returned. He slept fairly well that night, ate a light breakfast next morning and has been making a fair convalescence since that time. It may be noted that the treatment in this case lasted from 9 A.M. to 7:30 P.M., a period of ten and one-half hours and that the amount of the medicine used was one-thirtieth of a grain.

A CASE OF NEURITIS SIMULATING PROGRESSIVE MUSCULAR ATROPHY ASSOCIATED WITH NYSTAGMUS AND INCREASED KNEE JERKS.

BY HAROLD N. MOYER, M.D.
CHICAGO, ILL.

The following singular grouping of symptoms came under our observation a short time since, and we deem it worthy of report because we have not seen such described in the literature nor has a similar case ever come under our observation:

A young woman 21 years of age presented herself at the clinic for nervous diseases of Rush Medical College, complaining of a progressive loss of strength and wasting of the hands and arms. She stated that the trouble had come on four years before. There had been no injury or serious sickness. At the time her occupation, that of a servant, required her to have her hands frequently in cold water. At first there was much pain in the hands, which would dart up the forearm; associated with this condition was numbness and tingling. After a time she noticed a progressive loss of strength, and still later that the hands and forearms were diminishing in size. As the disease advanced the pain and numbness ceased, giving place to a marked loss of sensation.

At the present time the hands show a marked loss of muscular structure, the thenar and hypothenar eminences have for the most part disappeared. The spaces between the metacarpal bones are deeply hollowed. The hands are commonly held in a semiflexed position (claw-like) but there is no contraction of the flexor tendons. A little motion is possible with the hands and the patient has a feeble grasp. The strength of flexors is practically *nil*. The forearms are much wasted and the extent of atrophy is exactly the same in both arms. Fibrillary tremors are occasionally to be seen. The arm muscles have escaped, the biceps, triceps and muscles of the shoulder girdle are all intact. The supinator and pronator are not involved. Sensation in the left arm is abolished as high as the middle third. Tactile, common, pressure, and temperature senses are equally involved, though deep pressure seems to be preserved to some extent and the muscular sense is not markedly impaired. The right arm is similarly involved, the anesthesia reaching to the shoulder and involving a portion of the surface of the chest at and below the axilla, corresponding to the distribution of the nerve of Wrisberg and the lesser internal cutaneous. The electrical reactions are altered in different degrees; in some muscles there is complete reaction of degeneration (interossei and muscles of the little finger and thumb). In some of the flexor muscles there is only a partial reaction of degeneration though in all affected muscles a c. c. precedes c. c. Faradic irritability, is mostly decreased or even absent (interossei) but in a few muscles seems slightly increased. Station is good, sensibility is elsewhere intact. The general health is good and the functions of circulation, respiration and digestion are not affected. Nystagmus is present, vision is good and the eye-grounds are normal in both eyes. The patellar tendon reflex is markedly exaggerated in both legs, and prolonged ankle clonus is present in both feet.

A brief glance at the foregoing reveals a very anomalous symptom grouping. That the trouble with the forearms and hands was a peripheral neuritis is, we think, shown by the fact that there was at first pain and paresthesia succeeded by a loss of sensation

which still persists, and that the anesthesia is approximately coincident anatomically with the muscular atrophy. On the other hand, the distribution of the paralysis is exactly such as we get in acute polio-myelitis, of the lower arm type of Remak, in which the supinators and pronators escape, while the disease is perfectly symmetrical on the two sides. This is hardly to be looked for in neuritis, though it does sometimes occur; indeed, it is uncommon in polio-myelitis. Again, the gradual onset speaks in favor of a neuritis. While the polio-myelitis may have a gradual progress, it is usually by successive steps; as each group of cells are successively attacked there is a rapid disappearance of corresponding muscles. In this case there seems to have been an even progress in the wasting similar to that noted in the essential forms of progressive muscular atrophy. In this connection we might premise that in some cases it is practically impossible to make a diagnosis between peripheral disease and anterior horn lesion.

The nystagmus and exaggerated reflexes probably have no connection with the peripheral neuritis. Unfortunately, the history of the patient does not throw any light on the possible origin of these symptoms. Had the patient presented herself with these signs alone, we should have felt justified in making a diagnosis of disseminated sclerosis, and such in fact we believe the case to be. Indeed, there is nothing to be said against the view that this may be an instance of *sclerose en plaques*, in which the peripheral nerves share as well as the central nervous system. There is just one thing that may be said against this diagnosis, and that is the symmetrical character of the disease which in disseminated sclerosis is decidedly exceptional.

SOCIETY PROCEEDINGS.

American Public Health Association.

Twenty-second Annual Meeting, held at Montreal, Canada,
Sept. 25-28, 1894.

(Continued from page 618.)

FOURTH DAY—FRIDAY.

The Association convened at 10:15 o'clock, DR. LACHAPPELLE presiding.

The Executive Committee reported by Secretary Watson, substitutes for several of the resolutions that had been presented by various members. Among the resolutions laid upon the table was that offered at Thursday forenoon's session by Dr. Olliphant (see JOURNAL October 20, page 615.) The committee recommended that Dr. Sewell's resolution be referred to the Committee, "On Restriction and Prevention of Tuberculosis." Dr. Homan's resolution was recommended to be referred to the Committee "On the Pollution of Water Supplies." As a substitute for Dr. Campbell's resolution, the Committee recommended a resolution providing for the appointment of a committee of three to consider the question of the abuse of alcoholic liquor from a sanitary point of view. A motion unanimously prevailed that the recommendations and substitutes of the committee be concurred in by the Association.

The report of the Advisory Council was then submitted as follows:

Mr. President:—I have the honor to present in behalf of the Advisory Council the following report. The Council desire to recommend to the Association the following officers for the ensuing year, viz., President, Dr. Wm. Baily, of Kentucky. First Vice-President, Dr. Granville P. Conn, of New Hampshire. Second Vice-President, Dr. Gregorius Mendizabal, Orizaba, Mexico. Secretary, Dr. Irving A. Watson, of New Hampshire. Treasurer, Dr. Henry D. Holton, of Vermont.

For three members of the Executive Committee to be

ected: Dr. Henry I. Bahnson, of North Carolina; Dr. Peter H. Bryce, of Ontario; Dr. E. P. DeVaux, of North Dakota.

Invitations were presented for the Association to hold its next meeting in Denver, Colo., Minneapolis, Minn., and Banff Springs, Manitoba.

The Council desires to recommend that the meeting in 1895 be held in Denver, Colo.; to favor the acceptance of an invitation from Davenport, Iowa, to stop one day in that city, en route to Denver, to inspect the water filtration plant and other interesting sanitary features.

The Association was invited to hold its meeting in 1896 in the city of Nashville, Tenn. It was voted to indorse the invitation and to refer it to the next Advisory Council.

The following resolution was adopted:

Resolved, That the question of publishing the Transactions of the Association quarterly be referred to the Executive Committee to arrange for such publication if the scheme be found practicable." C. O. PROBST, Secretary.

The report was upon motion unanimously adopted, and the Secretary was authorized to cast the vote of the Association for the offices named. The list of names upon the new Advisory Council and special committees was also announced, which is practically the same as those for this meeting.

Upon motion of Dr. Montzambert, a committee of two was appointed to escort the President-elect to the platform. Dr. Montzambert and Dr. Gihon were appointed. Dr. Bailey said substantially as follows:

Mr. President and Gentlemen.—Those of you who know me well, will I trust not be afflicted by this mark of appreciation on your part. In view of the honor you have conferred on me I express to you my happiness and gratification. For fifteen years I have been a member of this Association, going about quietly and unostentatiously. I understand that your choice for the Presidency of this Association for next year has been by acclamation, yet withal, I am fully conscious of my faults and weakness, therefore this administration can not hope to rival or equal the one now about to close. I hope to rely on the good will and receive the cordial support of the members, and I feel that this is the proudest hour of my life."

The Executive Committee then recommended that the Committee "On the Centennial of Vaccination" be dropped, which was accordingly done.

The Auditing Committee, by Dr. McCormack, chairman, reported that the books, accounts and vouchers of the Treasurer had been carefully examined and were found correct. Indeed, the business affairs of the Treasurer and everything else were so systematically arranged that the duties of the Committee were very easy to perform. The report was adopted unanimously.

MEDICAL DIRECTOR GIHON, U.S. Navy, offered the following:

Resolved, That the thanks of the American Public Health Association be cordially and earnestly given to His Excellency, the Lieutenant-Governor and the Government of the Province of Quebec; to His Honor, M. Villeneuve Mayor, and the Municipal Council of the city of Montreal; to the Federal Government; to the citizens of Montreal; to the authorities of McGill University; to Drs. Craik, Pelletier and Baudry and their associates on the Local Committee of Arrangements; to the members of the press; and lastly, to Montreal's attractive sanitary exhibitions—the ladies—who demonstrated in their own persons the salutary and beatific influence of the Canadian climate, and who contributed so much to the entertainment of the members, and those who accompanied them."

The adoption of the resolution was unanimous.

TRIBUTE TO THE LATE DR. JOHN H. RAUCH.

FRIDAY AFTERNOON.

Dr. H. D. Holton offered the following in memoriam of Dr. John H. Rauch:

"Since our last meeting, Death has taken, in the person of Dr. John H. Rauch, one of the organizers and promoters of this Association, a man whose love of his fellow-man gave him enthusiastic zeal in the work of sanitation.

"We desire to place on record our appreciation of his inestimable work in the field of medical education, and in the organization and continued support of this Association. While we mourn the loss of his personal friendship and the admonitions of his wise counsels, the memory of his devoted and courageous efforts in all the departments of his life-work shall be an inspiration to us to take up the work he has left, with an increased devotion."

DR. MONTZAMBERT moved that the resolution be adopted in silence, by a rising vote, which was so ordered.

The annexed list of papers and essays were read by title: "La Cuarentena en la Viruela," por el Dr. Nicolas R. de Arellanos, Mexico, Mexico; "On the Etiology of Mexican Typhus," a new contribution, by Dr. Jesus Chico, of Guanajuato, Mexico; "Algunas Consideraciones acerca de la Prostitucion," por Juan J. R. de Arellanos, Mexico, Mexico; "Prevention of the Spread of Yellow Fever," by Walter Wyman, M.D., Supervising Surgeon-General of U. S. Marine-Hospital Service; "The Free and Liberal Ventilation of Sewers," by Mr. C. Baillargé, F.R.S. C., Quebec, P. Q.

A paper, "A Plea for Aseptic Vaccination," was read by DR. M. T. BRENNAN, in which the essayist urged the necessity of performing vaccination under complete antiseptic conditions.

Another paper

UPON INFECTION BY THE BACILLUS PYOCYANEUS AS A CAUSE OF INFANTILE MORTALITY,

With a report of cases, was submitted by Drs. GEORGE ADAMI, and KENNETH CAMERON, of McGill University. The paper was read by Dr. Cameron, who briefly stated main points: "Popularly, pyocyanus is known as "blue pus." Doctors were often surprised to remark that bandages of wound dressing became blue. For long the color was supposed to be due to ozone or something else. Bacteriology showed it to be due to bacilli. A European savant had had a case where it had resulted fatally. The three McGill doctors within a few months have investigated three fatal cases at the Foundling Institute. The bacillus was discovered and studied for the first time in America. Cultivations of these bacilli were introduced into the systems of rabbits by inoculation, and resulted fatally. Investigations had been conducted to ascertain whether vaccination against the disease could be used. Cultivations of the bacilli had certainly rendered animals immune. The cooperation of other practitioners in prosecuting the inquiry was asked.

The following are the author's conclusions:

1. That the infant tissues are susceptible to the invasion of the bacillus pyocyanus.

2. That the bacillus is distinctly pathogenic, setting up a disease similar to the experimental pyocyanic disease.

3. That this disease is characterized by a train of very definite symptoms, namely diarrhea, fever, rapid emaciation, rigidity of the legs, and hemorrhagic bulbous eruptions.

4. That the disease appears to be very fatal, and this combination of symptoms occurs infrequently in young children especially when congregated in nurseries and foundling asylums. We venture to infer that a certain proportion of the deaths which now appear upon our records of vital statistics under the heading of gastro-enteritis, purpura, or marasmus are in reality cases of generalized pyocyanic disease. As to prophylaxis, nothing definite was offered, beyond the strict observance of the laws of hygiene, and that it is a disease eminently suited for trial of "serum therapeutics."

The final paper was upon "The Evolutionary Development of Domestic Plumbing during the past Thirty Years," read by Mr. J. W. HUGHES, of Montreal.

The paper prepared by Dr. JESUS CHICO, of Guanajuato, Mexico,

ON THE ETIOLOGY OF MEXICAN TYPHUS,

As the author claimed is a new contribution, and was read by title. The subjoined is a brief abstract of the points noted. The author read a paper on the same subject at the meeting of the Association in Mexico in 1892. He maintains that the proportion of patients who contract typhus fever without any previous communication with another patient suffering from the same disease is above 90 per cent.; that the number of people who contract typhus when nursing one of its victims is exceedingly small and that there is evidently a relation between the ground and this ailment, because it is a fact that there are houses which are haunted by it, preferably to others, notwithstanding the care with which they are cleansed and disinfected.

In his new contribution he expatiates upon this topographical feature of the etiology of the disease, showing by several examples how its appearance and spread followed in the first case from excavations in the ground of the streets, and that in the second, spread of the disease followed the ground and not the atmosphere.

A vote of thanks was then, upon motion of Dr. Smith of Maine, tendered to Dr. LaChapelle, the courteous and able "bachelor" President, the same being seconded by Dr. Mendizabal, and was suitably acknowledged by the retiring Executive.

The Association, at 11:30 o'clock adjourned, *sine die*.

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SATURDAY, OCTOBER 27, 1894.

THE PASSING OF THE EUCALYPTUS.

One by one the fads and barnacles attached to the medical practice craft, are scraped off by the attrition of time. For several years everybody has believed that the planting of Eucalyptus trees in a malarious district, was one of the natural means of prevention of malarial poisoning. They were rather rudely jostled by TOMASI-CRUDELLI and KLEBS through the discovery of the *plasmodium malarix*, but they were not entirely dislodged.

The article in the September number of the *U. S. Consular Reports* on the uses of the Eucalyptus tree would seem to have given the final stroke which sends the old belief to the limbo of exploded theories. That the fad has still a firm hold on the public is evident. CONSUL HALL, stationed at Nice, says:

"To illustrate the firm hold which this tree and its health-giving properties have upon the popular mind in this department, I am told that when these trees are trimmed in the early spring days in the Jardin Public, in the gardens of private villas, and on the streets, the branches are eagerly sought by all classes of people, who hang them with their cones on the walls of their bedrooms with the view of keeping off fevers and of getting rid of moths, mosquitoes, and other insects. Many persons make rosaries of the burs, and strings of beads, which they wear around their necks."

CONSUL JONES, stationed at Rome, says:

"Up to date (1886) not a single instance of hygienic improvement by the sole means of Eucalypti has been ascertained, but the possibility of so doing is not denied. It can be admitted that these trees sometimes prove useful in certain malarial soils. I frankly maintain, however, that frequently they are of no use whatever, and that it is well to guard against exaggerations that often blind the judgment."

"It would have been possible to avoid these exaggerations and the disappointments which followed as a consequence if, instead of regarding these plantations from a theoretical point of view, the public had begun by studying their results in the very home of the Eucalypti. It would then have been known in time that even in the southern hemisphere, where the Eucalypti thrive better than with us, there are forests of Eucalypti in which malaria reigns supreme, as has been stated by PROFESSOR LIVERSIDOE, of the University of

Sydney. In Italy, although the newspapers had persuaded every one that the farm of the "Tre Fontane," near Rome, had become healthful by means of the Eucalypti, it proved a disagreeable surprise to learn of a sudden outbreak of malaria in 1882 that caused much sickness among the farm hands while the rest of the Campagna remained particularly healthful.

The experiments with the Eucalypti at "Tre Fontane" are interesting and instructive. On the road to Ostia, about three miles from Rome, is situated the abbey of the "Tre Fontane." There is a monastery of Trappist monks there who, for many years, have been endeavoring to improve the land adjacent to the monastery by means of setting out extensive vineyards, draining the soil and planting the Eucalyptus. It was reported that the hygienic condition of the locality had been much improved, and this improvement was ascribed by the public and the Government to the planting of the Eucalyptus by the Trappist; hence it was decided to extend the setting out of these trees.

To facilitate this experiment, the Government in 1880 established an agricultural colony of penitentiary convicts and put them in quarters near the monastery, that is, on that part of the farm supposed to have already been improved by the Eucalypti. The convicts were surrounded by hygienic conditions far superior to those of the agricultural laborers of the Campagna, and, notwithstanding this, nearly all the convicts were taken down with malarial fever more or less severe, in 1880. The Trappists started the setting out of the Eucalyptus in 1870.

During the summer and autumn of 1882, all of the inhabitants of the "Tre Fontane" were attacked. The Trappists, it would seem, suffered from slight attacks, but all suffered. Some of the convicts had slight and some severe attacks. Nearly every guard had a severe attack; the guards had all to be changed. There were no deaths, because medical assistance was at hand. The fever-stricken patients were well cared for in one of the hospitals of Rome.

DR. MONTECHIARE, a practicing physician of Rome who for years was physician to the penal colony at "Tre Fontane," tells me that his experience justifies him in declaring that no beneficial result against malaria has been derived from the planting of the Eucalyptus. The monks set out no less than 50,000 trees on a few acres. Had the efficacy of the Eucalyptus proven real, the entire settlement of the "Tre Fontane" would have become a veritable Eden on account of its wholesome, balsamic air, which has by no means been the case. In 1870, DR. MONTECHIARE, being in charge of St. John's Hospital, experimented with all the preparations of Eucalyptus against malarial fever, and found that not one lowered the temperature of the patient by a tenth of a degree. The only value of the elixir of Eucalyptus consists in the alcohol that it contains. The efficacy of the Eucalyptus for the improvement of the air is no greater than that of the elm, pine, and mulberry. If it recommends itself by its rapidity of growth, the trees just mentioned recommend themselves by being hardier and more easily grown.

PROFESSOR (NOW SENATOR) TORELLI has also written on the subject of the Eucalyptus. He sums up by declaring that the much-vaunted merits of the Eucalyptus have not been established.

Thus perishes the Eucalyptus hypothesis, but the tree itself will, we trust, continue to be planted and to thrive. In America the need of quick growing useful forest trees is so evident that even the loss of its reputed medicinal virtues should not condemn the Eucalyptus. We need more trees and denser forests for economic purposes quite apart from direct medical properties.

SANITATION IN JAPAN.

In the last issue of the JOURNAL we spoke of the excellent organization of the Medical Department of the Japanese Army and the special training of its members. The Japanese Government, however, has been progressive in other than military lines. It has been as careful of the welfare of the general population as of the health and efficiency of its military

support. Early in its history the present government instituted a Central Sanitary Bureau to remedy insanitary conditions and preserve the people especially from the ravages of imported cholera. Measures of general sanitation and for the prevention and suppression of all infectious diseases were at first under the entire control of this Central Bureau; but in 1888 a system of Local Sanitary Government was instituted, by which all sanitary and preventive measures were to be carried out by the people themselves through the medium of the local authorities of cities, towns and villages, the general government exercising only a necessary oversight. The occurrence of cholera and its rapid spread in 1890, soon after the institution of this change gave rise to much anxiety lest the unfamiliarity of the local authorities with measures of prevention should result in disaster. Happily, however, these measures, fully indicated in various memoranda issued by the Central Bureau, were generally well carried out; and the feeling of anxiety gave way to one of assurance that future epidemics would be met more effectively than the last, as it was expected that, with the development of the principle of self-government, the local authorities would become increasingly familiar with the execution of sanitary measures.

The reports of the Bureau are late in making their appearance, as they consolidate the reports from the various governmental districts; but the aggregation of facts published annually is really equivalent to that which the United States attempts to issue only once in ten years for the census year. A cursory glance over the report for 1890, just received, would occasion much surprise to those who have not followed the progress of Japan in reconstructing her institutions on models derived from our modern civilization. It may be of interest to cite a few points:

With a population of 40,692,808 the births numbered 1,145,174, or 28.15 per thousand; still births 91,752; illegitimate 66,253 or 5.8 per cent. of the total. The deaths numbered 821,043, equivalent to a rate of 20.18 and this notwithstanding the incidence of cholera, which was responsible for 35,248 deaths. The mortality is tabulated under twelve disease headings, and by sex and years of age (from 1 to 107) in the various districts. Of infectious diseases, cases as well as deaths are reported. There were 34,736 cases of typhoid fever with 8,464 deaths, a fatality rate of about 25 per cent. and a mortality rate of nearly 21 per 100,000 of the population. Typhus was rare,—a total of 251 cases with 67 deaths. Smallpox was equally rare, and the tabulations of successful and unsuccessful vaccinations explain its rarity. The statistics are given of the examinations of prostitutes for syphilis under the registration laws.

At Tokyo a committee on city improvements decided to raise a loan of 6,900,000 yen (\$5,175,000)

for water works; and the general government appropriated 150,000 yen annually for fifteen years to aid the city in paying the interest, as it highly commended this improvement, considering it to be the measure most urgently needed for the protection of the people from cholera while having the added advantages of "removing the causes of other diseases, improving the general health, prolonging life, affording protection from fire and generally increasing the pleasure of living as shown by the experience of various European countries." A similar appropriation of 50,000 yen annually was made on behalf of the city of Osaka.

Of 40,215 registered physicians only 30,003 practice, by virtue of their status before the passage of the acts regulating the practice of medicine; the others have been examined or are entitled to registration by their graduation from Imperial schools. Midwives, druggists and manufacturers of medicines are also registered and hedged in by controlling laws; and the sanitary laboratories of the Central Bureau at Tokyo, Osaka and Yokohama make examinations of various articles on behalf of the public, particularly with regard to water, food supplies and drugs.

Many of the items that we have just cited serve to show how far the young pupil has distanced some of her teachers. Even the report itself calls to mind that the United States has no such Sanitary Board to consolidate its vital statistics, and to consider those questions of public health that are of greater breadth than the lines limiting the jurisdiction of States and municipalities.

ERYSIPELAS TOXINS IN THE TREATMENT OF MALIGNANT TUMORS.

There is so much of promise in the recent developments of serum therapy, especially in the brilliant success of the antitoxin treatment of diphtheria, that new interest has been aroused in the work of experimenters in this line with other diseases. The labors of SPRONK of Paris, COLEY of New York, GEHRMAN of Chicago and others in the treatment of the malignant tumors by the erysipelas toxins shares in this revival to an extent which warrants some review of the subject.

The theory of an antagonism between the products of growth of the *streptococcus erysipelatosus* and some forms of sarcomata and carcinomata is founded upon observations that these tumors occasionally disappear coincidentally with, or subsequent to, an attack of erysipelas in a distant part of the body. It was found that they had undergone tissue necrosis with absorption or extension; that lesions of lupus and of tertiary syphilis were similarly acted upon, but that non-malignant growths were not affected by the incidence of erysipelas. Further investigation showed that the irritation which causes and perpetu-

ates tissue proliferation in a malignant growth is removed by the action of the erysipelas toxalbumins—the cells degenerating from want of blood supply; that the irritating agent in malignant and in non-malignant tumors differs in nature and result; and that the antagonism is systemic—probably brought about by changes in the blood serum, chemical and not phagocytic in nature. The results of these investigations led to the culture of the albumins produced by the bacteria of the disease, and their use in the form of definite infection dosage. The best method for the utilization of these toxins is not, as yet, positively determined; it is still under experiment and the results thus far demonstrate the necessity of great care in the culture of the bacteria and the preparation of their toxic products.

All cases do not react alike under the injections; thus far the sarcomata in general are more beneficially affected than the carcinomata; and of the sarcomatous growths osteo-sarcoma gives the least favorable results; in some cases marked improvement is noted at first, only to be lost in a short time by renewed growth. The treatment is not yet sufficiently developed to warrant its application in cases that offer reasonable assurance of non-recurrence after removal. There is, however, a sufficient percentage of cases in which there has been an entire disappearance of the tumor, of others in which there has been a marked decrease in size or delayed growth, and of still others in which there has been great relief of pain, to commend this method of treatment to further study and consideration.

It is asserted that the failure thus far to treat all malignant tumors successfully by the erysipelas toxins is due solely to want of knowledge of the specific nature of the growths and of the properties of the toxins and their combinations; and that the researches now being carried on offer good promise of ultimate ability to determine scientifically the special antagonism required in each variety of tumor.

But with the monumental failure of tuberculin in mind, let us wait patiently the full developments to be made by expert investigations.

A CO-OPERATIVE BACTERIOLOGIC INVESTIGATION.

The Committee on the Pollution of Water Supplies, of the American Public Health Association in its report submitted at the meeting in Montreal, Canada, September 25 last, suggested a coöperative investigation by American bacteriologists into the, at present, confused state of our knowledge on the important subject of the bacteriology of water supplies. The Association approved this suggestion and commended the efforts of the Committee in carrying out the work, to the officers of State and municipal boards of health, to the individual members of the Association, and to all persons interested in the purity of

water supplies, for such special assistance as they may be able to render. The proposition of the Committee was to the effect that each laboratory willing to coöperate in the work devote itself particularly to the investigation of a single so-called group or species of water bacteria; and that uniform standard culture media be adopted, with the employment of these along the line of a definite systematic scheme of laboratory work. The Committee, when its membership is complete, will consist of those participating in the work. In the meantime its organization is in progress. A sub-committee charged with the duty of making a preliminary survey of the field and elaborating the framework of a scheme of combined work to be submitted to those interested, has issued its first circular letter, a copy of which appears in another column of this issue of the JOURNAL. The advantages to be derived by bacteriology from this scheme of coöperative work are obvious; and the practical results lying in the pathway of such an investigation are lessened sickness and mortality from diarrheal diseases and typhoid fever.

We shall look with interest for further information concerning the progress of the organization of this committee of co-laborers in the field of sanitation and preventive medicine.

THE TREASURER'S NOTICE.

Under the heading of "Association News" we again print the notice issued by our ASSOCIATION Treasurer who very properly gives the reasons why members in arrears should lose no time in promptly remitting the amount of their annual subscriptions due last June. Every sentiment of professional pride and ASSOCIATION fellowship should enlist our members in the good work of supporting the Trustees in their efforts to give the members and the medical profession of America one of the best medical journals in the country.

It should be a source of pride to the ASSOCIATION that its JOURNAL office is now prepared to do all the work required of it, but it must be remembered that heavy drafts on the ASSOCIATION treasury were made in order to accomplish it. The presses are paid for, and the new equipment has not a penny of indebtedness resting upon it, but it will require money to maintain the mechanical department, purchase news and keep up the standard. There will be no lack of funds if our members who were not in attendance at the last meeting will kindly respond to our worthy Treasurer's call without further delay.

CORRESPONDENCE.

Mitral Stenosis and Pregnancy.

CHICAGO, Oct. 13, 1894.

To the Editor:—Some years ago there came to my consulting room a young woman, bride of two summers, wife of a

prominent criminal lawyer. She was in her third month of utero-gestation, and consulted me regarding an annoying cough, dyspnea and a slight hemoptysis, the latter on the morning of the day she called at my office.

From facial landmarks I feared my visitor a tuberculous subject. Her penciled-like eyebrows, long, silken eye-lashes, clear sclerotics, rather prominent cheek bones, and slender tapering fingers all pointing in that direction, but mark you my surprise when I placed a stethoscope over the heart and found I had a pronounced case of mitral stenosis; this told the story of how the sputum came to be tinged with blood. We know that the auricle must accommodate for the defect, and if it does so imperfectly, the accumulation of the blood passes through it to the veins of the lungs, capillaries and arteries until it reaches the right ventricle, which in turn dilates or hypertrophies, giving rise to the condition my patient described, and which was indeed more marked at the fifth month, and thus caused hypertrophy and dilatation of both ventricles, for we know that with mitral insufficiency during diastole of left ventricle from the dilated auricle, there flows the blood which has accumulated in quantity and pressure, dilating it and forcing the auricle to dispose of the overplus of blood, thus sending part forward to the aorta, and part is sent back through the mitral orifice into the auricle, which becomes in time hypertrophied.

My patient at full term was delivered of a healthy male child—nothing over ordinary having disturbed the mother until an hour after delivery, when she was distressed for breath, and the peculiar sputum of pulmonary congestion with the tumultuous heart action threatening to carry, by its sudden onslaught, the new parental life beyond all human aid. Fearing this sort of trouble, I was careful to notice that my patient was not given ergot, and that she was kept well covered, and flowing encouraged. I gave hypodermatically atrop. sulphate strych.; also carbon of ammonia by mouth, but not until I gave oxygen inhalations did my young mother manifest any sign of improvement. It was gratifying, indeed, to me and a great blessing to this parent life, to watch its grand supporting, restorative and therapeutic action.

This wife has since said date safely presented to her liege lord another heir without any untoward symptoms through the free inhalation of oxygen.

My patient during attacks of dyspnea which occur somewhat frequently, finds instantaneous relief through inhalations of pure oxygen, and claims that she is enabled to perform her domestic duties without feeling fatigued or further disturbed, either in respiration or circulation.

J. A. McDONELL, M.D.

About Rotten Row.

CHICAGO, Oct. 8, 1894.

To the Editor:—On my return from a summer vacation, in glancing over the medical literature that has accumulated on my library table, I find among the articles attracting my attention one appearing under the name of our eminent colleague, Prof. Edmund Andrews, of Chicago. In this he makes a most earnest, well-timed, and important plea for the use of English, pure and undefiled, in the writing of medical articles. Far too little attention has been given to this subject in this country. In England and in France, a man appealing in print to the attention of his *confrères*, must, in order to secure a hearing, use his native language in its purity and simplicity.

But Professor Andrews has made a singular error in his interesting paper to which I desire to call your attention. He refers to the title, "Rotten Row," the name of one of the Hyde Park driveways (or, as it would be called in this coun-

try—not in France—"boulevards") and suggests that it originated from a row of tumble-down structures which had been removed in order to improve the Park. The pertinence of this allusion is in the line of illustrating the force, vigor, and homeliness of the pure speech of the Anglo-Saxon.

But the facts are different. Hyde Park in London has been reserved for practically its present purposes ever since the days of Henry VIII. and Edward VI. Even in the time of Elizabeth its acres were devoted to "herbage, pannage, and browsewood for the deer." None of less rank than a knighted gentleman could have charge of its fine oaks and gardens even as early as 1596. There is no record in its history of a row of old buildings torn down to make space for a driveway, and which survive in the "rotten" appellation of the modern Park road.

The name "Rotten Row" is a corruption, common enough on English lips which never did take kindly to foreign names, of the "*Route de Roi*," or king's highway; the English name of which is as classical in our tongue as many other simple words for which so good a plea is made in the article to which I have referred above.

AMERICANUS.

Columbian Ambulance Association.

CHICAGO, Oct. 18, 1894.

To the Editor:—The Ambulance men, patrolmen, policemen and firemen of this, our city, have no training in handling or relieving the needs of the sick or injured people who come into their hands. For the sake of humanity we propose to take up this work and commence in these departments. In a short time we hope to have the majority of the men trained to relieve the sufferings of an injured man as much as is possible. This will result in saving untold sufferings; in life and limbs.

We have already made arrangements with the Chief of Police to start at the Harrison Street Police Station.

The cost of each class is about \$60.

We hope to raise the money for this and for the purchase of a model ambulance and equipment, later on, so that sick, bed-ridden and injured people may be transported in a manner satisfactory to patient and medical attendant alike.

For these purposes we require the sum of \$5,000 which we hope to raise by 1,000 memberships of \$5 each.

Please send your check to D. J. Wile, Treasurer, Unity Building.

By order of Executive Committee,

ADA C. SWEET,
H. W. GENTLES,
Committee.

ASSOCIATION NEWS.

Section on Materia Medica and Pharmacy.

Annual Meeting held in Odd Fellows Hall, San Francisco, June 5-8, 1894.

DR. FRANK WOODBURY, of Philadelphia, Chairman, called the meeting to order, and DR. GEORGE F. HANSON, of San Francisco, was appointed Secretary, in the absence of DR. F. E. STEWART, who was detained until the second session.

THE CHAIRMAN said that a formal address on the present state of materia medica and pharmacy would be unnecessary in the presence of members of the American Pharmaceutical Association, who came as invited delegates to attend this meeting, and also in the hearing of others present who were widely known as authorities and teachers on these subjects. He deprecated the recent great multiplication of new remedies many of which have toxic properties. Every agent capable of disturbing the physiologic processes of the

human body sufficiently to give it value as a remedial agent, may on the other hand cause a disturbance of the system which is injurious. In other words, according to the old adage: "A remedy is a two-edged sword," and may do harm as well as good. The vulgar mistake therapeutically, which is often made, is to suppose that remedies have only the one special action which is designed to be attained, when it may have a number of others which, if fully recalled, would contra-indicate its employment. It is a great evil that general practitioners are appealed to by specious arguments, to prescribe unknown novelties to their patients on the strength of newspaper advertisements. Every proposed new remedy should be thoroughly studied in the laboratory and hospital under scientific conditions, and not until its value and limitations had been thus fully determined should the physician venture to employ it in his private practice. The great objection to the employment of proprietary remedies is that nothing is known of their composition, and until this is divulged they can have no scientific standing, therefore a grave responsibility is assumed by a physician who orders such an unknown preparation for his confiding patients. It is a subject of congratulation that since our last meeting a new edition of the Pharmacopœia has appeared, and also a new edition of Wood, Remington and Sadtler's United States Dispensatory. Although pharmacy has sustained a severe loss in the death of Professor Maisch, yet it is a source of gratification that his work on the American Dispensatory had so nearly approached completion that the work has appeared at the expected time.

In view of the great importance of medical botany to the physician, as well as the pharmacist, the following resolution is submitted in the hope that it may be approved by the Section:

Resolved, That the AMERICAN MEDICAL ASSOCIATION directs the attention of the medical colleges of the country to the general neglect of the study of botany by medical students, and it is the sense of this Section that the teaching of general descriptive botany should be made a part of the curriculum of study in every medical school.

The above resolution was immediately acted upon, and unanimously adopted, and ordered to be sent to the general session with the addition of the following sentence:

"The delegates from the American Pharmaceutical Association present at this meeting, concur in this action."

The following resolution was also offered at the suggestion of the Chairman, and the same action taken:

Resolved, That the American Pharmaceutical Association be invited to contribute to the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION reports of examinations of proprietary and secret nostrums, made under its direction. The officers of the Section on Materia Medica and Pharmacy to act with a committee to be appointed by the American Pharmaceutical Association as a Committee of Conference in order to carry this resolution into effect.

Report of Nominating Committee: For Chairman, Frank Woodbury, Philadelphia, Pa.; for Secretary, Geo. F. Hanson, of San Francisco, Cal.; for members of the Executive Committee, Drs. Frank Woodbury, of Philadelphia; F. E. Stewart, Watkins, N. Y.; H. M. Whelply, of St. Louis, Mo.

Dr. WOODBURY declined to serve another year and nominated Dr. H. M. Whelply, of St. Louis, Mo., as Chairman. The report of the Nominating Committee was then adopted as amended.

Circular by the Permanent Secretary.—The Permanent Secretary has issued the following circular:

At the session held June last, the following was adopted: "WHEREAS, This ASSOCIATION has long recognized the advantages to be derived from the more intimate relation between the State Medical Societies and the AMERICAN MEDICAL ASSOCIATION; it is hereby

Resolved, That we request the various State Medical Societies to perfect their local organizations, so as to include

as far as possible, in the membership of their district societies every regular practitioner within the State;

"That these local societies shall actively coöperate in urging a general attendance upon the annual meetings of the State Societies;

"That the date of the same be so fixed that it shall not interfere with the attendance of those members who are delegates and members of the AMERICAN MEDICAL ASSOCIATION; in order that a general unification of the interests of the medical profession be promoted, and the AMERICAN MEDICAL ASSOCIATION become in a yet higher degree the exponent of the profession;

"That we also request the State Societies to unite in establishing a uniform standard of professional requirement for admission to the practice of medicine and to aid, as far as possible, in advancing the scientific status of the same by the appointment of State Examining Boards, independent of the teaching faculties of the medical colleges. To this end we further direct that the Permanent Secretary of the AMERICAN MEDICAL ASSOCIATION enter into correspondence with the secretaries of the several State Medical Societies and furnish annually a written report of the membership of the State Societies and the working effectiveness of their organizations."

Please acknowledge the receipt of this communication, and send me the following information to enable me to report as directed:

Number of members of your society.

List of auxiliary local societies, and, if you can, the membership of each.

Any other information which you may deem of interest in this connection.

Our next meeting will be held in Baltimore, Md., May 7, 1895.

Yours very truly,

WM. B. ATKINSON, M.D.

Treasurer's Notice.—Members of the ASSOCIATION knowing themselves to be in arrears will please send the amount of their annual subscription to the Treasurer, HENRY P. NEWMAN, M.D., Venetian Building, Chicago, without delay.

The great expense on account of the establishment of the new JOURNAL office, makes it more than ever necessary that our members should be prompt in their response to this notice.

SOCIETY NEWS.

The Medical Association of Western New York held a meeting in Buffalo, October 16.

The Franklin County (Pa.) Medical Society held a well attended meeting October 17.

The Hartford County Medical Society held its semi-annual meeting in Hartford, October 24.

Wabash Railway Surgeons.—The twelfth annual meeting of the Wabash Railway Surgeons will be held in St. Louis, November 1.

The Oshkosh Hospital Association is the title of a new corporation with a capital stock of \$25,000 divided into shares of \$100 each. The incorporators are E. P. Sawyer, J. H. Jennings, W. A. Gordon, G. M. Steele, and B. C. Gadden.

The Military Tract Medical Association, of Illinois, held its annual meeting in Quincy, October 19. The following officers were elected: President, L. L. Ryan, of Galesburg; first Vice-President, Louis Becker, of Knoxville; second Vice-President, C. B. Horrell of Colchester; Secretary and Treasurer, H. M. Harrison of Quincy.

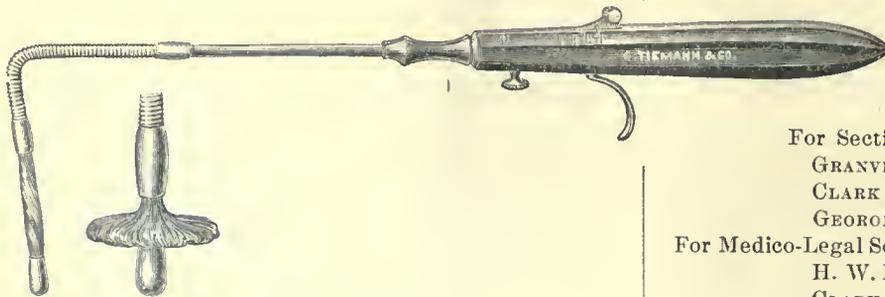
The Central New York Medical Association held its twenty-seventh annual meeting in Buffalo, N. Y., October 16. The attendance was about one hundred and twenty. The following officers were elected: President, F. S. Crego, of Buffalo; first Vice-President, W. S. Cheesman, of Auburn; second Vice-President, E. L. Mooney of Syracuse; Secretary, E. B. Angell.

Ohio State Medical Society.—The third semi-annual meeting of the Ohio State Medical Society was held in Dayton, Oct. 12. The following officers were elected for the ensuing year: President, W. L. Buechner, Youngstown; First Vice-President, James F. Heady, Glendale; Second Vice-President, A. T. Quinn, Wilmington; Secretary and Treasurer, C. H. Mertz, Sandusky. Member Executive Committee, B. M. Ricketts, Cincinnati.

The Lycoming County (Pa.) Medical Society at their September meeting had a report of a case of stab wound of the stomach with recovery, by Dr. Fleming. Drs. Bell and McCormick discussed the question as to typhoid fever being a self-limited disease. The former asserting there was no drug or form of treatment that limited its duration, and the latter took the position that there was nothing in its clinical history or morbid anatomy which would place it among the self-limited diseases, and that if seen early it should be aborted.

Dr. G. D. Nutt presented and described a new instrument for removing the obstruction in membranous croup.

The many objections raised to intubation in pseudo-membranous croup has suggested the feasibility of an instrument by which the false membrane in this disease, which is often loose and easily detached, might be removed prior to the introduction of the proper tube; or in severe and protracted cases, by clearing the trachea from time to time, afford sufficient relief to breathing. Thus allowing the patient to take medicine and nourishment.



A rough diagram was made containing the principles of the introducer of O'Dwyer's tubes, and the bristle probang of the throat, and sent to Geo. Tiemann & Co., who made the neat and efficient instrument so plainly shown in the accompanying wood-cut.

The instrument is to be introduced in the trachea in the same manner as we place a tube, having the mouth kept open by a gag. Then spread the bristles the desired width, and remove it. The bristles are supposed to catch and remove the loose membrane. The proper width of the bristles can be obtained by the distance we push the knob on the handle. A small indicator near the knob shows the different diameters the bristles can be spread. I have had only one opportunity of using the instrument since it was made. It was on a child aged 5 years, having diphtheritic croup. It was easily introduced, and caused but little distress. On its removal a complete cast of the trachea, about one and one-half inches long was expectorated, with some of the membrane clinging to the bristles. The relief to breathing was quite marked and continued for several hours, but the child subsequently died from exhaustion.

New York Academy of Medicine.—There will be a joint session of the Medico-Legal Society and the Section of Medico-Legal Surgery, at the Academy of Medicine, New York City, on Thursday, Nov. 15, 1894, at 8 o'clock P.M. President H. W. Mitchell, M.D., in the chair. The program is as follows:

Election of new members and miscellaneous business; nomination of officers for the ensuing year.

Session of the Section on Medico-Legal Surgery, Chief Surgeon Granville P. Conn, M.D., in the chair.

Opening Address, by Chief Surgeon Granville P. Conn, M.D., on "Hygienic Training of Men in Charge of Railway Trains." Discussion of same limited to five minutes each.

"Expert Examination of Plaintiff in Damage Cases, when Ordered by the Court." By George Chaffee, M.D., ex-President New York State Society of Railway Surgeons. Discussion, limited to five minutes by Clark Bell, Esq., Judge Roger A. Pryor, Nelson Smith, Esq., Judge Abram H. Dailey, H. W. Mitchell, Professor Stillings, of N. H., Chief Surgeon V. C. R. R., M. Cavana, M.D., and ex-Surrogate R. S. Ransom.

"The True Line of Duty of the Railway Surgeon." By Clark Bell, Esq. Discussion, five minutes each, by Surgeon George Chaffee, M.D., Surgeon A. M. Phelps, M.D., R. S. Harnden, M.D., C. M. Daniel, M.D., S. S. Thorne, M.D., J. B. Murdoch, M.D., Nicholas Senn, M.D., W. B. Outten, M.D., G. P. Conn, M.D., and others. Eminent surgeons have been invited to submit views on this subject who can not be present. Reports will be read from various parts of the whole country.

"Medical Witnesses." By R. S. Harnden, M.D., ex-President Erie Railway Surgeons. Discussions, five minutes each, by H. W. Mitchell, M.D., Chief Surgeon Estes, Lehigh Valley, R. R., M. Cavana, M.D., C. M. Daniels, M.D., and others.

The New York State Association of Railway Surgeons holds its annual meeting at the Academy of Medicine on same day—morning and afternoon session—to which all our members have been invited, and the members of that Society are cordially invited to attend our meeting, and take part in the discussion.

A general attendance is requested. Members, not on program, wishing the floor, on either subject, will forward their views, in brief, to the Secretary, if unable to be present. Members will please be prompt in attendance.

For Section on Medico-Legal Surgery.

GRANVILLE P. CONN, Chairman.

CLARK BELL, Vice-Chairman and Secretary.

GEORGE CHAFFEE, M.D., Treasurer.

For Medico-Legal Society,

H. W. MITCHELL, President.

CLARK BELL, Secretary.

F. B. DOWNS, M.D., Assistant Secretary.

NECROLOGY.

STUART DOUGLAS, M.D., died Monday, the 14th inst., at New York City. He was a native of Alexandria, Virginia, born there in January, 1861. He graduated in medicine at the University of Virginia when he was 20 years of age, after having taken both the academic and medical courses. He also took a medical course at one of the New York colleges, and soon afterward received an appointment as physician to the Asylum on Ward's Island. In 1887 he was promoted to the responsible position of Physician-in-Charge at the Insane Pavilion attached to Bellevue Hospital. He became a member of the New York Academy of Medicine and of the staff of the Vanderbilt Clinic. His teaching positions in the line of his specialty, in nervous and mental diseases, were in the New York Post-Graduate School and in the University Medical Department. He was frequently called upon to testify as an expert alienist. His fatal malady was Bright's disease of the kidneys. He was unmarried.

CHAS. P. SMITH, M.D., of Chester, New York, died Oct. 12, 1894, in the sixty-seventh year of his age. He was a graduate in medicine from the Castleton School, class of 1851. He had been a practitioner of Orange County over forty years and had been the President of the local Board of Education. He left a widow and seven children. He was a man of refinement and scholarly attainments.—Wm. Mitchell, M.D., of

Monmouth, Ill., October 14, aged 82 years.—Stephen E. Mossop, M.D., of Seymour, Ind., October 16, aged 79.—H. L. Cowan, M.D., of Ingleside, W. Va., October 14. He was a graduate of the Virginia Medical College, and the University of Virginia, and about 42 years of age.—A. S. Hickey, M.D., of Auburn, N. Y., October 17 aged 56.—Jacob Newkirk, M.D., formerly a practitioner at Roxbury, Delaware County, New York, died at Binghamton, on August 13 in his ninetyeth year. He graduated over half a century ago, at the now extinct medical school at Fairfield, that bore the almost forgotten name of "The College of Physicians and Surgeons of the Western District of New York."

PUBLIC HEALTH.

Of no Further Interest.—Latest advices—cable dispatches of the 23d inst.—announce such a decrease of Asiatic cholera in Europe as to deprive the disease of any further interest this season to public health authorities. For the week ending October 10, Surgeon Fairfax Irwin, U. S. M. H. S., reports a decline of nearly 50 per cent. in the number of cases in Austro-Hungary, which has been the principal seat of the disease in Europe outside of Russia. In this latter country, also, the decrease has been marked and the belief is expressed that the advent of cold weather will put an early end to the epidemic. The port of Marseilles has been declared free from the disease and inspection of vessels has been discontinued; "sporadic" cases continue to occur elsewhere in France and in Holland and Belgium, but these excite no alarm and the cholera epidemic of 1894 in Europe is practically at an end.

Hygiene in A. D. 1900.—The program for the exhibit of progress in civil and military hygiene, at the International Exposition to be held in Paris in 1900, is already completed and is published in *The Medical Week* of October 5. It embraces nine divisions, the scope of which are sufficiently indicated in the following titles: 1, science of hygiene, its history and progress; 2, personal hygiene and hygiene of dwellings; 3, hygiene in public buildings and collective establishments; 4, hygiene in rural communities; 5, hygiene and sanitation of cities; 6, defense of frontiers against pestilential diseases. 7, provisions and utensils; 8, mineral waters and sanatoria; 9, sanitary statistics and legislation. As is entirely proper, the application of the discoveries of Pasteur to the prophylaxis of infectious diseases will be given a prominent place, as constituting one of the chief glories of France. The sanitary services of the Army and Navy and of societies for extending aid to the wounded are to be grouped in a separate class. A curious dispute, by the way, has arisen in connection with the date of this International Exposition. It was projected to celebrate the birth of the twentieth century rather than to commemorate the nineteenth. But M. Camille Flammarion and Dr. Bertillon disagree as to which century the year 1900 belongs to, and two sharply opposing parties have formed under their respective leaderships—the one contending that the nineteenth century will end with the close of the year 1899; the other arguing, with equal earnestness, that the twentieth century can not possibly begin until Jan. 1, 1901, just as the second decade of figures begins with 11, while 10 closes the first. So heated has become the discussion and so uncompromising are the opposing parties that, according to the Paris correspondent of the *New York Sun*, it has been proposed the Government shall fix the *Fin de Siecle* by official decision. At the proper time, placards like theatrical posters are to be displayed: "Tomorrow, close of the nineteenth century! Day after tomorrow, opening of the twentieth century! Entrance free!"

Smallpox and Darkness.—The mild autumn weather seems thus far to have retarded the anticipated diffusion of smallpox. There is, nevertheless, a sufficient number of foci in the country to keep health authorities on the alert and to lend interest not only to preventive efforts but to suggestions of new modes of treatment. The *Texas Sanitarian* calls attention to the use of the bichlorid solution "discovered" by Dr. T. C. Osborne, Health Officer of Cleburne, Texas, and "is surprised that a claim to a discovery of such vast significance and value, given to the profession by a veteran physician of unimpeachable integrity and of half a century of observation in an extensive practice, should have attracted so little attention." Dr. Osborne "adds a teaspoonful [of the mercuric chlorid] to a bowl of water and applies it freely to the entire surface." If the "discovery" has as yet failed to receive proper attention it may be, as the *Sanitarian* sagely remarks, because "one swallow does not make a summer, nor one case establish a truth," and the claim thus far is based on one case only. The "red chamber method," on the other hand, is just now receiving a vast amount of attention on the Continent, recent issues of *The Medical Week* containing elaborate papers on this method by Drs. Oettlinger, of Paris, Finsen, of Copenhagen, and others. This treatment—which consists in isolating the patient in a room into which only the red rays of the solar spectrum are allowed to penetrate; or, carried to its extreme, in a room kept in complete and unbroken darkness—is a revival of a method in vogue in the eighteenth century, but abandoned since the days of Sydenham. Frequent attempts at its revival have been made during the last twenty-five years, but they have never before attained such importance as at present. In this country it was announced during last winter that one of the smallpox pavilions on North Brother Island in New York harbor was to be fitted up with red glass windows and with red glass globes for the lights used at night, and otherwise prepared for a trial of the method. Some such test on a large scale will be necessary before there is any general reversion to the exclusion of light and air, the clothing of the patient in red garments and his bed and room in red coverings and draperies, as was the practice in the pre-Jennerian days and as is still the custom in Roumania and other parts of Europe and in many provinces of China.

With Benevolent Reserve.—Even that congenital skeptic Prof. Mariano Semmola, of Naples, who was among the first to condemn—and justly, as the event proved—the tuberculin of Koch, approves with what the *Lancet* (London) quotes as "benevolent reserve," the wonderfully successful serum treatment and prophylaxis of diphtheria. Semmola's "reserve" is, confessedly, inspired by a present inability to comprehend the true mechanism of the antitoxin action—an inability which in one of his exacting logical nature, arouses incredulity. It is no doubt true, as he asserts, that "we have no demonstrated example of salutary chemical antidotisms which take place in the circulatory torrent based upon reactions analogous to those of the recognized antidotes." But that is only to say that we do not yet know "the altogether" of the vital forces and their action. Meanwhile, the Professor has been so far impressed by the accumulating mass of evidence of successful results that, as the *Lancet* records, he has been instrumental in sending a distinguished alumnus, Dr. Alfredo Montefusco, to Paris, there to master at the Pasteur Institute the new method of treatment, with the object of testing and "checking" it at Naples under Semmola's own supervision. The only other dissonant note in the general chorus of praise of the diphtheria antitoxin is that sounded by a few who hold that a sufficient period has not yet elapsed in which to fully test its merits—it has been used now for about three years; that the present incidence of diphtheria, in which such almost miraculous results have been obtained may not be of the severest type, and that it remains to be seen whether antitoxin will

stand the test of one of the severe epidemics—the *foudroyant* cases, that carry off their victims in a few days.”

Appeals for subscriptions to defray the expense of free antiphtheria treatment continue to appear, among recent ones being that in behalf of the Children's Hospital in Berlin, signed by Virchow, Skrzewska and Siegmund, and another headed by Prince Schoenaich-Carolath, who has accepted the chairmanship of a committee to furnish the serum free for the treatment of the poor. The German Imperial Board of Health has proposed that the production of the serum be made a State monopoly, but the proposition has not met with favor, and instead it is suggested that the Government make special appropriations of funds for its purchase for the use of hospitals and clinics under State control. The British Institute of Preventive Medicine, which, as previously noted in the *JOURNAL*, has undertaken the production of the serum on a large scale, has secured the services of Sir Joseph Lister under whose supervision the antitoxin “plant” has been placed, and it is expected to supply the product at sixpence a dose; the present price is about the equivalent of \$1.75 to \$2.50 a dose, according to the strength of the serum. Finally, a cable dispatch of the 24th inst., announces that M. Casimir-Perier, President of the French Republic, has visited the Pasteur Institute, inspected the establishment, including the horses which furnish the serum, and took the occasion to decorate Professor Roux with the order of Commander of the Legion of Honor in recognition of his services in connection with this, the most notable achievement of Pasteurism yet recorded. M. Roux, in expressing his appreciation of the honor, modestly disclaimed pre-eminence and declared that MM. Behring and Löffler were the first discoverers of the properties of the antitoxin.

MISCELLANY.

Dr. Austin Flint, of New York, has been elected President of the New York State Medical Association for the ensuing year.

Dr. Arthur W. Hurd is to be appointed Superintendent of the Buffalo State Hospital, Buffalo, N. Y., to succeed the late Dr. Judson B. Andrews.

The Marion-Sims College of Medicine, St. Louis, opened with 265 matriculates, and with a Senior class of 70. The Faculty has authorized a delegation to represent the College at the unveiling of the statue of J. Marion-Sims in New York City, on the 18th inst.

Medical Press Association.—The following has been issued: “The Medical Press Association (of France), following its fraternal work in favor of Dr. Lafitte, hopes to realize its project of a subscription in aid of the children of our unfortunate *confrère*. A committee has been formed to collect the subscriptions which should be addressed to Dr. Marcel Baudoin, 14 Boulevard Saint-Germain, Secretary-General of the Association.”

Lucrative Charlatanism.—The police of Kieff recently arrested a farrier who had arrived there from Warsaw and was “curing” all sorts of diseases with his “Miraculous Pills.” In his rooms were found 3,782 letters asking for these pills and containing 11,807 rubles. Among the writers were not only individuals of the so-called intelligent classes, clergymen, etc., but pharmacists and chemists. A French contemporary remarks that these pills were no doubt “miraculous”—but the miracle was wrought in favor of the seller, not the purchaser.

Village Sanitation.—A resolution adopted by the Tropical Section of the International Congress of Hygiene at its recent meeting at Buda-Pesth has as much interest for the rural communities of this country as for the inhabitants of India, on whose behalf it was adopted after the reading of a paper by Miss Florence Nightingale. The Section considered that the best results would be obtained through the coöperation of the people themselves if they are instructed

in the primary rules of health. The most pressing needs appear to be a wholesome water supply and the removal of refuse and other insanitary matter from the neighborhood of dwellings.

Ernest Hart on Holmes.—In the current number of the *British Medical Journal*, Mr. Ernest Hart, its editor, gives a most interesting, albeit discursive, account of his last visit to Oliver Wendell Holmes, made during Mr. Hart's tour of this country during the World's Fair year. The account closes with the following appreciative tribute: “And so I passed away from the presence of one of the most lovable and notable figures of modern medicine, a personality pregnant with the perfume of ripe and sweet old age, and leaving recollections of a rarely perspicuous and sympathetic insight, a playful and pungent but not caustic humor, and a pervasive benevolence which was far reaching but discriminating.”

Medical Women in Bosnia.—In connection with the Hygienic Congress recently held at Buda-Pesth, it is reported that a document was issued, on behalf of the Government of Bosnia and the Herzegovina, in which it is stated that there is reason to hope for an important improvement in the sanitary condition and health of the female population of Mahomedan countries through an increase in the number of lady doctors. Mahomedan women have, on religious grounds, an invincible antipathy to treatment by men. The sad consequence of this repugnance is that they are almost exclusively attended by ignorant and superstitious nurses. Under such circumstances it is easy to conceive what a high death rate prevails. The Bosnian administration is endeavoring to lessen this evil by the introduction of lady doctors.

Princess Christian's Paper at the Buda-Pesth Congress.—The subject of the paper prepared by the Princess, as President of the Royal Association of British Nurses, was the progress made in the care of the sick and the extension of sanitary and hygienic knowledge in Great Britain during recent years. The paper was read in Section 19, the Sanitarian Federation, by Dr. Thorne, the Secretary of the Association. The subject was the importance of special education and training for nurses for the sick, and the steady and encouraging progress made in this direction in the United Kingdom. No hospital of importance was now considered complete without a training school for nurses. The paper gave a *résumé* of the Royal Association of British Nurses, the roll of which now bears the names of two thousand nurses, a of whom have undergone three years of probation. The curriculum was then described and the hope expressed that the time was not far distant when the State would see the importance of recognizing a definite diploma of nursing, and giving an official sanction to the maintenance of the register. In conclusion, emphasis was laid on the fact that nurses must also be good women, in the highest and best sense of the word.

The Angel of Death is Fleet.—The *Glasgow Medical Journal* has the following antique legend, the moral of which is that Azrael had every facility at his disposal for the harvest of souls whenever the dread message was pronounced. According to the legend the ingenuity of man is wasted in trying to circumvent the grim pursuivant. The story is of King Solomon, who figures largely in Oriental tradition outside of Hebraic lore. It is told of him that, walking one day in a great city, accompanied by a friend, an awesome figure was perceived by them at the head of the street.

“Who is that?” inquired the friend in terror.

Solomon looked and answered: “It is the Angel of Death.” Then the friend begged of Solomon, who had the power of

instantaneous transportation, to send him at once to some far off spot, and Solomon despatched him in a moment to India, thousands of miles away.

The Angel of Death meanwhile approached Solomon and asked: "Who was that man with whom you were just talking?"

Solomon gave the name, and the Angel of Death said: "Strange that he should have been here, for I am ordered to call for him to-night in India!"

What Constitutes the Port of Departure.—To prevent the introduction of contagious diseases into the United States from foreign countries, Congress passed an act (27 Statute 449) in 1893, requiring that each ship leaving a foreign port must obtain from the United States consul stationed there, a clean bill of health. Should the vessel stop on the way at other foreign ports, a similar bill must be obtained at each of such ports. Without such bill or bills of health, it is, by the above-named act, unlawful for a vessel to enter a United States port, and a fine of \$5,000, or less is declared the penalty for non-conformance with this act. In the case of the United States v. the steamship *Dago*, carried to the United States circuit court of appeals, it was shown that the *Dago* cleared from Bristol, England, for Baltimore, without having obtained the bill of health. It was therefore alleged by the United States that the seizure of the ship by the collector of customs at Baltimore, to be released on payment of not more than \$5,000 (the exact amount to be fixed by the court) was in accordance with the law. The vessel filed an answer claiming that she had complied in all respects with the requirements of the law, having procured a bill of health from the American consul at Newport, Wales, which she claimed as her last port of departure, although it was shown that she merely called there on her way to Baltimore, having cleared from Bristol, England. The court of appeals held (May 22, 1894) that this was not a valid defense, as the port of departure was not the port last touched at, but the port cleared from, and the bill of health, to meet the requirements of the law, should have been procured at Bristol. By means of this wise decision vessels can not, hereafter, claim to be conforming with the law if they "clear from an infected port, stop on the way at another port not so infected, secure the bill of health that would enable them to enter the ports of the United States," and thus defeat the object of said act of Congress by carrying infection to American ports.

Dates of First Snow Falls in the United States.—In the last *Monthly Weather Review*, issued by the Agricultural Department, Prof. Cleveland Abbe gives a table of the dates of the first snowfall of the winter at each of 108 stations of the Signal Service or Weather Bureau, for each of the eight years, 1886-87 to 1893-94 inclusive. Cases in which snow was reported as having fallen on the mountains near by are not included, nor are the mountain stations of Pike's Peak and Mount Washington, because although snow appears nearly every month of the year at these places this is to be considered as indicating the condition of the air in the cloud regions into which their summits penetrate, rather than the climatic conditions proper to the lower arable earth where snowfall is so important to agriculture. The earliest recorded fall was at Buffalo, N. Y., Aug. 28, 1891, but this seems to have been a purely local phenomenon as none of the other stations had a snowfall on that day. Some parts of the extreme Northwest get snow in September and nearly always before October has passed. Occasionally snow appears in New England in October, and failing that, certainly in November. The dates of first snowfall in New York and Philadelphia do not differ much from those of New England. In Chicago the earliest fall was on Oct. 18, 1888, the latest first fall on Nov. 17, 1886; last year it occurred on November 15. The South Atlantic States had no snow in 87-88, nor in 1890-91. Key West, Fla., Yuma, Ariz., and San Diego and Los Angeles, Cal., had no snow during the

period of eight years; and Brownsville and San Antonio, Texas, would have been added to this list but for a light fall in 1887-88. "A chart showing the total snowfall from July 1, 1893 to June 30, 1894 is being prepared for publication in the *Review* when the important relations between snowfall and topography, geology, forestry, agriculture, water supply and other matters will be mentioned."

A Co-operative Bacteriologic Investigation.—The following is the circular letter referred to in our editorial remarks under the above heading. It is requested that replies be sent to Dr. Adami, McGill University, Montreal, Canada:

AMERICAN PUBLIC HEALTH ASSOCIATION. (*Committee on Water Supply.*—*Letter No. 1.*)

Sir:—Owing to the unsatisfactory state of our knowledge in regard to the differentiation and identification of species of bacteria in water, a proposal that coöperative work upon the subject should be undertaken among American bacteriologists was recommended in the report of the Committee of the American Public Health Association upon "Pollution of Water Supplies," at the meeting of this Association in Montreal, Sept. 25, 1894. This proposition, emanating from the McGill University, Montreal, advises the adoption of uniform standard culture media and the employment of the same along the lines of a definite systematic scheme, to be determined upon by the associated workers. It was further proposed that each laboratory, willing to coöperate in this work, devote itself particularly to a single so-called group of species of water bacteria. The necessity for some such coöperative plan is generally recognized by experienced bacteriologists, and this recommendation received the cordial and substantial support of the American Public Health Association in the form of a grant for preliminary expenses.

We, the undersigned, having been appointed a sub-committee and charged with the duties of discovering to what extent the bacteriologists of America are willing to coöperate to this end, what laboratories there are possessing the required facilities for carrying on a work of this nature, and what work has in them been accomplished in the identification and differentiation of species, beg you to inform us whether you or any of those working in your laboratory are willing to coöperate in this work. At the same time (in order that the sub-committee may without delay be enabled to lay the framework of a scheme of combined work before those interested), we shall be thankful to you if you will aid us by answering the following questions at your very earliest convenience:

1. What evidence has been obtained in your laboratory as to the variability of species?
2. What culture media have you in most common use?
3. Will you kindly give us as detailed a description as your time will permit of the composition and methods of preparation of the various culture media employed in your laboratory?
4. What system do you follow in the employment of the various media for the identification of species?
5. Can you mention any special points in the preparation and employment of media, which you hold to be of material aid in the identification of species?

Inasmuch as most of these questions admit of being answered at varying length, according to the opinions and experience of different observers, we have thought fit not to print them on spaced forms. We would esteem it a favor if they be answered by number and in such a way that each reply may be tabulated and preserved. And as this may be the first of a series of letters we would suggest that, for future reference and correspondence, copies be kept of the replies sent by you.

We inclose an extra copy of this letter, begging you to give it to any one whose name is not upon the inclosed list of those to whom the letter is being addressed in the first place, who in your opinion is likely to coöperate in the event of the scheme here indicated being found practicable. We are, Sir,

Yours faithfully,

C. SMART, M.B. M.Ch.,

Major and Surgeon U. S. Army, Chairman of the Committee on Pollution of Water Supplies, A. P. H. A.

G. W. FULLER, Sc. B.,

Biologist in charge of the Lawrence Experimental Station, Massachusetts State Board of Health.

WYATT G. JOHNSTON, M.D.,

Bacteriologist to the Board of Health of the Province of Quebec.

J. GEORGE ADAMI, M.A., M.D.,

Professor of Pathology, McGill University, Montreal.

The First Recorded Death in Hypnosis.—The death of Ella Salamon, in Tuzer, Upper Hungary, at her home, on Sept. 17, 1894, while in an hypnotic state, has attracted much attention, owing to the fact that it is the first recorded instance of death of this kind. We are able to give the following abridged statement from the pen of Dr. William von Vragassy, who was visiting at the home of Count Lászlo Forgách, an uncle of the unfortunate victim, and who was present during the hypnotic experiment, and witnessed her death and the subsequent autopsy:

"Miss Salamon was hypnotized in the presence of her parents and several relatives and friends; the operator, Mr. Neukomm, with the permission of the family and a full understanding with Miss Salamon, wished to induce in her an hypnotic state to gain information concerning the illness of the operator's brother, about whose malady the attending physicians differed. As Miss Salamon passed into hypnosis she seemed to be fatigued. The operator explained that he would attempt a very interesting experiment. He stated that for some time his brother, in Werschetz, had been raising blood, and the physicians could not agree that it came from the lungs or the stomach. Calling upon Miss Salamon to exercise clairvoyance while hypnotized, she gave a wonderful description of the patient's lungs, with the topography, pathology, diagnosis and prognosis. The operator said to her: 'We are now in Werschetz; do you see my brother?' 'I do not see him,' she replied. He then explained to her the location of the house in which his brother lived, and said: 'My brother is in the third room.' 'Yes, yes!' said the subject, in tones of conviction, 'we are there.' 'How is my brother?' he questioned. She replied: 'He is very ill.' In answer to more questions, the subject then went on to explain the details of the patient's malady. She spoke of the lungs of the distant patient as though they were before her on a plate. She used technical language with the greatest exactness, though she had never had medical training. After this, the subject's face was very pale and she seemed exhausted. The operator asked her a final question: 'What do you think of my brother's disease?' With difficulty she answered, 'Be prepared for the worst.' At that instant she fell from her chair with a hoarse cry; her tongue protruded from her mouth, and she became collapsed. Her head was lowered, clothing loosened, artificial respiration performed after Sylvester's method, and ether injections given; later she was wrapped in blankets, but she died almost in a few seconds in spite of all.

"The autopsy was conducted by an assistant in the Pathologic Institute in Buda-Pesth in the presence of Dr. Jozsás and myself. The brain exhibited a high degree of anemia and consecutive malnutrition, with indications of edema; otherwise there was no abnormality. I consider the causes of death, acute anemia of the brain, incident to the hypnotic state, with syncope and heart failure."

Professor R. von Kraft-Ebing writes: "According to reports, the case is so unheard-of that there must have been concurrence of quite extraordinary circumstances. In medical experience it is the first case of death in hypnosis. Inasmuch as there are thousands of hypnotic experiments performed daily by the laity without injury to health, one must regard this exception as inevitable.

"There is no doubt that Ella Salamon died in hypnosis, but that she died by hypnosis is questionable. In the absence of a history of her life and a detailed description of her mental and physical condition during the fatal hypnosis, the manner of death can not be determined with certainty.

"It appears that Miss Salamon was about 23 years old, very nervous, and that she had often been hypnotized. On this occasion she seemed weary. The hypnotizer, in accordance with an unscientific belief of the laity, induced in her an alleged capability of clairvoyance, which for a person so intelligent as Miss Salamon, was a new and very trying experiment, calculated to cause her great emotional excitement. Miss Salamon then exerted herself, according to report, to be agreeable and useful in the suggested capacity. While in the hallucinatory state she believed that she saw a diseased lung, and she gave a long description of the pathologic condition, in an excited and agitated manner. The final question of the operator had an intense emotional effect on her, and caused her collapse.

"The brief report of the autopsy leaves no doubt that she died of cerebral anemia. It can be certainly stated that she did not die of suffocation (there was no spasm of the

tongue); nor from cerebral hemorrhage; and not from auto- or imparted suggestion—causes which might prove fatal under certain circumstances. All the symptoms given point to the brain as the organ concerned in inducing death, but it is uncertain whether through serous apoplexy or so-called nervous apoplexy.

"The question of the cause of death in this case probably permits this answer: The unskilful use of hypnosis by a layman and the unusually violent cerebral excitement stand as the causes of death; but it must also be considered that the victim was probably a morbidly constituted person, with a personality which reacted abnormally to stimulation, and whose death might have been hastened when awake by a violent psychic force.

"This case teaches that the laity should not practice hypnosis; that one must not play with hypnosis. In Austria there is an enactment of Oct. 26, 1845, which permits only authorized physicians the use of magnetism (hypnotism), and makes its use by others punishable."

Washington Notes.

THE SIBLEY MEMORIAL HOSPITAL, adjacent to the Deaconess Home, 1140 North Capitol Street, will be dedicated Friday, October 19, at 2 P.M. Bishop Bowman, Bishop Hurst, Mrs. Clinton B. Fisk, Dr. Wilson, Dr. Widerman, Dr. Naylor, Dr. Brown and B. H. Warner will take part in the exercises.

OUT-DOOR MATERNITY SERVICE.—The maternity service of the Central Dispensary and Emergency Hospital is now in operation and will give assistance to many poor families and instruct the undergraduate and beginning practitioner. The officers are Dr. H. L. E. Johnson, in charge; Dr. Edward E. Morse, Associate Chief; Drs. R. D. Boss, James Stuart and F. C. Boyer, Assistants.

SMALLPOX AND CHICKENPOX.—A baby from South Pomfret, Vt., arrived here three weeks ago with what was claimed to be "confluent chickenpox," and died last week. The colored girl who washed the clothing of the child, was sent to the pest-house suffering with smallpox. The Health Officer, Dr. Woodward, has taken measures to prevent the spread of the disease.

MEDICAL SOCIETY OF THE DISTRICT.—At the Wednesday meeting of last week, Dr. Nason read the history of, and presented a patient suffering with unilateral hypertrophy. The entire right half of the body was involved. Dr. Neke presented a specimen of malformation of the heart and read the history of the case. The origin or cause of an abscess in the brain in this case brought out an interesting discussion. Dr. Lamb made the following report on the specimen:

"The malformed heart of a child 9 years old. The aorta and pulmonary artery are transposed; the former arising from the right ventricle, the latter from the left ventricle; the latter, however, arises as a cul-de-sac and there is a rudimentary valve. The foramen ovale is large and patulous. There is a large opening in the upper part of the interventricular septum. The blood of the auricles and ventricles therefore commingled. The ductus arteriosus is obliterated. The lungs were supplied with blood by a right and left pulmonary branch which were given off from the transverse arch of the aorta, in addition to the usual branches. The entire assemblage of anomalies dates back to about the seventh fetal week, perhaps earlier; and makes rather a unique picture. A small extra ventricular abscess of left middle lobe 1x2 inches."

THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The annual business meeting of the Society was held on the 19th inst., for the election of officers and resulted as follows: Drs. H. D. Fry, President; S. S. Adams, and G. B. Harrison, Vice-Presidents; G. W. Cook, Recording Secretary; W. S. Bowen, Corresponding Secretary; Committee on Business, Drs. J. T. Winton, F. S. Nash and E. L. Tompkins. Committee on Admission, Drs. J. F. Scott, L. Elliot and H. L. E. Johnson. Committee on Publication, Drs. G. W. Cook, L. Elliott, H. B. Deale and W. M. Sprigg. Committee on Microscopy, Drs. G. N. Acker, Brown and Scott. The following named gentlemen were unanimously elected

to Honorary Membership: Drs. H. P. C. Wilson, of Baltimore; Theophilus Parvin, of Philadelphia; W. T. Lusk, of New York; Matt D. Mann, of Buffalo; John P. Reynolds, of Boston; John Byrne, of Brooklyn.

THE HEALTH DEPARTMENT,—under date of Oct. 13, 1894, reports a decrease in the mortality of the city. "In face of the cold and changeable weather which prevailed last week, there was a decided decline in the number of deaths as against that of the previous week. The decrease amounted to nearly 20 per cent. and the death rate fell from 21.7 to 17.5 in that time. The improvement was general. There were very many less deaths comparatively among both the aged over 60 years and the children under 5 years old. There was a continued absence of fatal forms of contagious diseases, except the six cases of diphtheria and of the various malarial ailments. The health of the city is good and the present hygienic conditions are only a continuation of the same favorable state characterizing the present fiscal year. During last year there were four hundred and thirteen less deaths than in the preceding year, and the returns of the first quarter of the present fiscal year show a falling off of one hundred and twenty-eight up to the first day of this month.

St. Louis Notes.

DR. GIVEN CAMPBELL, JR., has resigned the Chair of Bacteriology in the Marion-Sims College of Medicine, St. Louis, on account of ill health. Dr. Hugo Summa has assumed the duties of the chair made vacant, by adding them to his work as Professor of Pathology.

ST. LOUIS ELECTRIC STREET RAILWAYS.—The electric street railway companies of St. Louis are thoroughly awakening to the importance of precautions against liabilities for injury of passengers and others. The evidence of this is a new regulation that will soon be enforced, namely, a thorough ophthalmologic examination of all persons employed in the running of the cars. The wisdom of such a departure is at once apparent when it is remembered that among the hundreds of men thus employed visual anomalies can not but occur in their common proportion, and that the safety of passengers and persons on foot often depends upon the accuracy with which the motor-men and conductors instantaneously calculate distance when standing on a rapidly moving car. Probably the contingency of an accident where a motor-man or conductor could be shown to have defective vision, and the certain liability of the company under such circumstances, have led the managements of the roads to consider the adoption of this safeguard. This is only another instance where the selfish interest of corporations steps in to make regulations to insure the safety of the public where the government granting such corporations charters has neglected to do its duty and insist upon the safeguards that science has shown to be reasonable and necessary. It is to be hoped that every road in the city will follow the example of those that will require the necessary standard of vision in their employees.

THE *Occidental Medical Times* contains an allusion to St. Louis from the pen of Dr. Albert Abrams, of San Francisco, that seems to call for comment. After enumeration of an unheard-of number of medical colleges, he continues: "I overheard the following conversation between two men in St. Louis: Said the one, 'Hallo, Bill! you aint driving a car no more?' 'No,' said Bill, 'it's hard work; and besides that, I'm going to become a doctor. It's a blamed sight easier to wear a plug hat and glasses than to drive a car. Doc. (referring to a professor in a regular school) said I'd get through all right if I paid the fees.' This, I hope, will not be accepted as an apt illustration of the status of medical education in St. Louis." There need be no fear that this medical joke will pass in St. Louis as an "apt illustration" of anything but the tendency there is in all humorists, born, made, lay and medical, to make the facts support the witticism invented for the occasion. Had the reported conver-

sation been decked out with a few St. Louis colloquialisms the writer might have convinced St. Louisians that he really knew "where he was at" when sojourning here. But the "conversation" contains the strongest evidence of its artificial nature; there are no car-drivers in St. Louis, for she now boasts of only motor-men and conductors. No, this is not quite true; there are a very few car-drivers on one insignificant line where the cars run only frequently enough to keep the charter, and it must be granted that possibly the Doctor overheard an ex-driver of this line. What a pity the name of the professor in a regular school alluded to was omitted; but possibly it could not be recalled.

Louisville Notes.

GRAND LODGE OF THE STATE OF KENTUCKY.—At a meeting of the Grand Lodge of the State of Kentucky just adjourned, it was decided unanimously to celebrate the centennial of the Grand Lodge in 1900 by dedicating a Masonic Infirmary, which is to be built as an adjunct to the Masonic Widows' and Orphans' Home, now so prosperous. There was much enthusiasm displayed and steps taken at once to raise the funds with which to begin the work.

WATER SUPPLY.—The citizens have been much wrought up over the condition of the city water supply; as it has transpired upon investigation by Health Officer White that the basins had not been cleaned since their erection some eleven years ago. The Water Company sold the fish in the reservoirs to a local dealer for \$200, and several thirty and forty pound fish were caught, beside numberless small ones. The question of filtration of the city water supply is being agitated and it is very much desired that some means will be found that will make it practicable.

OPENING OF THE SCHOOLS.—The fall schools have gotten under full sway again for the session of 1894-95. Owing to the general adoption of the three-year graded course the schools have opened this year with fewer matriculates than heretofore. There have been some changes in the faculties, but they are practically the same as those of last year. In the Louisville Medical College, Dr. J. G. Cecil occupies the Chair of Practice, held for so many years by Dr. W. H. Galt, deceased, who was also for many years Health Officer of this city. Dr. Robert Sievers is Lecturer upon Pediatrics. The spring schools are equipped and ready for work; the Hospital College occupies its new building as does the Kentucky School of Medicine, which has about completed a commodious Dispensary and Hospital adjoining its old building.

NOTIFICATION OF CONTAGIOUS DISEASES.—Louisville is very much behind many of her sister cities, in that there is no law here requiring the reporting of contagious diseases, or an appropriation sufficient to enable the Department to properly isolate and disinfect houses where such diseases exist. There has been more than the usual amount of diphtheria in the city of late, not an epidemic but an unusual prevalence, and the President of the State Board of Health, Dr. Mathews, and the local Health Officer are using all of their influence to have a contagious-disease act passed by the Council. The one prepared for presentation to that body is a very comprehensive one, and will enable the Health Officer to do good work toward the prevention of the spread of contagious diseases.

DIPHTHERIA.—An epidemic of diphtheria was reported to the State Board of Health at its last meeting, as raging in the city of Frankfort, this State. Dr. H. E. Tuley, of this city, was sent as its representative to assist the local authorities in the suppression of 'the trouble. The public schools were found closed, and upon investigation it was ascertained that there had been some twenty-nine cases with nine deaths, and no effort at isolation or disinfection. This was owing to the fact that there was no local Health Board to control it, the old Board having resigned owing to a misunderstanding of the new law recently passed. A special meeting of the Council was called by the Mayor, a

Board appointed and a very comprehensive and thorough law passed giving full power to the Board to act in all such epidemics. Since, there has been no further trouble.

THE PUBLIC SERVICES.

Promotion in the Hospital Corps, U. S. Army.

Surgeon-General Sternberg, under date October 10, issued a circular relating to promotion of deserving men in the Hospital Corps which may be regarded as a continuation of that of October 2 relating to enlistments in the Corps, an abstract of which was given in the JOURNAL of October 20. Those eligible for detail as acting hospital stewards are privates who have served one year or more in the Hospital Corps and have displayed particular merit; but those who have had previous service as non-commissioned officers in the line or who have special training in civil life, such as a course at a college of pharmacy or training school for nurses may not be required to serve the full year of probation. No person is eligible for promotion to the position of hospital steward unless he has demonstrated his fitness therefor by service of not less than twelve months as acting hospital steward. The examination for acting hospital steward and hospital steward will embrace the same subjects, but the questions for candidates for the lower grade will be less difficult and less comprehensive. Formerly minor surgery and elementary hygiene, a knowledge of which was required on the part of the steward, were not included in the scheme of examination for the lower grade. A re-examination before first reenlistment may not be required of a hospital steward if the post surgeon and medical director state that the steward has performed his duties efficiently. He is submitted to re-examination before his second reenlistment; but no subsequent re-examination will ordinarily be required. This is an alteration of former regulations, which called for re-examination prior to each reenlistment until the steward had become a veteran of twenty years' service. The examinations are conducted by a board composed of all the commissioned medical officers of the post at which the candidate may be serving or to which he may be sent for examination. The results of the examination by the board are entered on a merit roll under the following headings: 1, physical condition; 2, character and habits, especially as to the use of stimulants and narcotics; 3, discipline and control of men; 4, knowledge of regulations; 5, nursing; 6, dispensary work; 7, clerical work; 8, principles of cooking and mess management; 9, Hospital Corps drill, and 10, minor surgery, first aid and extraction of teeth. Written questions on the following subjects are prepared and transmitted from the Surgeon-General's office: 1, arithmetic; 2, materia medica; 3, pharmacy; 4, care of sick and ward management; 5, minor surgery and first aid; 6, elementary hygiene. Proficiency in penmanship and orthography are estimated from the papers submitted. In conducting the written examinations a second sheet of the questions sent from the Surgeon-General's office is not given to a candidate until he has completed his answers to those on the sheet already submitted to him; and all questions submitted at one session are to be answered during that session. The board is required to certify that the replies were made without recourse to books, memoranda or other sources of assistance. The report of the board with the written examination papers are forwarded to the Surgeon-General in whose office they are examined and marked for the grading of accepted candidates. Assignments are made as far as practicable in order of merit from the list of passed candidates to fill vacancies occurring during the year. Those who from their low percentage fail to receive appointment during the year following their examination will be permitted to come up for competition with the next class to enable them to obtain a higher percentage and thus improve their prospect of appointment.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Oct. 13, 1894, to Oct. 19, 1894.

Capt. EUGENE L. SWIFT, Asst. Surgeon (Ft. Yates, N. D.), is granted leave of absence for one month, with permission to apply to the proper authority for an extension of one month.

First Lieut. ISAAC P. WARE, Asst. Surgeon, so much of par. 1, S. O. 233, A. G. O., Oct. 1, 1894, as directs him to report to the commanding officer, Camp Eagle Pass, Texas, after his relief from duty at Ft. Supply, is so amended as to direct him to report in person to the commanding officer, Ft. Clark, Texas, for duty at that post. By direction of the Acting Secretary of War.

NAVAL MEDICAL SERVICE.

A candidate for examination and appointment in the Medical Corps of the Navy must be between 21 and 26 years of age and must apply to the Honorable Secretary of the Navy for permission to appear before the Naval Medical Examining Board. The application must be in the handwriting of the applicant, stating age and place of birth, also the place and State of which he is a permanent resident; and must be accompanied by letters or certificates from persons of repute, testifying from personal knowledge to his good habits and moral character and that he is a citizen of the United States.

On receipt of the desired permit he has to notify the President of the Board of the fact and request him to appoint a time for his examination. He will be expected to present to the Board, testimonials of educational and professional fitness. The Board is required under oath to report on the physical, mental, moral, and professional qualifications of the candidate, so that the examinations are necessarily rigid and comprehensive, though simple and practical, and not beyond the attainments of any well educated physician. No allowance is made for the expenses of such persons undergoing examination, which, if interrupted, is usually completed within a week or ten days. An applicant found "not qualified" may be allowed a second examination after one year, but not a third. Appointments are made as vacancies occur, and in the order of merit reported by the Board, but a qualified candidate not appointed within a year, must be re-examined. However, for many years vacancies for successful candidates have always existed. The examinations are held at the Naval Laboratory and Department of Instruction, Brooklyn, New York, or at the Naval Hospital, Mare Island, California where there are permanent boards. There are no fees. The order of examination is 1, Physical. 2, Oral. 3, Written. 4, Clinical, and 5, Practical.

The physical examination is very thorough. The oral and written examinations are on the following subjects: General history, natural science, botany, geology, zoology, general literature, anatomy, histology, physiology, theory and practice of medicine, principles and practice of

surgery, chemistry, legal medicine, toxicology, materia medica, therapeutics, pharmacy, obstetrics and diseases of women and children, hygiene, quarantine, and microscopy. The clinical examination of patients is made at a naval hospital and includes the use of the microscope, thermometer, laryngoscope, ophthalmoscope and other aids to physical diagnosis, and a written clinical report on one or more medical or surgical cases. The practical examination comprises surgical operations on the cadaver, the application of splints, bandages and surgical dressings, the use of the microscope for clinical purposes, and chemic and pharmaceutical manipulations. Candidates possessing special knowledge of the higher mathematics, literature, art, and ancient and modern languages are given full credit for their proficiency. After having passed this examination, the successful candidate, having been commissioned an assistant surgeon, is sent to the Naval Laboratory and Department of Instruction for a three months' course in the special duties required of him in the service. This school was established recently. It requires no fees and is devoted exclusively to special instruction of medical officers recently admitted to the service. The staff consists of members of the Naval Medical Examining Board and the medical officers on duty at the Naval Hospital. The subjects taught are 1, Chemistry, analytical and organic. 2, Hygiene and Sanitary Science. 3, Microscopy and Microbiology. 4, Military Surgery and operative work. 5, Clinical medicine and hospital work. 6, Construction and ventilation of modern war ships. 7, Examination of recruits and life-saving methods. 8, Navy regulations, navy ration, hospital fund, pension fund. 9, Keeping medical records at hospitals and on board vessels of war, and blank forms pertaining to Bureau of Medicine and Surgery. These subjects are taught with special reference to the needs and requirements of the naval service, and therefore embrace particularly gunshot and other wounds, transport of sick and wounded on ships of war and ashore, recruiting, tropical and other diseases to which sailors are exposed in service, examination of water and air, general principles of diet, examination of food, sanitary requirements of ships, hospitals, and camps, clothing, prevention of disease, disinfection of ships, quarantine, etc.

The officers under instruction are under no expense for quarters and as members of the Medical Corps, draw their full shore pay.

After having passed through this excellent course of instruction, under skilled teachers in each special branch, they are examined on the subjects taught and the record of each, together with his other examination papers is bound and kept in the Bureau of Medicine and Surgery as a guide in assignment to duty according to professional and other qualifications. Each assistant surgeon is examined at the expiration of three years' service, and, if successful becomes a passed assistant surgeon.

MEDICAL STAFF OF THE NAVY.

The officers of the Medical Staff of the Navy are as follows: Medical Directors, Medical Inspectors, Surgeons, Passed Assistant Surgeons and Assistant Surgeons. Vacancies in the grades (by death or retirement at the age of 62 or for other causes) are filled in the order of seniority and for each step of promotion a physical and professional examination is required.

| Rank and Pay Table. | At Sea. | On Shore Duty. | On Leave or Waiting Orders. |
|---|---------|----------------|-----------------------------|
| Assistant surgeons | \$1,700 | \$1,400 | \$1,000 |
| Passed assistant surgeons: | | | |
| First five years after date of appointment | 2,000 | 1,800 | 1,500 |
| After five years from date of appointment | 2,200 | 2,000 | 1,700 |
| Surgeons: | | | |
| First five years after date of commission | 2,800 | 2,400 | 2,000 |
| Second five years after date of commission | 3,200 | 2,800 | 2,400 |
| Third five years after date of commission | 3,500 | 3,200 | 2,600 |
| Fourth five years after date of commission | 3,700 | 3,600 | 2,800 |
| After twenty years from date of commission, | 4,200 | 4,000 | 3,000 |
| Fleet surgeons | 4,400 | | |
| Medical directors and medical inspectors at sea. | 4,400 | | |

LETTERS RECEIVED

Anderson, Winslow, San Francisco, Cal.; Atkinson, W. B., (2) Philadelphia, Pa.
 Bnsey, S. C., Washington, D. C.; Beck, Carl, Chicago; Bleyer, J. M., New York, N. Y.; Bentley, E., Little Rock, Ark.; Benche, Oscar B., Battle Creek, Mich.; Brown, E. J., Minneapolis, Minn.; Becker, B., Toledo, Ohio; Burnett, C. H., Philadelphia, Pa.; Bryant, Jos. D., New York City, N. Y.; Bryce, S. H., Toronto, Canada.
 Coleman, W., Franklin, Chicago, Ill.; Colton, A. C., Chicago, Ill.; Cole, J. D., Newbern, Tenn.; Chadock, C. G., St. Louis, Mo.; Cunningham, T. E., Cambridge, Mass.
 Dunlap, H. M., Battle Creek, Mich.; Dana, C. L., New York.
 Engleman, Rosa, Chicago, Ill.; Earle, C. A., Des Plaines, Ill.
 Fullerton, O. J., Waterloo, Iowa.
 Griffith, J. D., Kansas City, Mo.; Goss, E. L., Sheffield, Iowa; Gallup, Benj. E., Chicago, Ill.; Genoway, Chas. V., Wallace, Idaho; Gernard, G. S., Ardmore, Pa.
 Himmell, A. L., Philadelphia, Pa.; Hann, John W., Wauneta, Neb.; Holland, W. B., Elkhart, Ind.; Hibberd, Jas. F., Richmond, Ind.; Hopkins, J. G., Thomasville, Ga.
 Johnson, H. L. E., Washington, D. C.
 Leutz, Chas. & Sons, Philadelphia, Pa.; Lamb, D. S., Washington, D. C.
 Massey, G. B., Philadelphia, Pa.; Mutual Life Insurance Co., New York, N. Y.; McDonell, J. A., Chicago, Ill.; Mercer Chemical Co., Omaha, Neb.; Martin, Franklin H., Chicago, Ill.; McGuffee, Innater, Richmond, Va.; Maltine Mfg. Co., New York, N. Y.
 Norbury, F. P., Jacksonville, Ill.; Newman, H. P., Chicago, Ill.
 Portman, Adeline F., White Oaks, N. M.; Post, M. H., St. Louis, Mo.; Pepper, Wm., Philadelphia, Pa.; Phelps, A. M., New York City, N. Y.
 Reinhard, Carl, Milwaukee, Wis.; Rogers, W. B., Memphis, Tenn.; Reyburn, Robt., Washington, D. C.; Rosenstein, J., San Francisco, Cal.; Scheffelin, W. H., & Co., New York, N. Y.; Spamer, F., Chicago, Ill.; Seary, W. M., San Francisco, Cal.; Smart, Chas., U. S. A., Washington, D. C.; Stewart, J. G., Warlarba, Pa.; Sternberg, Geo. M., Washington, D. C.; Sullivan, C. P., Wichee, Kan.; Smith, M. B., Minneapolis, Minn.; Small, E. H., Pittsburg, Pa.; Schiller, L., Milwaukee, Wis.
 Tuley, H. E., Louisville, Ky.
 Woman's Medical College, New York, N. Y.; Woodward, J. H., Burlington, Vt.; Wright, J. P., St. Louis, Mo.; Wyckoff, R. M., Brooklyn, N. Y.; Weaver, Geo. H., Chicago, Ill.; Welch, W. H., Baltimore, Md.; Work, J. A., Elkhart, Ind.; Woodburn, T. C., Indianapolis, Ind.; Woodbridge, J. E., Youngstown, Ohio; Woodruff, Chas. E., U. S. A., Ft. Sheridan, Ill.

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ORIGINAL ARTICLES.

INTERESTING CASES OF APPENDICITIS.

Read before the New York State Medical Association, Oct. 9, 1894.

BY JOSEPH D. BRYANT, M.D.

NEW YORK CITY.

Believing that the results of experience constitute the only true guide to the wisdom and efficiency of any measure, especially one of a surgical nature I have, therefore, no hesitation in placing before you now for the purposes of thought and practice a record of four cases of appendicitis that have come recently under my observation, together with the lessons they teach:

Case 1.—That of E. B. J., M.D., of Pennsylvania, aged 28, and of good habits in all respects. This patient came to my office for consultation and treatment June 13, 1894, with the following history:

1. Had always been in good health up to the time of the first attack of appendicitis.

2. Had suffered from four attacks of this disease before coming to my notice, from the last of which he had just recovered.

The first attack happened without apparent cause, during the last week in November, 1893, six months before I saw him. This attack was a slight one, lasting but three or four days, and was not severe enough to prevent proper attention to office duties. The second attack happened about six weeks later, and was not severer at the outset than the first one. This attack lasted four days, and on the second day a slight chill occurred, attended with some elevation of temperature. Subsequent to this attack, tenderness in the right ileo-inguinal region was constant in a varying degree. No definite tumor was discernible. The third attack was about three months after the second one, and it will be noticed that this was the severest attack of all. This, like the others, came without apparent cause, but unlike them was announced by a sudden, severe sharp pain which obliged the patient to go to bed at once, where he remained for the next four weeks. During the greater part of this time he had a marked elevation of temperature which, however, did not reach above 101 F. per rectum during the entire course of the attack. A hard, tender tumor made its appearance in the right iliac region during this attack which increased to the size of one's fist; then gradually diminished in size and sensitiveness but did not wholly disappear. The fourth and final attack occurred May 30, 1894, or only about two weeks after recovery from the third. This attack resembled in all essential respects the first and second ones. At all events, following this one the patient made a long journey by rail and reached this city June 13, 1894.

A physical examination at the time of arrival disclosed a hard, tender and somewhat movable tumor, about the size of a hen's egg, located in the ileo-inguinal region, somewhat nearer the brim of the pelvis than to the iliac spine. Rectal examination revealed nothing abnormal. In all other respects the patient was in as satisfactory condition as the fatigue of the journey and previous illness would warrant. Since the patient had come expressly for the benefits of an operation, and was professionally qualified to estimate the advantages and dangers attending it, and was anxious for immediate action, he was sent at once to St. Vincent's Hospital, where it was performed on the following day in the presence of many of the visiting and the house staff of the Hospital. I will not weary you with extended details of this operation, which are already worn threadbare by repeated description from other sources, but rather submit at once, in one, two, three order, those phases of it that are always

essential to advancement; that is, the disclosures attendant on the procedure. At this time it seems proper to say that, owing to the nearness of the tumor to the pelvic brim, and the mobility and ease of its delineation, I expressed the opinion before operation that the diseased appendix extended downward and inward to, and possibly over the brim of the pelvis, and had a long mesentery. The incision made through the abdominal parietes was about five inches in length, and was located about two inches from the anterior superior spine of the ilium and directly upon the inner portion of the ileo-inguinal tumor. No difficulty was experienced in exposing the tumor, which was found to consist of the major part of the appendix surrounded by abundant inflammatory exudation. Only the extreme end of the appendix—about one-half inch—was entirely free from the exudation. This extremity was attached slightly to the peritoneum covering the brim of the pelvis; so slightly, in fact that, although easily detached, there was great danger of rupture, as the structure was frail by reason of internal ulceration.

No adhesion between the tumor and the anterior parietal peritoneum existed, nor was there evidence of present or past suppuration. The tumor was located below the so-called cecum, was attached to its under surface and extended toward the cavity of the pelvis. No evidence of complete perforation of the appendix could be found. Great difficulty was experienced in exposing the portion of the appendix imbedded in the exudation. During the course of the manipulations directed to this object, the frail pulsatious extremity of the organ was easily torn off. However, this accident afforded the opportunity at once of passing a small grooved director into the remaining portion of the appendix for about one inch, then an obstruction was met which was found to be caused: 1, by a complete occlusion of the lumen at that point and 2, by a nearly right-angled bend of the organ. This portion of the appendix and the super-imposed lymph were divided with scissors, thus exposing the lumen to the point of constriction. Afterwards, with some difficulty, the constriction was overcome, and a probe was passed through the remaining inch of the appendix into the caput coli. This, the latter part of the appendix, was much dilated and contained offensive fluid material, while the remaining portion of the organ contained inoffensive pulsatious matter. The appendix was tied within one-half inch of the cecum and the remaining external portion was slit up in the manner before described and cut off at the seat of ligature. On account of the obstinate capillary oozing that attended all efforts to dissect the appendix from its environments, a complete removal was not accomplished. However, all offensive matter was scraped away together with much of the appendix itself, the external incision was reduced to two inches in length by wire sutures; the wound, after thorough disinfection, was lightly packed with iodoform gauze, and the patient was put to bed.

The remaining portion of the history is entirely uneventful. The temperature at no time rose above 101.4 F. per rectum, and after a few days subsistence on milk, koumiss and the like, he was permitted to partake of a more substantial diet. At the end of two weeks he was allowed to sit up, and was discharged about four weeks after operation. At the time of discharge there was a very small sinus, thread-like in size, leading down into the wound. This was due no doubt to the presence of the silk ligature there, employed to tie the appendix.

Case 2.—A. F. S., farmer, aged 45, temperate and with good family history. This patient came under my notice through the advisement of Dr. L. J. Brooks, of Norwich, N. Y., on June 18, 1894, with the following history:

Had always enjoyed good health until the summer of 1893, during which season he had suffered from occasional diarrhea and uneasy sensations in the "right side of the belly," as he expressed it. Suddenly, in September, 1893, he was attacked with severe pain at the right side of the lower

part of the abdomen, and for this reason was obliged to go to bed, where he remained for two weeks. Swelling occurred at the seat of the pain and it was tender there. However, the swelling gradually subsided as the attack "wore off." He made a slow recovery, resuming labor some time in November. He did not regard himself as well then, since he was unable to perform the usual amount of labor, and suffered from great despondency at the same time. Suddenly on April 9, 1894, he was again seized with severe pain in the same region, and was confined to bed for eight days.

Since the last attack the patient has had more or less soreness and dragging sensation in the right iliac region, and has been unable to work. The pain attending the attack radiated toward the ribs of the right side and down the right thigh. Following the attack he suffered frequently from a dull pain extending down the left thigh. Neither vomiting nor diarrhea attended the attack and his appetite was unimpaired.

Physical examination revealed no organic disease. In the right ileo-inguinal region a small, slightly tender and movable tumor could be easily outlined. It was situated about two inches from the anterior spinous process of the ilium and extended directly downward; this the patient said had been the seat of all previous acute local pain and tenderness. He was advised to submit to an operation at once, for the double purpose of removal of the appendix and relief from despondency. Accordingly, on June 20, 1894, he was subjected to operation in the presence of the visiting and resident staff of the Hospital. The operation developed the following items of interest:

1. The incision was made directly upon the tumor, as there was no reason to believe that it extended toward the pelvic cavity.

2. It was placed about two inches from the anterior superior spinous process of the ilium.

3. No difficulty was encountered until after the division of the peritoneum. Then there was found to be a thick layer of distorted omentum lying in front of the caput coli. This structure extended down to Poupart's ligament and was everywhere attached to the abdominal wall, except at the outer border of the incision.

4. The caput coli was bound down by old adhesions and rolled outward, so that the fibrous band leading to the base of the appendix could not be seen until after the separation of the gut from the abdominal wall and its normal replacement had been made.

5. The appendix was turned upward and outward below the caput coli in such a manner as to cause the apex to lie to its outer side.

The organ was entirely enveloped in dense lymph, somewhat vascular, but easily separable from the contiguous tissues. There was no perforation of the appendix. The lumen was distended with jelly-like inoffensive products.

6. At the outer side of the upper part of the caput coli was found a small amount of caseous pus, evidently the product of an antecedent inflammation.

Such were the conditions and in the order of their appearance. It may be well now to speak of the technique employed to meet the unusual conditions. The interposition of distorted and adherent omentum is not of common occurrence in my experience. However, the obstacle was easily though slowly overcome by tearing an opening through the tissue over the seat of the caput coli. It was believed that this bowel would promptly protrude as soon as the measure was taken, and consequently expose to view the fibrous band of the colon that leads to the base of the appendix. Such, however, was not the case, as only small intestines appeared and the caput coli was nowhere observable. The edges of the wound were then drawn widely apart, and after careful sponging, an "account of stock" at hand was taken. It was seen after careful scrutiny that the ilium appeared to rise from the anterior surface of the head of the colon instead of the accustomed location, and that the head of the colon was rolled outward, which explained the unique relation of the ilium to it. The adhesions were easily separated, the head of the colon placed in the proper position, the appendix and the surrounding exudate separated *en masse*, appendix tied with a silk ligature, cut and removed. The caseous pus was dissected and scraped away; hemorrhage checked, wound partially closed and dressed as in the preceding case. In this case I think the wound could have been permanently closed with safety. But, inasmuch as pus products might have tainted it, despite the closest attention, I deemed it wiser to treat it by the open method. The patient made an uneventful recovery, the temperature at no time going above 101 F. per

rectum, and this for a day only. In two weeks he was permitted to sit up, and in six weeks was sent home in a most cheerful mood.

Case 3.—Mr. S., aged 27, student, good family history. This patient came to my attention on July 3, 1894, in St. Vincent's Hospital, from a neighboring city. He gave the following history: Had been the subject of diarrhea for a long time, before the appearance of any complicating trouble. During the summer of 1891 he had an attack of diarrhea and vomiting, in the course of which he was seized suddenly with a severe pain in the right side, followed by tenderness there and an exaggeration of the first-mentioned disorders. As the result of these manifestations he was confined in bed for five days, but at the end of two weeks he regarded himself well again, notwithstanding slight tenderness yet remaining in the right inguinal region. He declares that he had a fever during this attack. Twice after this, at intervals which he is unable to recall, he was confined in bed for a short time with diarrhea and pain in the right side. Suddenly in November, 1892, he had a severe attack and was confined to bed for two weeks and unable to work for three weeks thereafter. During this attack the axillary temperature was somewhat increased. The exact record is in doubt and will not be quoted. After this attack he was able to attend to his duties with comparative comfort, although he suffered from pain in the side only as the result of indigestion and active exercise. During the last two winters he has been afflicted with a severe cough, which disappeared with the incoming of spring. Thinks he may have had malaria at that time.

Physical examination shows the patient to be organically sound. Slight tenderness can be elicited on deep pressure in the right iliac fossa at the place where previous tenderness had existed. The presence of tumor could not be detected. In view of the long continued trouble and the clear history of previous attacks of appendicitis, as diagnosed by very reputable physicians of his native place, and the seeming loss of courage to continue his labors without operative aid, I advised prompt operation, which was done on July 9, in the presence of many of the visiting and surgical staff of the Hospital. The following items will be of interest in connection with this case:

1. No tissues were cut except those lying on the aponeurosis of the external oblique and those beneath the transversalis muscle. The opening was made in each of the other tissues by separating the fibers of the respective structures in the long axis at a point directly over the caput coli. The sub-transversalis tissues were divided in the same direction as were those above the external oblique. It is apparent at once that this plan of procedure permits the separated fibers to return to their proper relationship when all restraint is removed, thus securing to the abdominal wall the greatest possible strength at the seat of the operation, and doing all that is possible at that time to obviate consequent hernia. The peritoneum and the integument with their associated tissues were united in the manner common to each. To Dr. McBurney belongs the credit of this which now appears to be a most valuable suggestion in the technique of abdominal incisions for this trouble. When this course is taken it is contemplated that the wound shall be closed at once, which was done in this case. However, I am of the opinion that similar steps are proper when the wound is to be treated by the open method, and for similar reasons also.

2. The appendix was not less than five inches in length and extended into the pelvic cavity. No evidence of present or past disease was seen, except that indicated by the congested appearance of the appendix itself, which was best marked near the middle of the organ. An incision into the lumen, made by Dr. Gouley, disclosed the presence of a small fecal concretion surrounded by a surface of well-advanced ulceration. The appendix was ligatured with catgut and removed, leaving a stump about one-half inch in length. This patient made a prompt recovery so far as the operation was concerned, the wound was healing by first intention without an unfavorable local manifestation. During the course of recovery, however, the patient experienced an attack of sub-acute pleurisy of the left side, and also of mild malarial fever. For these reasons it is impossible to properly estimate the symptoms dependent on the operation alone.

Case 4.—Lieutenant C. F. P., aged 32, member of U. S. Army. This patient's previous history is good in all essential respects. He came to my attention August 16, and was referred to St. Vincent's Hospital for operation two days afterward. On admission the following history was elicited: Was perfectly well until May, 1888, when, without apparent

cause he was seized with a sudden severe pain in the right inguinal region, which was so intense that he could not move. At the end of a week a considerable tumor was found in the right inguinal region which, however, gradually disappeared during the succeeding two months. During this time had an increased and varying temperature. Aspiration of the tumor disclosed no pus. A short time after recovery from this attack he experienced another of less intensity, which confined him to bed for six weeks. No tumor was noticed during this time. One year after this, he had a slight attack of one week's duration, and the outset of which was coincident with an attack of indigestion. From this time until the present attack (August 3, 1894) any intestinal disturbance was quickly followed by pain in the right side. Since the first attack (1888) the patient has suffered from constipation with attendant colicky pains.

The present attack began August 3, 1894, with pain and tenderness in the side, loss of appetite and vomiting. For the next three days he attended to his military duties, although with much difficulty on account of pain and tenderness. The temperature was above normal during the last two days. He was sent from the State Camp at Peekskill to St. Vincent's Hospital on August 11, 1894. At this time he had pain, tenderness and tension of the right side, and a tender tumor was easily located just inside the anterior superior spine of the ilium. Rectal temperature 103 F.; pulse 82; respiration 26 at this time.

The patient was subjected to operation August 12, 8:45 A.M., at which time the rectal temperature was 102½, and in all other respects the condition was similar to that of the preceding day. Before the operation I expressed the belief that the appendix, in this instance, was curled upward and outward below the cecum, the apex lying somewhere at the outer side of the caput coli. I ventured this prediction because of the fact that the entire painful induration was placed at the outer side of the caput coli, and also because the tension and tenderness were noted not only there, but also above the iliac crest of the same side. During the course of the operation the following facts were demonstrated:

1. The contiguous parietal peritoneum was adherent to the outer and upper surfaces of the caput coli.
2. Extensive induration was found at the inner side of the anterior superior spine of the ilium, extending upward and downward considerable distance.
3. An abscess containing about two ounces of offensive pus was discovered at the posterior and outer surface of the caput coli.
4. The appendix could not be seen. Evidently it was confined in the mass of induration, and was no doubt perforated at or near the apex, and opened into the abscess cavity. The base of the appendix could, I am sure, have been located by following downward the fibrous band of the colon that leads to it. But the realization of this proposition would have required the direct opening of the peritoneal cavity through the peritoneum mentioned already as adherent to the head of the colon. In view of the fact that it was deemed unwise to thus expose a healthy peritoneum to the septic influences of the abscess close at hand, the appendix was not disturbed. The abscess was drained through the loin, cleansed and lightly packed with iodoform gauze. The patient made a rapid and uneventful recovery. The induration disappeared quickly. At the present time the wound is nearly healed and the patient complains only of the constipation, which dates from the time of the first attack.

It will be noticed at once that each of these cases is a secondary one, and therefore of special significance, since the afflicted have thus far escaped fatal termination. The first case sustained four attacks, the second two, the third and the fourth three each, thirteen in all. Seven of these attacks were severe ones confining the patients in bed from two weeks to two months. Six were slight, causing confinement of some, four days to two weeks. The recorded intervals between attacks vary from five years to two weeks. Well marked fever attended the majority of attacks. The duration and degree of fever, however, could not be ascertained with sufficient certainty to be of reliable importance, except that of the fourth case, which was under the observation of Dr. Nelson Henry while at the State camp. Tumor was noted in six of the attacks. Pus was evacuated in the fourth case by

operation, and found in the second in a caseous state during the operation. The appendix extended downward and inward in two instances. In one (third) it was five inches long and extended into the pelvis. In the first the diseased apex was adherent to the peritoneum covering the brim of the pelvis. In the remaining cases it curved outward and upward below the cecum. In three-fourths of the cases intestinal disturbances were pronounced as an initiatory symptom or probable exciting cause. Mucopus was present in the appendix in two instances; a fecal concretion in one; in the other the appendix was not found. It appears to me that considerable importance can be attached to the fact that the tumor of the first case was movable, comparatively near the pelvic brim and easily defined, because these peculiarities indicate: 1, a long mesentery of the appendix; 2, circumscribed tumor contiguous with intestinal folds; 3, an appendix within or near the pelvic brim. All of which bespeaks great danger to the patient from general peritonitis if rupture had taken place.

If these conclusions be true, then prompt operative action should follow the detection of a tumor having these peculiarities. If no tumor were found following a perforation of an appendix thus located, then, indeed, is the danger enhanced and all possible operative dispatch is demanded. The presence of the softened extremity of the appendix in this case, of itself, demanded operation, for obvious reasons.

Case 2.—In this the tumor was below the cecum, of small size, and pain occurred in the right thigh. These facts indicated that the appendix extended downward, and that the diseased action had involved the crural nerves. Although less dangerous than the former under unfavorable conditions, still easy general infection could quickly ensue from a perforation of appendix or of abscess in this situation. The dragging sensations of the right side which annoyed the patient before the operation, disappeared after recovery. This suggests that they were caused by the adherent omentum that defined this case, the relief coming from the division and separation of it that was necessary to properly expose the caput coli.

Case 3.—No tumor was discernible in this case, but deep and long-standing tenderness, and occasional pain called for operation here. The presence of the fecal concretion near the middle of an ulcerating appendix, without the slightest external adhesions, emphasize the probability of subsequent sudden perforation, followed by pelvic inflammation and possible death.

Case 4.—The presence of the greatest pain, tension, tumor and tenderness, at and above the spine of the ilium in this case indicated that the appendix turned outward and upward below the cecum, and extended above the spine at the outer side of the caput coli. The situation of the abscess at this point, together with the fetid pus it contained and its limitation on all sides at this situation, is confirmatory of the fact that the appendix was thus placed. It is fair to assume that the environments of this appendix were such that the dangers from perforation, or from rupture of abscess, were reduced to a minimum. The long interval of time (over four years) between the last and the previous attack, emphasized the fact in no undoubted manner that one without operative relief is constantly menaced by this disease.

The appendices were tied about one-half inch from

the cecum, the end touched with cautery, and in two instances the tissues were turned inward by sewing. But recently I saw two other cases which resembled in the physical aspects the fourth of the series. One was a secondary case.

It appears to me that the results of these cases justify the following conclusions:

1. That prompt operation in the interval of attacks is an advisable and safe procedure.
2. That the physical characteristics of the local changes define quite clearly the situation of the appendix, and thus indicate with much certainty the prognosis of the case.

CRANIOTOMY IN MICROCEPHALUS.

Lecture delivered to the Post-Graduate Medical School, Chicago, 1893.

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(Concluded from page 646).

What has been done so far? I have been able to collect seventy cases of this operation, all being on record; all histories were not obtainable; many cases have not been published. Most of the reports come from France and America, only one each from Germany, Italy and Spain. This shows clearly that the German surgeons are conservative or reluctant in this question. They do not operate in these instances. Their standpoint is clearly shown in the discussion, which was held when Case 47 of our table was presented before the Medical Society of Vienna. The histories of all cases of Lannelongue, though I tried to get their details I could not obtain, and must only refer to his *résumé* before the Congress of French Surgeons in which he gives a detailed account of what he has done. I have purposely excluded all cases that have been trephined on account of other diseases, which were combined with idiocy but not of the microcephalic kind, because they do not belong to this class of arrested development.

In the accompanying table I give a short account of two cases of Lannelongue; two cases of Horsley; three cases of Keen; seven cases of Roswell Park; two cases of Lane; two cases of Maunoury; two cases of Wyeth; two cases of Chenienx; one case by each Heurteaux, Auger, Kurz, Largeau, Prengreber, Frank Fuller, Lanphear, Miller, McClintock, Bauer, Gerster, Trimbl, Ransohoff, Larabrie, Cerne, Estor, Binnie, Duran, Shears and Van Lennep, Gersuny, and last, two of mine.

There are two claims of priority, one by Dr. Fuller, of Grand Rapids, who has done, we can say, a regular craniectomy with good success in 1874, and has reported it; one by Dr. Lane, who operated in 1888, but did not report this operation until 1892; nevertheless Lannelongue remains the pioneer.

I, myself, have operated for microcephalus twice, and I will now give the history and *decursus* of the cases:

Case 1.—Josephine McC., age 15 months; fireman's child; came Oct. 4, 1892, to the children's department of the Polyclinic, service of Dr. Detlefsen, who recorded the following history: Since the third month of her life, her mother noticed that the fontanelles were closed, and that the child had jerks in arms and legs, and spasms; the latter twice or three times a week, the former almost continuously. No hereditary disease. Present condition: Strongly built child, good muscles and structure of bones. The skull too

small for the face, fontanelles closed; slight depression on the left parietal bone. The head is not held upright but falls passively backward or forward. Pupils large, equal reaction. The eyes always directed toward the right side. Contractures in arm and shoulder muscles; good deal of resistance to stretching. The left leg seems less movable than the right one. No contractures in the legs. If the muscles are pinched there is no expression of pain noticeable. The spinal column is held very stiff. The patient referred to Dr. Beck's clinic. Oct. 10, 1892, Dr. Harnisch examines the eyes; negative results. October 16, capillary bronchitis. November 7, operation in chloroform narcosis, by Dr. Schalek. Assistants, Drs. Wagner and Gaffney. The head appeared, when shaved, very small in its frontal and parietal region; less disproportionate in the occipital. The measures have been taken exactly, but inasmuch as they have no weight, I omit to record them.

The operation was done in the above described manner; the skull exposed by an incision forming a large flap with the base toward the squamous portion of the temporal bone of the left side. The hemorrhage was not heavy, for we used Esmarch's compression. One button was removed with the trephine and anteriorly and posteriorly a strip taken out with Luers forceps. The craniotomy being done on the left side only and in an extension of about twelve centimeters length and one centimeter width, it seemed to me sufficient at that time for at least the first trial, and I closed the wound without drainage. It healed by primary union, without the slightest local reaction.

Immediately after the operation the parents, who were instructed to watch the child carefully, and who were intelligent enough, noticed a great change. The child had hardly a jerk for the first few days, looked brighter, did not roll the eyes and the contractures disappeared. It looked altogether like a healthy child. This very promising condition continued for a few weeks, when some jerking occurred again but no spasms; the parents sometimes thought that the child showed some intelligence. It looked around when its little sister passed by, and tried to laugh at her, but these slight improvements changed so very little for a long time that it seemed to me that the operation had only a temporary result. I had shown the little patient to several well-known physicians and nervous specialists before and after the operation, and they agreed that the child had improved some. Still the change was not so well marked as to warrant the truthful opinion that it was due to the operation alone, and not to the increased attention of the parents after the operation. At present, about one year after the operation the condition of the child is as follows: The physical change is remarkable, the head larger and if measured shows great difference between now and before the operation. There is no disproportion between face and skull. The jerks are still the same, but the spasms have disappeared. The mental condition is not very much improved; the child seems to notice the light, seems to turn the head toward her mother calling her name, but it has not learned to speak any or to sit up. The contractures of the muscles appear once in a while. Altogether the result is a slight but progressing improvement.

Case 2.—Anton Hopp, aged 2 years; cigarmaker's boy. Was referred to me by Dr. S. Goldmann, of Chicago. The father gave the following history: He and his family had been always healthy; there was no hereditary disease either in his or in his wife's family. The child was the fifth of his second wife. The confinement normal and nothing abnormal was noticed in the child during the first few weeks. At the age of about 4 weeks the parents noticed that the child bored the head constantly backward into the pillow, and tried to stretch it even when there was no pillow, but the hard table. A physician who was consulted at that time found that the child's skull was abnormally small and that there was no trace of fontanelles. From this time on the child grew worse, the overstretching of the head kept

RECORD OF CASES OF CRANIOTOMY.

| Name of Operator and source. | Date of Operation. | Age and Sex of P. | Disease and Symptoms. | Operation. | Immediate Result. | Remote Result and Remarks. |
|---|--------------------|---------------------|--|---|---|---|
| 1. Fuller (Grand Rapids), Chicago Medical Record, Vol. viii, No. 9. | 1874. | Child, ? | Chronic compression of brain. Not able to swallow, continuous spasms. | Three buttons removed by trephine and spaces chiselled out. | Spasms ceased immediately and deglutition possible. | Improving steadily. |
| 2. L. C. Lane, Journal Amer. Med. Asso., Jan. 9, 1892. | Aug. 28, 1888. | ? | Microcephalus due to premature ossification of sutures. Imbecility. | ? | Death 14 hours after operation, on account of prolonged anesthesia. | ..... |
| 3. L. C. Lane, Journal Amer. Med. Asso., Jan. 9, 1892. | 1892. | ? | Microcephalus. Imbecility. | H-formed craniectomy. | Better result; gives signs of better intellect. | ..... |
| 4. Lanneiongue, L'Union Médicale, 1890, No. 81. | May 19, 1890. | Girl, 4 years. | Microcephalus. Idiocy. Has no intelligence at all; can not walk, constant salivation. No contractures, no paralysis, no epileptic fits or equivalents. | Left linear craniectomy. | Child is more calm, not crying since day after operation, laughing, seems to be interested about her surroundings can pronounce some words. (Dupré, interne June 15, 1890.) | ..... |
| 5. Lanneiongue, L'Union Médicale, 1890, No. 81. | June 20, 1890. | ? | Microcephalus, with more pronounced idiocy than Case 4. | Left linear craniectomy. | ..... | ..... |
| 6. W. W. Keen, Medical News, Nov. 29, 1890. | Nov. 5, 1890. | Girl, 4 yrs. 7 mos. | Microcephalus. Closed fontanelles and sutures. Never walked; could speak a few words when small, then lost speech. No contractures, no paralysis; had slight convulsions. | Nov. 5, 1890, left linear craniectomy, Feb. 17, 1891, craniectomy on opposite side. | Child more quiet, looking around at what is going on. | Since second operation no amelioration. Altogether the child is some better but not to that degree as Lanneiongue's case. |
| 7. Bauer, St. Louis Clinique, April, 1890. | 1890. | ? | Microcephalus. Of low intelligence but not imbecile. Since 6 years unable to walk. Motor paresia and contractures. | Linear craniectomy, two buttons removed space chiselled out. | Five days after operation less rigidity, patient can walk. | ..... |
| 8. John A. Wyeth, N.Y. Medical Record, Feb. 21, 1891. | Jan. 2, 1891. | Boy, 11 years. | Microcephalus (head of baby 2 months). Cranial bones firmly ossified, fontanelles closed when 4 weeks old; cataleptic attacks, jerks in hands, talipes, equino-varus. | Linear double craniectomy with side incisions. | Collapse during operation, rallied well; 3 days after operation some improvement, less jerks, inversion of feet less noticed. | One month after operation change surprising and gratifying, remarkable increase of intelligence. |
| 9. W. W. Keen, American Journal of Medical Science, June, 1891. | Jan. 16, 1891. | Boy, 16 months. | Microcephalus. Idiocy. Ant. fontanelles small at birth, closed at seventh month; convulsions. | Left linear craniectomy. | Death 1½ hours after operation; heart failure. No postmortem. | ..... |
| 10. Heurteaux, Nantes, Congrès des Chirurgie, France, 1891. | Feb. 1, 1891. | Girl, 5½ mos. | Microcephalus. Idiocy, epileptic fits, convulsions, vomiting of even blood, contractures of hands. | Craniectomy. | Immediately after operation child takes breast, does not vomit, no convulsions, then growing worse. Death March 7, 1891. | No enlargement of head. |
| 11. Th. Auger (Paris), Congrès des Chirurgie, France, 1891. | Feb. 11, 1891. | Girl, 8 years. | Normal size of head but depression on left side. At 15 months child began to walk, fontanelles long time open and depressible. Since age of 18 months retarded development of intelligence. | Linear craniectomy. | Eight days after operation asking for soup and salad. | March 16, 1891, mother writes: "All the people find a remarkable change of intelligence in my child." |
| 12. Maunoury (Chartres), Congrès des Chirurgie, France, 1891. | ? | Girl, 4 years. | Microcephalus, with premature ossification of sutures. Fontanelles closed at age of 3 years, never walked; contractures of hands, convulsions. | Linear craniectomy. | Immediately after operation better. | Later on the same improved condition. |
| 13. Maunoury, ibid. | March 2, 1891. | Boy, 2 years. | Microcephalus. Fontanelles closed at 7 months, idiot with convulsions and strabismus internus. | Left linear craniectomy. | Death 21 hours after operation. | ..... |
| 14. I. C. McClintock, St. Louis Courier, 1891. | March 28, 1891. | Girl, 3 yrs. 8 mos. | Microcephalus, due to premature ossification. No fontanelles; idiocy; can not walk nor stand, nor be well nursed. Nothing noticed up to age of 2 years; blind, right eye protruded (pressure); contractures. | Double craniectomy | ..... | Mother says: "Since operation child tries to sit up, is not so restless and tries to play with others." |
| 15. Roswell Park, Medical News, Dec. 10, 1892. | June 21, 1891. | Boy, 5 yrs. 6 mos. | Skull small for his age. Retarded mental development though not imbecile. Baby, jerking convulsions at age of 6 mos; grand mal. | Linear craniectomy, with side diacission over fiss. Rolandi. | ..... | He now runs and plays with other children. (Dec. 10, 1892. |
| 16. Roswell Park, Medical News, Dec. 10, 1892. | June 13, 1891. | Girl, 4 years. | Congenital microcephalus. Imbecility, muteness. | Linear craniectomy, with side incisions over fiss. Rolandi. | After result. | Practically nil. |
| 17. Largeau, Congrès des Chirurgie, France, 1892. | July 2, 1891. | 8 years. | Microcephalus due to premature ossification. No fontanelles, never walked, never talked, can not grasp anything (mother has a congenital luxation) and contractures. | Craniectomy & lambeaux. | July 4. Sitting up and eating. July 6. No contractures, brighter. | Seven months later: Head larger, can call brother, grasps objects, can not walk yet but does not fall. |
| 18. Victor Horsley, British Medical Journal, Sept. 12, 1891 | Sept. 12, 1891. | Boy, 8 years. | Microcephalus idiot; can not feed himself, eating his excretions, moving constantly, good physical health. | Left linear craniectomy. | Three days after operation child better; nurse (who has been with patient 9 mos. before) says less restive, much quieter. Father and nurse struck with rapid improvement. | Dr. Wylie: "Improvement most marked and continued." |
| 19. Parkhill, Medical News, Feb. 27, 1892. | Oct. 9, 1891. | Boy, 4 years. | Microcephalus. No speech, no sense, falls down on his face two or three times a day. | Incision elliptical 3¼x6½ inches. | Condition very much better after operation. | ..... |
| 20. Roswell Park, Medical News, Dec. 10, 1892. | Oct. 20, 1891. | Boy, 18 years. | Upper portion of cranium relatively small though not conspicuously; intelligence of a child of 3 years. | Irregular triangular piece chiseled out. | Arachnoid and pia mater edematous, bone thick, 1 cm., death several hours after operation from exhaustion. No postmortem. | ..... |

| Name of Operator and source. | Date of Operation. | Age and Sex of P. | Disease and Symptoms. | Operation. | Immediate Result. | Remote Result and Remarks. |
|---|--------------------|--------------------|--|--|--|---|
| 21. Binnie, Kansas Medical Index. | Nov. 6, 1891. | ? | Microcephalus. Idiot, at 4 mos. all fontanelles and sutures closed; eyes and head rolled, seems to recognize friends, stretching arms towards them | Left linear craniectomy. | Condition very poor right after operation, death 15 hours after. (Chisel and mallet used necessitated inversion during operation.) | |
| 22. Roswell Park, Medical News, Dec. 10, 1892. | Nov. 7, 1891. | Boy, 15 years. | Helpless idiot with epileptic fits. | Linear craniectomy. | Death from shock. No postmortem. | |
| 23. Roswell Park, Medical News, Dec. 10, 1892. | Nov. 14, 1891. | Boy, 9 years. | Microcephalus, with Aztec-like skull. Idiot, with epileptic fits. | V-shaped craniectomy. | Immediately after operation, less fits. | One year later speaking plainly—astonishing results. |
| 24. Roswell Park, Medical News, Dec. 10, 1892. | Nov. 14, 1891. | Boy, 12 years. | Asymmetry of skull, depression on right side. Imbecile, epileptic. | Craniectomy. . . . | Three months after operation, less fits. | One year later, no improvement since last time. |
| 25. Roswell Park, Medical News, Dec. 10, 1892. | 1892. | ? 14 months. | Microcephalus. Closed fontanelles, seems to recognize between dark and light. | Craniectomy, | Death one day after operation. | |
| 26. W.W. Keen, American Journal of Medical Science, June, 1891. | Dec. 8, 1890. | Girl, 18 months. | Microcephalus. Idiotcy. | 1. op. Craniectomy on one side, March, 1891. 2. op. Craniectomy on opposite side. | Hospital attendants are decidedly of the opinion that she is quieter and calmer at her head much less than before. Keen himself can not see much difference. | Progress like his first case. |
| 27. Gerster and Sachs, American Journal of Medical Science, June, 1891. | ? | Girl, 4½ years. | Microcephalus. Idiotcy; several attacks of convulsions, loss of speech, closed fontanelles. | Linear craniectomy. | Death. | |
| 28. Shalders Miller, British Medical Journal. | March 21, 1892. | Boy, 8 months. | Microcephalus. Complete ossification of fontanelles (not at birth), blind (optic neuritis), contractures, cryptorhinism, bad deglutition. | Linear craniectomy (periosteum removed). | Spastic condition diminished, testicle descended, all symptoms improved very much. | May 18. Still improving. |
| 29. J. Frank, Chicago Medical Rec., Vol. VIII, No. 9. | 1892. | Boy, 3½ years. | Microcephalus. Ossification of sutures, no fontanelles, spasms from birth, tonic and clonic contractures, totally blind, impaired hearing. | Double linear craniectomy (chisel and mallet). | Ten days after operation, suppuration, enlargement of head ¼ of an inch antero-post. | No improvement whatever. |
| 30. Ransohoff, Medical News, June 13, 1891. | ? | Girl, 8 yrs. 7 mos | Microcephalus. In progress of ossification, left parietal bone overlapped the right, left arm less used. | Linear r. craniectomy | Gratifying degree of success, enlargement of diameters, mental action clearly present. | |
| 31. Larabrie, Semaine Med. April 1, 1892. | ? | 5½ mos. | Microcephalus. | Craniectomy. | Improvement 48 hours. Death five weeks after operation. | |
| 32. Cerné, LaNormandie Médicale, Oct. 15, 1892. | ? | 8 yrs. 3 mos | Microcephalus. | Craniectomy. | | At the end of one year the result seemed perfectly satisfactory. |
| 33. Estor, Montpellier Medical Journal, June 4, 1892. | ? | ? | Microcephalus, with usual symptoms. | Craniectomy. | No appreciable improvement in the child's mental condition. | Only benefit child derived, it could stoop down and pick up things without falling. |
| 34. E. Kurz, Nr. Med. Presse, Oct. 23, 1892. | March 31, 1892. | 18 months. | Microcephalus. Idiotcy, with epileptic seizures, | Craniectomy. | Eight weeks after operation perfect restoration of bone, seizures lighter, child continues to become brighter. | ? |
| 35. Chénieux, Congrès des Chirurgie, France, 1892. | ? | Small Girl. | Microcephalus. Ossification of sutures. | Double craniectomy, à deux temps. | ? | |
| 36. Chénieux, Congrès des Chirurgie, France, 1892. | ? | Boy. | Microcephalus. | 1. op. done by Laune-longue; linear craniectomy. 2. op. done by Chénieux in V-shaped form. | Some amelioration from first operation, but family wished still better results. | |
| 37. Duran, Revue Intern. de Bibliologie, March, 1892. | ? | 5 years. | Microcephalus. Idiocy, strabismus, constant moving of head. | Linear craniectomy. | Following day all symptoms improved, strabismus disappeared, child brighter. | Eighteenth day after operation death from smallpox. |
| 38. Lanphear, Medical Brief, St. Louis, Sept. 1892. | July, 1892. | Boy, 4 years. | Microcephalus. Idiot, hopping walk, no speech, never showed the slightest evidence of sense. | Double craniectomy, à deux temps within six weeks. | Now, two months after operation, child begins to walk, to say mama, papa, cat, dog, etc. Can feed himself. | |
| 39. Victor Horsley, British Medical Journal, Sept. 12, 1891. | ? | Boy, 7 years. | Microcephalus, with usual phenomena. Epileptic fits since age of 7 months, | Craniectomy. | During operation the pulse became weak, the breathing fast. Death 3 days after operation. | |
| 40. Lanphear, Kansas Medical Index. | November, 1891. | Girl, 11 years. | Microcephalus. Idiocy. When 7 years old began to go to school, to learn to read, etc. Then fits of convulsions, head became smaller, intelligence decreased. Otitis med. supp. | Craniectomy, with opening of dura. | Death 42 hours after operation. Autopsy: Cyst above center of speech, lepto-meningitis. | |
| 41. Wyeth, Int. Surgic. Journal, Nov. 1891. | ? | Boy, 6 years. | Microcephalus. Closed fontanelles. Idiot, with epileptic convulsions. | Double craniectomy. | The child showed very much improvement the following week. | |
| 42. Prengreber, Gazette des Hôpitaux, Jan. 1892. | ? | Boy, 9 years. | Microcephalus, with asymmetry of skull. No fontanelles and prematurely ossified sutures. Has the intellect of a child of 4 years, does not walk nor talk, constant salivation, loves music, used to walk when 3 years old. | Left linear craniectomy. | First day: Brighter, clear language, no salivation, wipes his mouth, blows his nose, plays with small trumpet and cannon, asks for vessel. | |
| 43. Trimble, Medical News, 1891. | Nov. 8, 1890. | Boy, 3 years. | Microcephalus, with ugly temper. Can not raise his body from horizontal position, can not talk, constant salivation. | Right linear craniectomy. | Temper better. | Sits in baby's chair, calls papa, mama, and peek-a-boo. Evidently improving. |
| 44. Van Lennep, Hahnemannian Monthly, 1891. | ? | Girl, 14 years. | Microcephalus. Looks like a two-year old girl, takes no interest in anything, can not stand by herself, no paralysis. | Linear craniectomy. | Some improvement. . . . | Has been very quiet since. |
| 45. Hartley Starr, N.Y. Med. Rec., Jan. 1892. | ? | Girl, 7 years. | Epilepsy. Weak mind, hemiplegia. Was born healthy and remained so up to age of 5 mo. | Linear craniectomy. | No marked improvement, is often unconscious. | |

| Name of Operator and source. | Date of Operation. | Age and Sex of P. | Disease and Symptoms. | Operation. | Immediate Result. | Remote Result and Remarks. |
|--|--------------------|-------------------|---|---|--|---|
| 46. Sheara, <i>Mahne-mannian Monthly</i> , 1893. | ? | Girl, 6 years. | Microcephalus. Irregular head. Idiotcy, can not walk, no control over urine and feces. | Left linear craniectomy. | At once signs of improvement. | Three months later, control of urine and feces, uses three words. |
| 47. Gersuny, <i>Nr. Med. Wochenschrift</i> . | September, 1892. | 8 months. | Microcephalus. Three months normal development, then epileptic fits; synostosis of sutures and fontanelles. | Circular craniectomy. A strip removed horizontally through vertical incisions in the scalp in two sittings. | Primary union, fits less frequent and less in intensity. | Five months later, very few fits. (Dr. Rie.) |

on, the hands, arms, legs and muscles of the body became stiffer until the child was so stiff that it could be kept straight like a stick, if supported by the head and having its feet on the ground, the body being in oblique position toward the ground. At the same time the saliva dribbled constantly from its mouth, the eyes rolled incoordinately about and never rested on one object. This condition kept on all the time and is the same now, Aug. 28, 1893; the physical condition is otherwise very good. The child shows not the slightest trace of intelligence nor can it sit nor creep, nor does it speak. From time to time it has attacks, sometimes every few hours, of short quick breathing, sometimes jerks all over the body. These jerks and clonic convulsions do not last very long and at the end of each such attack the child cries a little, a sign that the contractions are painful. The head is small, altogether as the picture shows, but the smallness is due to the reduced size of the skull while the face is, comparatively larger. There is no

skin and periosteum flapped back to both sides, on each side a button removed with a trephine, and forward and backward curved excisions of bone made with my modified Luer's forceps, so that the excisions met near the line of the frontal suture in front, without going over one into the other; that is, a double linear craniectomy. The child stood the operation very well and soon afterward the contractures disappeared. The dura did not bulge nor bleed any, nor did the diploë bleed to any extent, the hemorrhage from the skin having been well prevented by a rubber compressive tube. During the first few hours the child was normal, but toward evening of the same day the temperature rose to 100, the pulse being uncountable. On the next morning I looked at the wound because the fever had reached 102, and I found that one stitch-hole was covered with a yellow crust, and on removing the silk-worm gut a drop of yellowish thin pus-like fluid escaped. The wound was washed out with sublimate



CASE I.



CASE 2.

difference between this case and the first one, in regard to the size of a particular region of the skull, but the whole skull is reduced. The fontanelles can not be found, but there is a slight depression on the spot where the small fontanelle normally is situated. The sutures can not be felt through the skin, but they seem to be at least very firmly united, if not obliterated. Measures of the skull were taken, but they are valueless.

We have to deal here, as in the first case, with a microcephalic idiot of low degree with arrested development at an early period of life. Though the case did not seem to me very favorable, it was nevertheless a case worthy of trial of a craniectomy.

August 29, operation was done under chloroform (Dr. Goldnamer) with assistance of Dr. Wagner, before the class of the Post-Graduate School. A median incision from above the glabella down to the protuberantia occipitalis was made,

solution, and the temperature sank some, but afterward rose every day; the child became weaker and weaker, it had chills and strong contractures and died on the seventh day after the operation.

The autopsy made on the next morning showed the following state: The wound was united by primary union except a small place where the stitch had been removed, but the dura was covered with thick yellow pus-like membrane; the diploë next to the excised bone was of yellowish appearance and the putrefaction had evidently gone into the bone. The inner side of the pachymeninx and the brain did not show any trace of a suppurative process. The brain itself is characteristic of a microcephalus; it shows micro- and polygyria, but it shows at the same time hydrocephalus chronicus internus. The ventricles were so dilated and filled with an opalescent fluid that the brain substance, gray and white, appeared only as a comparatively thin shell and sank in when the fluid had escaped. It weighed when measured fresh, 240 grammes; that is for a 2-year-old child

somewhat small. The harmony of the brain is a little disproportionate, inasmuch as the cerebellum seems to be comparatively larger than the cerebrum. The cerebrum will be examined microscopically and the report will be the subject of a special paper.

In regard to the septicemia that had killed the child, I found, that previously to the craniectomy, on the same morning, in the same operating room, a maxillary periostitis had been operated upon, at which the same nurses attended, and dressing partly, from the same jars was used. This shows again that clean operations though perfectly, carefully and aseptically prepared can suffer if done in the same room where infected wounds are operated on, for we can not help infecting against our best will.

I have operated twice more for idiocy, without microcephalus, but I will not report these cases in connection with this abnormality.

We will now consider the peculiarities of the single cases, and from the results obtained, so far, draw our conclusions. As to the age of the patients of the different authors, we find mostly representatives of the early infancy and youth, and only a few children of advanced age; that is over 10 years. There are cases of 5½ months (Larabrie and Heurteaux), but both died after the operation. It seems that this very young age does not bear well such a shock. Lannelongue's cases ranged from 8 months to 12 years, but Roswell Park had an operation of an individual of 18 years, and another one of 15 years, and these both died, so that we might say, if we are allowed at all to judge from these two cases, that older children do not bear the operation as well either. The conclusion may be fallacious, as I say, but time will prove it. By all means an age from 1 to 10 years will be the most favorable for an operation on account of the following points:

1. This age bears the operation well.

2. If we presume that the pathologic changes are progressing, they have not reached an incorrectible state.

As to the sex of the patients there were about as many males as females. The symptoms of the greater number of patients were similar, so that we find pretty nearly the same description in their histories; the physiologic expression is typical, though the anatomy does not show a type. Idiocy, lack of speech and lack of coördinate movements; the patients could not walk and often had contractures of their limbs. Strabismus is mentioned frequently. Restlessness and malicious and wicked temper are also noted. One important factor shows itself as favorable for the result, and that is the occurrence or rather the beginning of the idiocy after somewhat normal conditions of life; the outset of the symptoms in a previously normal child, as in the cases of Auger (Table No. 11), Lanphear, (Table No. 40), etc. We shall refer to these cases later on.

The kind of operation; that is, the different modifications of the original method, vary much in the single cases. In the earlier operated cases, linear craniectomy on one side was mostly practiced; later, double craniectomy with flap formation was done, and this seems the only rational and effective way, though results have been obtained by the one-sided operation. The sizes of the pieces of bone taken out vary as well, in fact they vary so much that the measures have been left out of the *schema*. Periosteum was taken out corresponding to the slit in the

bone, in order to prevent the growth of the bone and closure of the openings made by the operation, but many authors as Kurz, for instance, remark expressly that the bone did not re-appear within months. So it was in my first case, where I can to-day feel the openings. The *modus operandi* consisted in most of the cases of using the trephine first, then a rougeur forceps, the modification of Luer's bone cutting forceps. This method is the simplest and safest. In some cases, as those of Lanphear, Binnie, Roswell Park and others the mallet and chisel was used; but both authors described the use of this method as very unfavorable, because it produced shock in the respective instances. The concussions of chisel and mallet are greater than those from trephine and the saw.

As to the effect of the operation we have to state the immediate effects of the same, the dangers and possible complications, or operative result, and last the remote or curative result. The following table shows the death rate of the operation which is still rather high, if we consider Lannelongue's results with those of the other authors:

| Name of Operator. | No. of Operations. | Deaths. |
|-----------------------------|--------------------|---------|
| Lannelongue | 25 | 1 |
| Fuller | 1 | .. |
| Lane | 2 | 1 |
| Keen | 3 | 1 |
| Bauer | 1 | .. |
| Wyeth | 2 | .. |
| Heurteaux | 1 | .. |
| Anger | 1 | .. |
| Parkhill | 1 | .. |
| Maunoury | 2 | 1 |
| McClintock | 1 | .. |
| Roswell Park | 7 | 3 |
| Largeau | 1 | .. |
| Horsley | 2 | 1 |
| Binnie | 1 | 1 |
| Gerster | 1 | 1 |
| Miller | 1 | .. |
| Frank | 1 | .. |
| Ransohoff | 1 | .. |
| Larabrie | 1 | .. |
| Cerné | 1 | .. |
| Estor | 1 | .. |
| Kurz | 1 | .. |
| Chénieux | 2 | .. |
| Duran | 1 | .. |
| Lanphear | 2 | 1 |
| Prengrueber | 1 | .. |
| Trimbl | 1 | .. |
| Van Lennep | 1 | .. |
| Hartley and Starr | 1 | .. |
| Shears | 1 | .. |
| Beck | 2 | 1 |
| Gersuny | 1 | .. |
| | 72 | 12 |

This makes a mortality of nearly 17 per cent., while Lannelongue's mortality is only 4 per cent. The mortality without Lannelongue's cases is nearly 23 per cent. These figures have a relative value only; that is to say, the mortality will be much smaller the larger the number of cases will be from each single operator, as it is always the case with new operations.

The dangers of the operation are:

1. Shock.
2. Hemorrhage.
3. Infection.

As to the shock, we can say that chisel and mallet have been justly accused and ought to be abandoned

in this kind of brain surgery. The operation ought furthermore to last as short a time as possible. My first operation took twenty-five minutes altogether, but it was simple and uncomplicated, the anesthesia perfect; the second forty minutes. It was a double craniectomy; but we find operations that lasted one hour and a half. Such a prolonged operation can not be without influence on the heart of the patient. Hot applications to the head and reversion of the patient, head downward, have been recommended by Horsley and others as effectual to remedy this accident, and bring back the missing pulse and the respiration.

Hemorrhage has been once the cause of death (Gerster). It can come from the diploë, but generally this spongy tissue does not bleed very much, and the bleeding can easily be checked by pressure. But another source of hemorrhage is more serious, that is the lesion of a sinus. Such an accident can happen and would perhaps be fatal, though in operations on the brain of an adult it has been followed by recovery. Hemorrhage from the scalp is the most common, and can become serious; my experience is that an Esmarch rubber band, fastened tightly around the head can render the operation pretty nearly bloodless. Infection is mentioned as a cause of death in one case; in Lannelongue's only case of death. He thinks that the acutest sepsis killed the child. Asepsis will prevent such an event.

Complications that can happen besides these are manifold: A bulging of the dura may occur after the incision, and may even be so great as to cause fear of a hernia cerebri, but this is rare. The dura may be injured but not purposely; it must be sewed up again. This accident involves a great danger, that is the loss of cerebro-spinal fluid.

To classify the deaths according to their cause:

| | |
|--------------------------|----------|
| Shock | 6 cases. |
| Heart failure | 1 " |
| Loss of blood | 1 " |
| Infection | 2 " |
| No cause given | 2 " |
| | — |
| | 12 " |

The immediate result of the operation has to be distinguished from the remote or curative. The success of those cases that did not die within a few days after the operation was almost a perfect recovery, primary union and an apparent euphoria. The cases which have been described too early, refer to this result only, and these descriptions are valueless, therefore, for our judgment of success. In some descriptions we find the remark that the patients got along very well at first; their conditions improved, they showed advancement, but soon afterwards the old conditions recurred. Such a result must lead to the belief that the development of the brain began, but soon subsided, because the sutures or rather the openings were drawn together again by the tightening cicatrix; such a pathologic change is not proven. In other cases, observed well otherwise, we find that the authors relied too much on expressions and judgments of mothers and nurses; I must warn you, because I know as well as any author who has put on record such remarks, how much can be suggested to the prejudiced physician, how much more to the prejudiced mother or relative. "*Quae volumus, libenter credimus.*"

One author, whose patient died, did not hesitate to record the remark, that the improvement, the brighter

and clearer face of the patient some moments before death were reward and justification enough for such an operation. This is over-enthusiasm.

The improvement that follows the operation and steadily increases, until the child is in normal condition is what we expect and must try to accomplish. Such an improvement has been accomplished in some well authenticated cases by authors whose veracity is beyond reproach.

There is one factor that helps to reach such an improvement; that is the pedagogic. This never has been doubted and is brought to the foreground by the adversaries of the operation. We must concede that a child who has been idiotic for a long time and has been growing worse constantly is neglected as to this point, and therefore can not get better; while to a child after such an operation as craniectomy, with new hopes, the best attention the greatest care is given, and all inventive speculations to improve it are carried out. It gains by this treatment.

Who ever saw the accomplished works which were exhibited at the World's Fair in Chicago, the products of such an education of the feeble-minded and idiots; whoever saw the artistic work that was shown there, and which was done as it is stated, often without supervision of the teachers of the respective schools of the United States, must agree with Bourneville, who advises the surgeons to go and to see the schools of our country that are model institutions and have the proudest results. But that does not exclude the fact that some microcephalic idiots derive great benefit from the operation and later on are able to attend such schools with success.

To classify the results in figures, we would divide the cases in the following categories:

1. Perfect and lasting improvement.
2. Perfect improvement but stationary for some time after the operation.
3. Slight improvement, but good prospects by pedagogic methods.
4. No improvement.
5. Worse condition than before.
6. No results stated, or too early reported.

First category, 16 cases.
 Second category, 4 cases.
 Third category, 1 case.
 Fourth category, 1 case.
 Fifth category, 11 cases.
 Sixth category, 27 cases.

In the first category we would find all the successes, as far as they can be judged, for it would take years to form an opinion. In the second category we find cases that showed marked improvement, but later on remained stationary, or recurred to the old condition. We would have to examine whether the operation was not carried out to the fullest extent or, perhaps, the disease had progressed too far, hence the failure. The other categories are easily understood.

CONCLUSIONS.

1. Craniectomy is a justifiable operation and apt to be successful in the treatment of microcephaly with idiocy.
2. The success depends on the kind of microcephaly and the degree of idiocy.
3. Acquired and late forms give a better prognosis than congenital forms.
4. The danger of the operation is not very great.

5. The operation ought to be quite extensive, that is, the incision in the skull large enough, to permit dilatation, and the circular method of Gersuny ought to be given a trial.

6. The patients must be given a thorough pedagogic treatment afterward.

7. The single cases ought to be followed up for years and reported from time to time.

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PRACTICAL DIFFICULTIES OF MEDICAL HEALTH OFFICERS AND PHYSICIANS IN DEALING WITH SUSPECTED CASES OF DIPHTHERIA.

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It is within the recollection of almost all of us that it is not more than ten years since scientific investigation gave us any actual idea of the immediate cause of the disease known as diphtheria. At that time even its contagiousness was disputed by many; and while medical practitioners having experience with the disease had noted its special incidence in certain localities and still more in certain dwellings, yet the cause was by most supposed to be due to local unsanitary conditions wherein the decomposition of organic matter, whether animal or vegetable, in cellars, sewers, etc., was supposed to exert a causative influence. While to-day such conditions are readily acknowledged to exert influences favorable to the occurrence of the disease, yet actual observers of this as of other zymotic diseases give such influences the secondary place, and speak of them as exciting causes rather than as the immediate cause. The part which the presence of decomposing organic matters plays in the dissemination of the disease must not, however, in my opinion be for a moment lost sight of, as otherwise the working sanitarian, *i. e.*, the executive health officer, will often be robbed of an argument of the greatest value in his efforts to suppress outbreaks of the disease, or to supply a

fairly satisfactory explanation of the occurrence of so-called sporadic cases.

Before discussing further, however, the importance of decomposing organic matter in favoring outbreaks of diphtheria, it will be well for us to make some observations on what we call the immediate cause of the disease. Within the two or three years after the announcement by Löffler of his discovery of the bacillus which he asserted to be the true cause of diphtheria, pathologists in many laboratories published the results of their researches made along the lines laid down by him, and many asserted with equal positiveness that Löffler's bacillus while certainly present in many cases of diphtheria was yet by no means necessary to the appearance of the disease, *i. e.*, of a diphtherial exudate on the mucous membrane of the pharynx. I need only recall on this point the work of Professor Prudden, of the College of Physicians and Surgeons, of New York, on the streptococcus of diphtheria. Without dwelling further on the results of other investigators it need only be said that with the multiplied labors of many bacteriologists we now know that the mucous membranes of the mouth and air passages having air to the amount of over eleven cubic meters in twenty-four hours passing over them, must necessarily become the receptacle of all floating particles existing in this volume of the atmosphere.

When it is further remembered that microbes according to various experimenters will not rise from moist surfaces, and that air expelled from the throat through a sterilized tube is incapable of inoculating a culture medium of beef broth, it is apparent that the mouth with its mucous membranes maintained at a temperature of 38.4 degrees C., must act very similarly to a culture medium in which microbes from dust, whether in air or on food, begin the struggle for existence; those forms finally triumphing which find the environment most completely in harmony with individual peculiarities and local conditions.

To illustrate in some degree this point the following figures may be given: Air respired by an average man in twenty-four hours, 11.05 cubic meters; average number of microbes in cubic meter of air of Paris, France, in 1884, 3,480; in center of Paris, 1893, 6,040; in new park of Montsouris in 1884, 480; in park clothed with turf and trees, 1893, 275; in ward in Hotel Dieu, 3,250; in air of Paris sewers, 4,070.

In this connection it may be mentioned that Miquel has found that while in winter the external air of Paris contained molds to bacteria in proportions of about 6 to 1, yet the ratio in the air of the Hotel Dieu was, molds 1 to 20 bacteria.

Bacteria in mouth and nasal passages: Von Besser found on nasal mucous membrane in eighty-one cases: *Diplococcus pneumoniae* fourteen times; *staphylococcus pyocyaneus* fourteen times; *streptococcus pyogenes* seven times; *bacillus Friedlanderii* two times.

Black, in ten healthy persons, found: *Staphylococcus pyocyaneus* seven times; *staphylococcus pyoalbus* four times; *streptococcus pyogenes* three times.

This table, necessarily very incomplete, is enough to illustrate the important point that both in theory and by observation the transference, from the dust of streets and still more of habitations, of numberless living forms is constantly going on, and that therefore it need cause no surprise if every form capable of overcoming the protective influences present on

the respiratory mucous membrane should from time to time and in different climates, localities and under different conditions make their presence in the system recognized, owing to the exudative processes resulting in the formation of a so-called diphtheritic membrane.

Without referring to these influences promoting diphtherial exudations, I propose for the purposes of my paper to refer to the results of the most recent experimental work on the subject of the diagnosis of true diphtheria, in order that the difficulties experienced in dealing with the disease may be made apparent. I refer especially to the bacteriologic and clinical observations made by MM. Chaillou and Martin, Internes of Hôpital des Enfants, Paris, carried on under the direction of Dr. J. Simon, of the Hospital, and Dr. Roux, of L'Institut Pasteur.

Reverting to the varieties of microbes found in diphtherial membrane it may be said that the work of Yersin and Roux published in 1891 indicated with great clearness the importance of the bacteriologic examination of diphtheritic membrane in the case of all patients brought to diphtheria hospitals, before their admittance to the wards, from the fear that such patients if not affected with the Löffler bacillus would in the wards be exposed to the contagion.

Since that time, attempts more or less systematic have been made to give practical direction to such examinations by urging the measure in private practice. This, however, from causes manifest to all has been possible only under exceptional circumstances, and everywhere practitioners proceed in the old way of diagnosis by merely clinical signs and symptoms; although, as MM. Chaillou and Martin state in the outset of their paper, published in the July number of the *Annales de L'Institut Pasteur*: "Les nombreux savants qui ont écrit dans ces derniers temps sur le diagnostic de la diphtherie s'accordent à reconnaître que dans les angines blanches, seul l'examen bactériologique peut fournir un diagnostic certain."

In the complete supervision and study of 200 cases as internes of the Hospital (Hôpital des Enfants) they have been able to say that the bacterial diagnosis being made it was then possible with a systematic observation of the clinical signs as of the adenopathies, albuminuria, temperature, pulse, and respiration to make very accurate prognoses.

From what has already been stated with regard to the dissemination of microbes we shall be prepared for the following results of their work on those points we are at present specially concerned with. Their examinations included 198 cases in all: Anginas or throat invasions, ninety-nine; croups or laryngeal, ninety-nine. Of the anginas they established three divisions:

Anginas non-diphtheritic twenty-nine; deaths none.

Anginas purely diphtheritic forty-four; deaths ten.

Anginas diphtheritic with associated forms twenty-six; deaths eighteen.

Thus more than one-fourth of the sore throats were not true diphtheria. It is explained that this work being done in the hospitals in winter the number of throats with non-diphtheritic exudation is less than in summer as shown by previous experiments. These non-diphtheritic cases consist principally of coccus forms (single or diplococcus but not in chains), some disappearing in two or three days,

but in half the cases some membrane, mostly of white points, continued for six days and over. In some of the cases the membrane appeared in the nose or the larynx—in one case necessitating tracheotomy. Essentially these membranes seem more creamy, less adherent and less elastic; but it is practically impossible by the eye to distinguish these from the milder cases of diphtheria. Albuminuria was found in five cases. Five maintained it during the presence of the membrane and the pulse oscillated with it, nevertheless the general state was good, appetite good and face keeping its color, while even in the most serious cases the observers did not hesitate to give a good prognosis. One case had the pneumococcus of Fraenkel and four cases had the staphylococcus form. In these four cases it was the sole cause of the disease and the cases were seldom mild.

Other instances of an undetermined bacillus occurred and eleven cases with a streptococcus; three of these supervening in cases with scarlatinal eruption. These cases were not true diphtheria as shown in several ways, although the membrane in its gross appearance was most characteristic—the scarlatinal redness of the throat chiefly making the distinction. Such cases were transferred to the scarlatina wards; and the course of this disease were there exhibited. In eight of the cases there were streptococci without scarlatina, these having whitish gray membrane adherent to tonsils and surrounding parts; but patchy and in two instances pultaceous and having the staphylococcus pyogenes associated with it. Such cases were sufficiently serious. Summing then these up there were: Eleven cases with a coccus; one case with a pneumococcus; four cases with a staphylococcus; two cases with a coliform bacillus; eleven cases with a streptococcus, or twenty-nine in all. They found cases presenting for a number of days serious anginas, but which rapidly became ameliorated and were all healed in from eight to ten days.

There were forty-four pure diphtherias of which ten died. Of these, thirty were so mild that they had not been recognized as diphtheria without bacteriologic examination; while the other four were diphtheria from clinical appearances. The first had but little membrane; eight cases had mere white points like follicular amygdalitis. These increased but little during succeeding days or even rapidly disappeared. While these observers never found the bacillus of diphtheria without some membrane, yet in several instances it was found only after very close examination. In fifteen cases with more membrane the glands were always engorged. Unequal bilateral extension and glandular enlargement of the two sides were characteristic of true diphtheria. In thirteen cases there was no albuminuria; while in fourteen severe cases it was present from the outset, and of these ten died and four recovered. In these cases the membrane was grayish white, very adherent and sanguinolent and often had extended over all the back of the throat. Albumen was found in every case at an early stage and persisted till death; while the interrupted pulse was a most significant prognostic, much more so than the temperature.

In the diphtheritic anginas with other associated bacteria the Löffler bacillus overgrows in cultures the other forms, and these are got only by numerous repeated isolations on different cultures. Of these there were twenty-six cases, the chief being the streptococcus growing after twenty-four hours on the

gelatin as distinct fine points. Of fourteen of these cases, thirteen terminated fatally; although inoculated in guinea-pigs with the two forms cultivated separately they are not always very virulent. In three cases, for several days no albumen appeared but did on the sixth or seventh day. In these cases the patients presented the pale faces, the venous-hued lips, the yellow eyes, the fetid breath, the torpor and generally stricken appearance presaging approaching death.

The cases with associated staphylococcus were likewise very fatal, five in all, and all dying.

A similar history of the variation in the bacteria present is given in the cases of croup discussed in the paper by MM. Chaillou and Martin. The authors draw several most important conclusions:

1. That in order to give a prognosis, the knowledge of the microbes associated with the Löffler bacillus is necessary.

2. That some of these were present, as the coccus, augur a favorable issue to the case, and that others, notably the streptococcus, indicate a grave prognosis.

3. Some seemed to aid the growth of the Klebs-Löffler bacillus; others to hinder its development.

This summary of work illustrates, I imagine, almost every phase of diphtheria which those of us who have had much to do with the disease have experienced.

The detailed peculiarities of different cases, referred to in the extended monograph, have one after another seemed to call up memories of cases within my own experience, which, owing to imperfect knowledge at the time, seemed in their varying characters to be inexplicable on the basis of a common cause. The bacteriologic results therein set forth, so far as separating non-diphtheritic cases from true diphtheria, have been already taken practical advantage of by a number of public health departments, and on this continent I believe New York City was the first to adopt the method by which test tubes with a culture medium are left at certain stations throughout the city, as drug-stores, where physicians can obtain them with instructions as to the manner of inoculating them with membrane, thereafter to forward them to the laboratory of the City Health Department.

With a view to aiding medical health officers throughout the Province to determine with the local physicians the real nature of doubtful cases of the disease, the Provincial Board of Health of Ontario has notified local boards to forward, as per printed instructions per express, specimens to the Provincial Laboratory for examination. This work has been in operation for only a few months, and too few specimens have as yet been examined to enable us to give an estimate of the average percentage of cases in which the Löffler bacillus is likely to be present or absent, so as to serve as a standard for the locality.

There are, as pointed out by MM. Chaillou and Martin, likely to be seasonal differences, and probably different localities, climates and cities will show variations in the prevalence of one or more of the specific pathogenic forms referred to by different bacteriologists.

The advantages which the precise knowledge of the cause of membranous exudates have given, both in the prevention and treatment of diphtheria, while considerable, have nevertheless brought into prominence certain points, which are likely if not intelligently weighed in their practical bearings, to bring perplexities and difficulties to both attending physi-

cian and health officer, quite as great as those existing formerly, where acrimonious disputes have arisen as to whether the sore throat was diphtheria or simply amygdalis with exudation.

The advantages which the accurate differentiation of the microbe causative of the exudate in any case brings us are principally:

1. That within twenty-four hours in the ward annex of an hospital, a scarlatinal sore throat with streptococcus can be differentiated and be prevented from exposure to the true disease in the diphtheria ward.

2. That, similarly, cases where simple cocci or diplococci are present may be kept from exposure to the true diphtheria in the general hospital wards.

3. That physicians will be able to arrive at more intelligent conclusions as regards the duration of a case and its prognosis than hitherto has been possible.

4. That an intelligent differentiation of cases suitable for treatment with the antitoxin against the Löffler bacillus has thereby become possible.

5. That the probable length of infectiousness of any case can in some degree be determined by the form of microbe present in the membrane.

Such progress is notable, and the needs supplied thereby are fully indicated when we study the reports of contagious disease hospitals. For instance, in the 3,064 scarlet fever admissions into the North-eastern Metropolitan Asylums Board Hospital, London, England, for 1893, there were:

1. Of post-scarlatinal diphtheria .36 of 1 per cent.

2. A number, not stated, of cases of scarlatina accompanied in the acute stage with membranous exudation.

3. Some cases with diphtherial exudation admitted which proved not to be scarlatina.

It is noteworthy that in the report of Dr. R. A. Birdwood, the Superintendent, no mention is made of the bacteriologic differentiation of the several forms of throat exudations.

As, however, with every advance in our knowledge, we find that the practical benefits are often limited by unforeseen difficulties, we find that these bacteriologic results at once bring into prominence the difficulty which a health officer finds in dealing with cases of sore throat. Summed up, they are:

1. That the physician, being by these recent investigations made aware that at least 25 per cent. of diphtheria cases are not caused by the Löffler bacillus—or as some would say, are not diphtheria—will naturally hesitate to call a disease probably non-fatal by a name placing it under the ban of the Health Act.

2. That physicians endeavoring, as has sometimes occurred, to hide cases in the supposed interest of their clients, will conveniently shield themselves behind the assertion that they could not tell, nor any one else, whether the disease is diphtheria or not.

3. That supposing the health officer on investigation finds that the Löffler bacillus is not present, he at once is in doubt as to whether the public health interests demand isolation of the patients, or even if he thinks they do, whether he has legal authority to isolate what is not diphtheria.

4. That even though he isolate such cases as he does deem true diphtheria, can he maintain the isolation for the length of time, say four weeks, fixed by the best authorities, as necessary for this disease?

5. That assuming he can differentiate between cases; can he, with the known serious nature of many cases in which the Löffler bacillus is not present, afford to treat these as non-infectious when, as a matter of fact, they must have been caused by germs carried to the respiratory passage from the air or other medium in the same manner as the Löffler bacillus, and therefore infectious?

Personally, from the standpoint of an executive officer, I recognize most serious difficulties as certain to arise from what all must agree is a notable addition to our knowledge of throat diseases. I do not at present recognize, for working health officers having to deal with sore throats with exudations, any other alternative than to continue to insist on the isolation of all cases of sore throat with exudation as being diphtheria or croup within the meaning of the Public Health Act; since, while occasional instances of admitted hardship in an unnecessary extension of isolation may be inevitable, yet they will, on the other hand, have avoided the certain and most serious dangers arising from three-fourths of the cases, which are those of true diphtheria, and will have succeeded as well in limiting those other throat diseases not wholly free from danger.

The old adage seems here particularly applicable: "*Incidit in Scyllam qui vult vitare Charybdim.*"

THE MANAGEMENT OF EARLY ABORTIONS.

BY S. L. JEPSON, A.M., M.D.

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This subject is rendered interesting by reason of the frequency of the occurrence of early abortions, and by the unfortunate consequences so very often resulting, it being a well-recognized fact that a large number of the cases of uterine disease to which women are subject can be directly traced to prior abortions. That by a proper management of these cases many evil results can be prevented, all will admit, and hence exists the necessity of scientific treatment, with the cultivation of some patience, for, as in all forms of pelvic disease in women, there is too great a tendency to speedily resort to surgical methods, the physician not placing sufficient reliance in nature aided by wise, conservative therapeutic measures. Several years since, in this city, a physician just returned from a course of post-graduate instruction in New York, was preparing a table upon which to place a patient to remove the placenta of a six weeks' abortion. The consulting physician, an elderly and very intelligent man, but without any recent post-graduate ideas, suggested that perhaps at so early a period the placenta had not yet "materialized," whereupon the table was put to one side and the patient made a speedy recovery without any surgical aid. Having never yet, in an experience of twenty-six years, lost a patient after an abortion, I am forced to believe that the methods of treatment which I have pursued can not be radically wrong. Other and more active methods may possibly give as good results in other hands, and in country practice, where the physician has not the advantage of telephones and quick transit, a modification of treatment will doubtless often be necessary.

As to the general principles of preventive treatment, I will only say that perfect and prolonged rest is of the first importance. Many cases of threatened miscarriage are precipitated by allowing the patient

too early to abandon the recumbent position. The only drugs I ever use in these cases are, opium, potassium bromid and viburnum; and perfect rest is better than all of these. Rest can be better secured with than without them, however, and hence they are valuable aids.

But suppose all our efforts to prevent the threatened abortion have failed, and the expulsion of the ovum is in our judgment inevitable, what course shall be pursued? The thing to be desired clearly is, to have the ovum expelled unbroken, and every step taken should be with this object clearly in view. An unnecessary, a meddling interference while the ovum is intact, very generally terminates in the rupture of the delicate membranes, with expulsion of the fetus and retention of the placenta, the very result most to be deprecated, and that should be most carefully guarded against. Therefore I differ emphatically from the recently expressed ideas of Dr. McKinney, of Illinois, who, in a paper before the State Medical Society said: "The only safe rule is to immediately evacuate the contents of the womb in all cases where it is decided that abortion is inevitable, due care being taken to avoid rupture of the membranes." (JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Vol. xxii, p. 809.) Rupture of the membranes *can not be avoided*, in my judgment, except in those rare cases in which the cervix is widely open, and even the placenta partially detached; and in these nature will very soon expel the whole ovum much better than the doctor can do it. It must be remembered that the placenta is in the early months—say the third and fourth—very firmly attached to the uterus, and unless loosened by uterine contractions prior to rupture of the membranes, it is very apt to maintain a healthy connection with the uterus when the membranes have been broken by too early manual interference, and may remain an indefinite time, greatly to the annoyance of both patient and physician.

However great, then, the temptation may be, when we find the cervix partially dilated and the membranes protruding, to introduce the finger in the hope of removing the whole ovum, unless free hemorrhage be present, I believe the safe rule is, "hands off," for the presence in the cervix of the unbroken ovum will in a natural manner bring about the dilatation of the cervix and also excite expulsive contractions of the uterine body, and the ovum will often, without any interference whatever, be expelled entire, or the placenta speedily follow the fetus, when a rapid convalescence, with future immunity from uterine disease, may be expected.

Under the circumstances here spoken of, prior to the expulsion of the ovum, ergot is given as a routine treatment, but I have little faith in its power to excite uterine action, since the contractility of that organ is very limited during the first few months of pregnancy, and certainly much more difficult to excite than at or near the full term. Some aid in lessening hemorrhage may possibly be had by the action of this drug on the blood vessels, and by some condensation of uterine muscular fiber, and this action is more efficient when the ergot is given hypodermically. Opium may be combined with it to advantage. This will tend to lessen hemorrhage and secure some rest for the patient while nature is loosening the ovum. Some authors speak favorably of lead, acids, hamamelis, hydrastis and other drugs

at this period, but I have never found it necessary to test their value. Within the first two months, when internal manipulation of the uterus, even in suitable cases, is very difficult, if not impossible, on account of the small size of the organ, Fordyce Barker very strongly advised that a large quantity of hot water, 104 to 110 degrees F., be thrown into the vagina. He says: "I believe that one may always be sure that this will positively, absolutely and efficiently arrest the hemorrhage. In all cases where I have resorted to this method, I have never found it necessary afterward to subject the patient to manipulations for the removal of the ovum. It has always come away spontaneously, sometimes the next day, or the next but one, and absolutely without hemorrhage."¹ This accords with my own observation in early cases, and Leishman says: "In the first and second months, the placenta being undeveloped, the ovum is generally expelled entire with little risk to the woman."² Within the period above named, it is not at all likely that the remedies here indicated will fail to check the hemorrhage. If, however, such should be the case, the tampon must be tried before forcible extraction of the ovum be resorted to.

Cases of abortion occurring after the second month of pregnancy are much more complicated because the placenta has grown, and formed many and very intimate adhesions with the uterus, a separation of which is apt to be accompanied with serious loss of blood, and yet the uterus, not having the contractility it later acquires, is often not able to expel the placenta, which hence remains after the fetus is expelled. When called to a case of this kind in the third or fourth month, we should take every precaution to preserve the ovum. If hemorrhage is not considerable, we may use ergot and give nature a reasonable opportunity to try her powers, which often are sufficient to completely empty the uterus. We would not advise too long delay, however, without some interference. Unless the patient can be frequently seen, or if hemorrhage is at all serious or threatens to become so, the vagina should be well tamponed. This serves the double purpose of controlling the hemorrhage and exciting reflex uterine contractions. Neither end can be accomplished unless the tampon be so applied as to exert firm pressure on the cervix, which means that the vagina must be well filled and firmly packed. I have always used the method of Lusk, and desire no better. This "consists in soaking cotton wool in carbolyzed water, and then, after pressing out any excess of fluid, in forming from the carbolyzed cotton a number of flattened discs about the size of a silver dollar. The patient is then placed in a latero-prone position, and the perineum retracted by a Sims' speculum. The dampened cotton discs are introduced by dressing forceps, and under the guidance of the eye are packed around the vaginal portion, then over the os, and thence the vagina is filled in from above downward."³ Fordyce Barker never depends upon any form of vaginal tampon, but always introduces a sponge tent when he thinks artificial dilatation necessary, only introducing sufficient vaginal packing to retain the tent *in situ*. In these days of antiseptics and asepsis, sponge is at a discount, and I would much prefer a tupelo tent as large as can be conven-

iently inserted, great care being taken to avoid rupturing the membranes in the act of introducing it. Whatever form of tampon be used, the vagina should be well washed out with an antiseptic solution both before each introduction and after the last removal of it.

How long should we continue to employ tampons, to the exclusion of manual interference? If not commenced until dangerous hemorrhage threatens, in very many cases the ovum will be found detached from the uterus at the expiration of ten or twelve hours after its first application, or certainly after a second application of like duration. There is a decided tendency among excellent men to limit the use of the tampon to two or at most three applications of about twelve hours each, when internal manipulation should be resorted to if the desired end has not been accomplished. In spite of antiseptic solutions both in the tampon and by injections, if tampons are retained too long or used too frequently offensive odors will arise, the vagina and uterus will become irritated if not inflamed, and septic poisoning and inflammations may ensue. No absolute rule can be laid down, as much will depend upon the period of pregnancy and the symptoms and local conditions present in each case. I believe, however, that I have never found it necessary to make more than a second application of the tampon in any case. After this, the cervix will be usually found either well dilated or dilatable, when the finger can be carefully introduced and the whole ovum removed, but not always removed whole. The patient may be congratulated when this end is accomplished, for with this her trouble is at an end, and nature will do the rest.

Unfortunately we see many cases for the first time after the fetus has been thrown off, the placenta still remaining within the uterus. Or we may rupture the membranes in unwise efforts to remove the ovum, and find the placenta still adhering more or less firmly to the uterus. The cervix may be closed, or so little dilated as to render extremely difficult any effort to enter the uterus. With this condition present, if the patient is left unaided one of several consequences will result, viz.:

1. The placenta, if not already so, will become partially detached, and hemorrhage, serious, dangerous or even fatal may result. I have seen cases in which syncope occurred from loss of blood under these circumstances. In a case seen in consultation some time ago, the patient was so reduced from repeated hemorrhages resulting from retention with partial detachment of placenta, that she was in a quite critical condition. An excessive pallor, cold surface, nausea, vomiting and an irregular and very feeble pulse were symptoms marking a condition demanding speedy and vigorous interference. Although life may by prompt measures almost always be saved in even apparently desperate cases, yet there is the risk of a diseased uterus and future impaired health.

2. Decomposition of the placenta and its discharge piecemeal, with probable septic infection. The consequence of this may be the death of the patient, a not rare result, or a protracted convalescence, with a damaged uterus, or inflammatory exudations that may terminate in suppuration, thus entailing long continued or permanent suffering and ill health. Very many cases of pelvic disease can be directly traced to just such cases as those now referred to.

3. Uterine action may cease, the cervix close, and

¹ Medical Record, Vol. xv, p. 232.

² Op. cit., p. 378.

³ Medical Record, Vol. xv, p. 222.

for a time the patient feel well. Later, a partial separation of the placenta occurs, marked by periodical pain and hemorrhage, which, if neglected, will result in impaired health. I have removed one placenta that had remained *in utero* sixty-nine days, and another one hundred and fifteen days after the expulsion of the fetus. In neither was there the least evidence of decomposition. The removal was in both cases followed by the prompt recovery of the patients, and in a few months by pregnancy. One woman had a normal labor, the other died in labor from rupture of the uterus, which I have always feared was due to injury inflicted at the site of the placenta. For over three months after the abortion, no symptoms arose in this case demanding the presence of a physician. (Full report in *Am. Jour. Obst.*, October, 1883.)

4. A polypus or a mole may result.

5. Some excellent authorities hold that the placenta may be entirely absorbed, but many likewise oppose this teaching; hence the question must be considered as still *sub judice*.

Since, then, the consequences of placental retention are so varied and serious, the importance of completely emptying the uterus at the time of or soon after the expulsion of the embryo, is apparent. I do not agree, however, with an editorial writer in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*, May 26, 1894, who says: "Two courses lie open to the physician: He can either trust to nature, . . . or he may take the better course and empty the uterus with his own hands." Such advice is not applicable to all cases, and such a course might prove very unwise. I doubt very much whether or not the practice advised can always be adopted without at times inflicting unnecessary pain and damage upon the patient. The writer quoted above says: "The operation is not a difficult one." Cazeaux says: "Sometimes the adhesions of the placenta are so numerous that it is impossible to destroy them and extract the placenta." Leishman says that from the eighth to the eighteenth week the connections between the uterus and placenta "are often to be severed only with the greatest difficulty." ("Midwifery" p. 378.) Thomas says: "It is no easy task, even for an expert to dilate the cervical canal and remove the placenta." (*Am. Jour. Obst.*, vol. xi, p. 774.) The latter statements more nearly correspond with my own observations, and hence I naturally regard them as the more correct statements. To leave the case to nature or to immediately extract the placenta as stated by the *JOURNAL* editorial, are not the only alternatives; and whether one of these or neither shall be adopted, will depend upon the conditions present:

1. If the cervix is sufficiently dilated or very dilatable, the finger should be carefully introduced, when, by slowly and carefully insinuating it between the placenta and uterus, the latter may be completely emptied. If any great difficulty is encountered, the patient should be placed on a table and an anesthetic administered.

2. If the cervix is not dilated or quite dilatable, or if the placenta is found to be very firmly adherent, or if hemorrhage is to be feared and the physician live at some distance from the patient, the vaginal tampon should be employed as already described, with a tupelo tent in the cervix when needed, and ergot should be administered freely. Cazeaux says: "The conjoint use of ergot and the tampon rarely fails to arrest hemorrhage and bring on a sufficient

degree of contraction to expel the secundines." I think it is a common experience that the placenta is found, after this treatment, completely detached. When this is the case it only remains for us to remove it and cleanse the uterus and vagina. A second application of the tampon is not often necessary, but would be proper if its first application has not accomplished its purpose. Thomas says that, "when a woman is bleeding in consequence of retained placenta, he never invades the cavity of the uterus. By tamponing the vagina the blood will percolate between the deciduæ, rip off the placenta, form a clot in the uterus and subsequently be expelled by uterine contractions." (*Am. Jour. Obst.*, Vol. xi, p. 775.)

There is still another class of cases to which I have not referred. We may first see a case several days after the expulsion of the fetus, but the placenta remains, and an offensive odor is present, with or without fever. The placenta is decomposing and danger is near. These are the cases in which I feel that the most prompt and vigorous measures are justifiable. Fortunately the difficulty in removing the placenta is usually not so great in these as in other cases, since the cervix is, as a rule, open so that the finger can readily pass to the fundus, and the placenta is not so firmly adherent as before decomposition commenced. One caution is necessary, and that is to avoid wounding the uterus in our manipulations, for any traumatism is apt to be followed by the absorption of septic matter, this showing itself by a chill and increased fever soon after the operation. To guard against this result, the uterus should be carefully washed out with an antiseptic solution, both before and after the operation, and during it as well, if any difficulty is encountered. In such cases we should endeavor to avoid instrumental aid, but the dull curette may be found necessary. Here the irrigating curette is very useful. A case in the practice of my friend, Dr. Ackermann of this city, forcibly illustrates the necessity for, and results following the removal of a putrid placenta. He was called to a patient whose temperature was 107 degrees, and found lying loose in the cervix a very offensive placenta. He removed it, washed out the uterus with antiseptics, and in twenty-four hours found the patient's temperature normal. Not often will we secure such happy results as were reached in this case, but when the operation is carefully and thoroughly done, good may be confidently anticipated.

As a rule, quinia in full doses is required in the septic cases, and special symptoms may demand other remedies at times. These will suggest themselves to the intelligent practitioner.

In conclusion, I may say that this paper, while containing nothing new and much that is quite old, is written as a mild protest against the radicalism of the present day; a radicalism practiced by myself before experience taught me that nature, aided by time and the measures here advised, can better expel a premature ovum and entirely cleanse the uterus, thus bringing about complete involution, than can the most expert physician with finger, forceps and curette, when used before nature has prepared the way by softening the cervix and loosening the ovum.

Blank Applications for membership in the ASSOCIATION, at the *JOURNAL* office.

NOTES ON SPERMINE.

Read at the Chicago Medical Society, Sept. 17, 1894.

BY G. KREIGER, M.D.

SURGEON TO CHICAGO HOSPITAL, ETC.

Last April I had occasion to exhibit before you a patient previously suffering from a severe form of chorea, who recovered completely, and permanently after six injections of spermine. Since then I have had an opportunity to see the efficacy of this treatment in a similar case still more pronounced than in the one exhibited.

The patient who now stands before you is a boy, 6 years of age, who has since the last two years been suffering from chorea. During this time he was under treatment of several physicians who applied the common remedies and electricity without success. Last May the boy was brought to Dr. Bettmann for examination of his eyes. Dr. Bettmann, who will report more definitely, prescribed suitable glasses. Two months later the Doctor referred the case to me for a treatment with spermine injections.

When I first saw the boy, his fingers and muscles of the face were constantly jerking in a spasmodic way, and his gait was so uncertain that at times he stumbled. After two injections of 8 minims, the boy became decidedly more quiet, and from the fourth day on, he did not show the slightest symptom of chorea. His nervousness disappeared; his gait, appetite and sleep improved, and his manners and general actions when playing with other children became perfectly normal.

Such rapid changes of the nervous system, especially in cases like this, where any reflections as to the hypnotic influence or suggestive power of a new treatment may readily be excluded, are certainly hard to explain, and answering to many inquiries on this subject, I would like to give my views referring to the physiologic effects of spermine, by quoting a few interesting facts:

After it had been proved that most of the animal glands contain spermine, and that it circulates in the blood, further investigations have shown that it is a very active factor, by its power to promote oxidation. The poisoning effects of many drugs, as chloroform, ether, oxydul of nitrogen, carbon oxyd, strychnia, etc., is due to a disability of the red blood corpuscles to absorb oxygen. This disability is lessened or totally removed by the action of spermine. This explains the reviving effect of spermine injections in narcosis, poisoning by strychnia, etc. It also characterizes the efficacy of spermine in cases with exhausted conditions of the organs and the nervous system, as in phthisis, diabetes, scorbutus, anemia, neurasthenia, marasmus, etc., because all these conditions are brought about by a lack of intra-organic oxidation.

The final effect of spermine will, therefore, be increase of vitality of the respective organs, and the whole organism. That such an increase of vitality, especially in the nervous centers, can really be obtained, has been shown by the following experiments:

1. When after a spermine injection, a frog's spinal cord is cut, the paralysis of the bladder and extremities is not as complete as it usually is without the use of spermine.

2. When a frog is poisoned with strychnia, after an injection of spermine he will not suffer from tetanic convulsions to the extent that he does without spermine.

From such and similar evidences, it is not illogical to conclude that a higher intra-organic oxidation is in fact a self-defense of the organism against agents which in any way have a depressing effect.

This theory is substantiated by the effect of spermine upon cultures of cholera bacilli. A virulent cholera culture, when in contact with sulphuric acid which is free of nitrous acid, shows a scarlet to purple red color, a reaction which is recognized as specific for genuine cholera, and commonly known as the "cholera red reaction." In the presence of spermine this reaction does not take place, the development of the culture is greatly retarded and its virulence is reduced to such an extent that its pathologic effect is about equal to that of the vibrio found in cholera nostras or catarrh of the intestines.

This fact might suggest that a practical use could be made of spermine as a therapeutic agent in cholera. But as the action of chemic substances observed in the test tube does not always correspond with their effect in the organism, it remains to be seen whether or not spermine will act in the above mentioned way within the intestines. The experiment would certainly require to flush the intestinal tract with a large quantity of spermine solution. So far, similar experiments made with antiseptic fluids failed on account of the toxicity of same when given in large doses, and I think in this respect the use of spermine, which is absolutely harmless in any quantity, will manifest a decided advantage of its own over other substances heretofore used for the same purpose.

It will be a question, if spermine can be manufactured cheap enough. As yet, the process of preparation is pretty expensive, and not always successful. I have here a specimen of macroscopic crystals larger than are usually obtained. The liquid is tungstate and sulphuric acid, in which they are insoluble. In order to ascertain the presence of spermine in any fluid, a few drops of the latter may be placed in an evaporating dish and a saturated solution of alloxan added. When heated, the previously colorless fluid will leave a purple red spot which, with caustic of soda or potash, turns to violet, and by addition of acids, is again discolored.

With special reference to chorea, I wish to suggest the following theory for the origin and cure of this disease:

By chemic transformation in the nervous substance, free nitrogen is formed under certain conditions, based upon lack of oxydation. This nitrogen when in proper proportion with lecithin and phosphoric acid forms a substance of very little stability and inclined to rapid dissolution, by which a sudden irritation of the nervous centers is brought about and such irritations become visible by their effect to the various muscles. When the normal oxydation is restored, the noxious nitrogen is eliminated, and in this way the cause of forming an irritating substance is removed.

This theory may seem somewhat artificial or peculiar, but looking over what we know, positively, regarding chemic and pathologic changes in the animal system, we can easily find corresponding facts, which explain the occasionally observed strange action of substance.

During the process of cellular nutrition, the albumen of the cell is changed by regressive metabolism into different products, the last of which is urea. We may distinguish three degrees of differentiation: The

products of the first degree are the albumins, some of which, especially when in contact with noxious microbes, are poisonous; toxalbumins.

The products of the second degree are the derivatives of ammonia. Armand Gautier distinguishes three groups of these: 1, the xanthines; 2, the keratines; 3, the various bases as cholin, muscarin, and acids, as glycocoll and hippuric acid.

The products of third degree are uric acid and urea.

The intermediate products are partly harmless and partly deleterious to the organism. When the latter for lack of further transformation remain in the system, the effect is an auto-intoxication as most clearly seen in uremia. Such auto-intoxications are in fact the cause of many diseases, which can be proven by the different toxicity of the urine. For instance, the urine of a healthy person hypodermically injected into a rabbit will do considerably less harm than the urine of a person suffering from any disease which is based upon weak functions of the organs, or, to speak chemically, upon an incomplete change of substance on account of lack of oxidation. For the same reason the urine discharged during the night shows a higher toxicity than the urine discharged while a person is awake and active. According to Bouchard's investigation the coefficient of toxicity for normal urine is 0.465. This coefficient increases during acute fevers, as scarlet, typhoid, pneumonia, acute tuberculosis, and in all anemic patients to the extent of 50 to 100 per cent. Leprieu and Aubert found that hypodermic injections of urine taken from patients with certain nervous diseases causes clonic spasms. The toxicity of such urine is directly proportional to the amount of leucomaines and other intermediate products present. Babinet and Silberer succeeded in preparing three leucomaines from a case of strumexophthalmia or Basedow's disease, and experiments with these substances were to the effect that animals inoculated with same showed symptoms similar to the original case. Griffith also isolated from the urine of an epileptic patient a leucomaine, which injected into a dog caused spasms, vomiting, dilatation of the pupils, and finally death.

Such deleterious leucomaines are without doubt forming constantly in our organism, and would do much more harm were they not eliminated or balanced by natural chemism, in particular by oxidation. The necessary impulse for these chemic actions is given by catalytic agents, the analogues of the well-known ferments which are instrumental in the process of digestion.

Some noted physiologists, as Traube, Tacquet, Gautier and others, have anticipated the existence of these agents long before the scientific researches of Brieger and Ehrlich threw light upon the different leucomaines and toxins, and with other investigators of this subject I believe that the most important catalytic agent is found in the substance of spermine.

This idea is strongly supported by the following undeniable facts:

1. The chemic properties of spermine as an oxidizing agent.
2. The clinical observations that removal (extirpation) of certain glands in which this and similar substances are produced, is followed by cachectic conditions (cachexia strumipriva—orchidipriva, Addison's disease.)
3. The stimulating effect of spermine in cases of depressed and exhausted condition.

DISCUSSION.

DR. CLARKE GAPEN—The particular phase of the subject Dr. Krieger has alluded to has not received from me the attention it deserves. I have made no trials of spermine in the treatment of nervous diseases, but it is my intention to make a systematic trial of this remedy in conditions of nervous exhaustion, especially those neurasthenias that take the form of mental derangement. I would ask Dr. Krieger in closing the discussion to give his method of using spermine, and the best source from which to obtain it, as I wish to make a trial of it on rather a large scale.

DR. D. R. BROWER—My experience with spermine has been limited. Shortly after Dr. Krieger read his former paper I expressed a wish to try it. At the time I had at St. Joseph's Hospital an exceedingly bad case of chorea of two or three years' standing. Dr. Krieger kindly furnished the material, and a number of injections, I should say a dozen at least, were given the patient, but in that particular case we saw no benefit from its use; but, as I say, the case was an extremely bad one, having resisted all the ordinary forms of treatment. It was such a case as I have time and again seen benefited by the hypodermatic use of arsenic, but in this case that drug entirely failed and the patient left the hospital unimproved. With the Brown-Séquard testicular fluid I have had some experience. I have used the preparation in some cases of locomotor ataxia, epilepsy and neurasthenia. I have used it side by side with the phosphate of sodium, and it has occurred to me that whatever benefits this preparation may have is due to the phosphates it contains, although the Doctor's explanation of the action of spermine is altogether different and exceedingly ingenious, and may be correct. In several of these cases I tried the phosphate of sodium side by side with the testicular fluid, and if there was any advantage I think it was in favor of the phosphate of sodium, and I quite indorse the observations of those gentlemen who have suggested this remedy as a substitute for the animal compounds. One of our most striking cases was one of spinal sclerosis that had passed, as was supposed, into the paralytic stage. It seemed to be a case that was past any sort of benefit from remedies, but the use of the phosphate of sodium gave that man a start toward improvement and, while he is not well, he is no longer bedridden. In this case we tried for a time the Brown-Séquard testicular juice with scarcely any benefit. I am very glad to have heard Dr. Krieger's paper, and I shall take pleasure in pursuing some experiments with spermine. This boy he has presented to-night with chorea of two or three years' standing, to be improved to the extent he has been by half a dozen injections is certainly very remarkable, and I do not think the effect can be explained by suggestive therapeutics, but I think it shows the remedy is of value. There are some cases that will not yield to anything, and I am inclined to think the case we experimented upon at the hospital was of that sort. I think this is due to an organic change in the brain that neither spermine nor anything else probably will remove. I wish personally to thank Dr. Krieger for his contribution to the therapeutics of this disease.

DR. BOERNE BETTMANN—I do not intend to make any statement about the action of spermine, because I have had no experience with it, but I rise merely to corroborate the statements made by Dr. Krieger as far as they have reference to the history of this little boy. He came to me several months ago suffering from chorea. Whether it was a case of hysterical chorea or so-called chorea minor, I do not know. I learned from his mother that he had been suffering from the trouble for some time, and he certainly manifested all the symptoms of chorea at that time. Thinking probably it might be due to some error of refraction, I placed the boy under homatropin and succeeded in establishing a hypermetropia of about two and one-half dioptres. It is an interesting fact that during the time he was under the influence of homatropin, his mother noticed that the choreic symptoms decreased markedly, and thinking that probably the chorea was reflex and due to spasm of accommodation I kept him under the influence of atropin for a week or two, and at the expiration of that time he returned to my office without having further improved, although

while under the influence of the mydriatic the symptoms did decrease somewhat. I then gave the boy a correction of about one and one-half dioptrics. He came back in a week without having improved and he was then sent to Dr. Krieger. After a few injections of spermine he again came to my office, and was then in the condition you see him this evening. Since then I have heard from the father that the child has discarded his glasses. There has been no reappearance of the attacks of chorea.

Dr. H. T. PATRICK—I hope Dr. Krieger will not detract from the value of his paper by failing to give the symptoms of this case more in detail when it is published. From his statement we do not know whether it was hysterical chorea or the ordinary chorea minor, and anybody hearing or reading the paper could say that it was not proved to be a case of chorea at all. I simply call attention to this omission that the value of the paper may be increased.

THE PRESIDENT—I will ask Dr. Krieger when he closes, to explain to the members of this Society the difference in the action of spermine and nuclein.

Dr. C. G. KREGER in closing the discussion said: In regard to the question of the President I will state that I have not had experience in using nuclein. From a chemist standpoint it is altogether different from spermine, which has a certain formula and is uncomplicated, while nuclein has no formula at all to my knowledge, or at least a complicated one, so I do not know how I could make a comparison between nuclein and spermine. With reference to the dosage, I generally start with small hypodermic doses of the solution of spermine, about 7 to 8 minims for an adult, and for a child 3 to 4 minims, gradually increasing to the full dose, which is 15 minims for adults, and 8 to 10 minims for children. I first give one injection every day, and if I see quite an effect from it I usually give one injection every other day for two or three weeks or longer. As a rule, I discontinue the treatment after the tenth or twelfth injection, to see what effect it will have.

1003 Columbus Memorial Building.

Surgeon-General Sternberg's Annual Report.

After presenting a statement of the disbursements made during the fiscal year ended June 30, 1894, the Surgeon-General discusses various matters of interest pertaining to his department, of which the following abstract gives a satisfactory account:

Library of the Surgeon-General's Office.—There are now 114,567 bound volumes and 183,778 medical pamphlets and theses in the Library. Volume XV, of the Index Catalogue, including from "Unversidad" to "W," forming a volume of 842 pages, has been completed and is now in the printer's hands. The preparation of the manuscript of Volume XVI is already well advanced.

Army Medical Museum.—The total number of specimens received during the year was 1,363; the number on hand June 30, 1894, was 32,269.

Artificial Limbs.—During the fiscal year there were furnished, under the laws relating to artificial limbs, 343 artificial legs, 4 arms, 2 feet and 2 apparatus, and the commuted value of an artificial leg was paid in 2,997 cases of amputation; of an artificial arm in 3,184 cases, and of an artificial foot in 72 cases. Commutation was paid also in 3,496 cases in which the use of a limb was lost. The money expended consisted of \$586,391.44 from the appropriation for the year, \$4,823.55 from the appropriation for 1893, and \$500.40 from that of 1892—a total of \$591,715.39.

There are at the present time 16,750 approved cases of loss of limb or loss of use of limb on the rolls; 3,395 cases of loss of arm, 3,603 cases of loss of leg, 99 of loss of foot, and 9,653 of loss of use of limb. These cases come up for payment every three years. Their commutation value amounts to \$927,575, but as about 500 cases elect to be furnished with limbs in kind, this sum has to be increased by about \$20,000 for the transportation of these maimed soldiers from their homes to the place of manufacture and return. It is estimated that the whole of the \$194,000 appropriated for the current year will be required to meet the cases maturing during the year, and that \$130,000 will be required for the next fiscal year.

Army and Navy General Hospital.—Fifteen officers and 101 enlisted men were admitted. Five of the former recovered after an average stay of ninety-four days. Of the latter, fifty-nine or nearly 58 per cent. of the whole, were returned to duty. Among those returned to duty were several men whose discharge for disability had been recommended by

post surgeons. The Commanding Officer renews his recommendation for the introduction of electric light, and that cottage quarters be built on the grounds for the junior medical officer and the quartermaster, who now have to live in the town of Hot Springs. I concur in these recommendations.

Providence Hospital, Washington, D. C.—Relief was afforded, under the appropriation for this hospital, to 1,051 desitute patients. The average number treated daily was 104; the average number of days treatment per case was 36.

Medical Officers.—During the year the Medical Department of the Army lost eleven of its members; one by death, an assistant surgeon-general with the rank of colonel; and ten by retirement.

An Army Medical Examining Board was convened in October, and remained in session during the month for the examination of candidates to fill the vacancies then existing. Thirty-seven candidates were invited to appear before the Board; five of these were found qualified and were thereafter appointed assistant surgeons with the rank of first lieutenant.

At the close of the year there were ten vacancies in the number of appointments then allowed by law, and a board had been convened to select the individuals to fill these vacancies; but inasmuch as the Military Committee of the House of Representatives in drafting the Army appropriation bill for the current year seemed to regard a reduction of the numerical strength of the Medical Corps as desirable, the order convening the board was at my request rescinded, and the candidates who had been invited to appear for examinations were notified of the indefinite postponement of the examinations. The bill when passed directed that the number of assistant surgeons be reduced to 110, a loss to the Corps of 15 young officers instead of 35 as originally proposed.

The report of the Committee on Military Affairs to accompany H. R. 6373, the appropriation bill above mentioned, says: "When this Department was re-organized by law in 1869 there were 210 military posts and stations in the country. This number has already been greatly reduced, so that there are now but 120 military posts and stations, and a still further reduction is proposed and will be effected within a few years. It is evident that if 193 officers in this Department were sufficient when the number of posts and stations was 210, there can be as great a reduction as is proposed in this bill when the number of posts and stations is reduced to 120."

As a matter of fact there were 184 acting assisting surgeons in service in 1870, after the re-organization referred to, and these acting assistant surgeons performed all the duties of junior medical officers. They were made responsible for medical property and were ordered wherever their services were required, in the field with troops, as assistants at large posts, and as post surgeons at small posts. As the number of posts was reduced and the exigencies of the service permitted, their number was reduced until in 1893 none remained in service. At present, private physicians can be employed only by the visit, and there is no proviso of law by which they can be placed in charge of the Medical Department at a military post. They are therefore not available for taking charge of a post hospital and the medical and hospital property necessary for the care of the sick and wounded of a garrison, or for the discipline and drill of the Hospital Corps detachment, for the sanitary supervision of the post, or for medical services to the families of officers and enlisted men.

The report of the Committee further states that: "It may be necessary in several instances to employ outside attendance of physicians for these smaller posts, but that can always be done and efficient services secured at a cost of from one-fifth to one-fourth of the present average of salaries of the officers of the Corps." As a matter of fact private physicians have been employed during the past year and are now employed at all the arsenals of the country. The number of men at those stations is comparatively small and a saving is made by paying for medical services by the visit. But it is a mistake to suppose that private physicians could be employed at garrisoned posts, whether large or small, at the low estimate cited above. Indeed I question if there are more than half a dozen posts in the country where satisfactory medical attendance could be provided at less cost than the pay of an Assistant Surgeon of the Army, \$133.33 per month. Moreover, a post medical officer has various and important duties to perform in addition to caring for the sick. In fact his presence as a member of the garrison is more important than that of any other officer, for no other officer can perform his duties, whereas any line officer pres-

ent can perform the duties of quartermaster, commissary of subsistence, adjutant or commanding officer of a garrison. The Major-General Commanding, on page 12 of the Committee's report is cited as saying: "At military posts it is in my judgment impracticable to supply the necessary service, including that in the hospitals, in any other way than through the regular commissioned officer."

The report of the Military Committee further says: "In time of peace these men (enlisted men) and officers should be, generally speaking, in sound health physically and mentally." Great care is exercised in the examination of recruits and they are in sound health physically and mentally at the date of enlistment; but under the most favorable circumstances a considerable number require the services of a physician after enlistment. This is shown by the fact that at the three recruiting depots, all in comparatively healthy localities, the average number on sick report every day during the year ending June 30, 1894, was

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| At Columbus Barracks, Ohio | 57.68. |
| " David's Island, N. Y. | 24.49. |
| " Jefferson Barracks, Mo. | 24.80. |

It may be observed also that these averages represent the number borne on sick report; probably an equal number at every post has to be examined and prescribed for, although not taken up on the reports.

Again, an important part of the duty of a medical officer in a garrison is to decide whether enlisted men who report themselves sick are in reality unfit to perform their duties, or whether they feign sickness for the purpose of avoiding their duties. A private physician called in by the visit is not present at sick call to determine this question, and when it is left to the decision of a non-professional person, a company officer or non-commissioned officer for instance, the man who feigns sickness has a better chance of success and the really sick man is often compelled to do duty because he is suspected of malingering.

It is, however, when troops are ordered out for active service that the weakness of a Medical Department, consisting in part of medical men attending and paid by the visit would be mainly felt. The principal reason for supporting an army in time of peace is that an efficient organization may be maintained which will be ready for service in any emergency and serve as a nucleus for the larger army which will be required in case of war. This applies to the Medical Department as well as to the fighting force. The duty of our medical officers is not only to attend to the sick at their stations, acting at the same time as health officers for their command, but to be prepared, and to prepare their Hospital Corps detachments, for any emergency, and especially for field service. The call to service in the field is more common in our army than is generally supposed. During the year 1893 the number of men constantly in the field was 789, as reported by the 69 medical officers who were out with the various detachments which constituted the average field strength. The largest number of medical officers out in one month was 23, in September, with detachments aggregating 2,954 men, and giving an average strength for the month of 1,663 men. It is for such field service that the need of the junior officers of the Medical Department is chiefly felt. In 1892, 76 medical officers were on field service, the average number of men thus serving having been 1,010. In 1891, 93 medical men were out with various detachments of troops having an average strength of 899 men, and in 1890, 143 medical officers with an average strength of 1,210 men. If attendance on the sick at military posts be made the gauge of the strength of the Medical Department, no provision of medical officers can be made for troops on active service unless certain posts be deprived of their medical officers.

During the recent troubles at Chicago, Ill., when 1,775 men were suddenly concentrated in that city, 3 medical officers on leave of absence threw up the unexpired portion of their leaves and reported for duty with the troops and thus helped out the Department in the emergency.

It must be remembered, also, that medical officers are as liable as other officers to break down under the exposures and accidents of field service or from other causes. During the past three years a little over 5 per cent of them have been constantly non-effective from sickness, or 10 officers of the 192 allowed by law up to the time of the passage of the current appropriation bill.

Again, these officers are as much entitled as other officers to leaves of absence; but inasmuch as the Regulations of the Army prescribe that leaves will not be granted "so that a post will be left without competent medical attendance,"

many of the medical officers have to do, year after year, without leaves such as are enjoyed by others. During the past ten years the leaves of absence granted to medical officers were equivalent to an average leave annually of a little less than fourteen days for each. To enable the Department to permit its officers to have one month's leave annually and at the same time provide competent medical attendance at posts, a strength of 8.3 per cent. is needful over and above that necessary to man the posts.

In view of these considerations I regard with regret the policy which has cut off fifteen officers from the Department.

The Army Medical School.—I take pleasure in reporting the successful establishment of the Army Medical School authorized by General Order No. 51, A. G. O., June 24, 1893. The value of a special course of study for passed candidates for the military service is recognized by the Medical Department of many European armies. The absolute necessity of special training for the officers who are to be intrusted with the great responsibility of keeping the army in its best sanitary condition was demonstrated in the British service during the progress of the Crimean War; and their Army Medical School was a product of the experience so dearly bought in that war. It has been in continuous and successful operation since 1857. The duty of an army medical officer is to preserve the efficiency of his command by guarding it against unsanitary influences and preventing disability from diseases that are known to be preventable. To this end he examines every candidate for enlistment, rejecting those who have any imperfection of physique or taint or weakness of constitution that would probably result in disability under the ordinary exposures of active military service; and he exercises a careful supervision over the health of the soldiers, that the sound physique brought with them into service may not be injured needlessly. To accomplish this in a satisfactory manner requires special training. Any well educated medical man may be placed in the wards of a hospital and intrusted professionally with the care of its sick; but this, although of high importance, and particularly from the point of view of the patient, is a minor duty compared with that of preventing or suppressing the sickness that would otherwise fill the wards. The medical graduate, equipped as a general practitioner, is not qualified for such duty. Some of our medical officers have not only recognized this defect in the qualifications of their juniors, but have appreciated how much better their own early work might have been had their education been perfected as is that of the British medical army officer at the Army Medical School at Netley, England. I need hardly say, therefore, that the want of such a school in this country has been greatly regretted, particularly by those who are conversant with the work of the European schools. The absence of facilities—of teachers, lecture rooms, laboratories and their equipment, has always presented an obstacle to the realization of any suggestion in this line. The expense of building up such an establishment and meeting its current requirements seemed to throw the proposition out of consideration in view of the small number of young men that would be required annually to undertake its course of study prior to filling the vacant places in the Medical Department. And yet the very paucity of the number is, in my opinion, a principal reason why the abilities of each individual joining the corps should be trained sedulously in the lines of his future work. It is on the efficiency of the members of the Medical Department of our small army that the care of the sick and wounded of the armies of the United States would chiefly devolve in the event of war. Every expenditure whether of effort or of money for the improvement of the Medical Corps is a sound investment, which will produce returns in an improved sanitary condition of our Army in time of peace, but will bear its best fruits, its golden harvest of good work, in those times of anxiety and danger when the services of an army are needed for active field operations.

Being fully convinced of the accuracy of these views it was with much satisfaction that I recognized the possibility of improvising a school which, although adding nothing to the expenses of the Army Medical Department, would afford all the advantages that could be derived from one costing heavily for its establishment and maintenance. The building provided by Congress for the Library and Museum gave the necessary lecture rooms, and the accumulation of material for bacteriological and chemical study in the Army Medical Museum furnished everything essential for laboratory work, so that by utilizing these, together with the abilities and experience of those medical officers already on duty in this city, who have been appointed members of the Faculty, I

was enabled, with the approval of the Secretary of War, to inaugurate this important work. The transfer of the Hospital Corps Company from Fort D. A. Russell, Wyoming, to Washington Barracks, completed the equipment of the School by providing facilities for instruction in drill, company administration, first aid and battle-field management.

The report of Colonel Alden, President of the Faculty, which I have embodied in my own report, gives the details of the course of study during the session beginning Nov. 1, 1893, and ending Feb. 28, 1894. To this interesting document and its appendices I desire to invite attention, as showing fully the scope of the work of the School and demonstrating its importance and value.

I desire, also, to thank the members of the Faculty for the earnestness with which they entered upon the work of the session, and carried out its details, notwithstanding the large amount of additional labor which this imposed upon them. Most of these gentlemen served during the War of the Rebellion, holding positions of high responsibility in the Medical Department, and are eminently qualified to hand down to the younger generation the lessons of their earlier experiences as modified by after thought and matured study. Without their hearty cooperation the School would have been one only in name. This cooperation so zealously given has been a source of gratification to me in manifesting the complete concurrence of these officers in my views not only as to the importance but as to the practicability of the undertaking. I unite with Colonel Alden also in thanking the gentlemen who kindly enriched the course by valuable lectures on special subjects.

The progress of the School has been watched with interest and approval by the medical profession, and particularly by the medical officers of the National Guard.

In concluding this subject I desire to invite the attention of the Secretary of War to the recommendation given by Colonel Alden, that the examination of student officers at the close of the session be taken into consideration in determining relative rank. At present the rank of these officers is already fixed, by the examination for entrance, when the session begins, and their work during its continuance can not alter their relative standing. This takes away an important stimulus to well doing. I therefore concur in the recommendation of the President of the Faculty that the relative rank of those commissioned on the same day be made dependent on the result of the examination by the aforesaid Board, and that of the examination held by the Faculty of the School at the end of the session, and recommend that legislation authorizing this change be asked for.

Inspections by Medical Directors.—I desire here to place on record my appreciation of the value to the Medical Department and to the Service generally, of the inspections made by medical directors under the requirements of A. R. 1662. These visits to the military posts in their departments are of great importance to medical directors, for without the thorough knowledge acquired by personal observation and inquiry it would be impossible for these officers to discharge their duties intelligently. It is an every-day occurrence for communications relating to suggested changes and improvements to be referred to them for their views and action. Necessarily the value of their opinion in such cases depends on the accuracy of their knowledge of the sanitary conditions involved. In like manner the satisfactory performance of many of their duties depends on that intimate knowledge of the character and professional qualifications of their subordinates, which can be obtained only by personal contact. The Surgeon-General in making allotments for the construction and repair of hospitals and hospital stewards' quarters, and in making assignments of medical officers and others, has frequently to be guided by the views of medical directors who owe their more intimate knowledge of the facts in any case to the opportunities afforded by these inspections. There are, moreover, many articles of drugs, surgical instruments and appliances, microscopes and microscopical accessories, and chemical and bacteriological apparatus, which require expert knowledge for their inspection. It is impossible for an officer who is not a medical man to act appropriately on such articles. It is impossible also for a non-medical inspector to determine the professional qualifications of medical officers, or to appreciate the methods of treatment carried out in the hospitals, or the progress of the Hospital Corps members in pharmaceutical and other special work. Nor can the non-medical inspector take the place of the medical director in advising the younger officers of the Medical Corps in difficult medical or surgical cases or on mooted points of local sanitation which often involve large expenditures of money.

Hospital Corps.—The work of the Hospital Corps continues to demonstrate the wisdom of establishing this branch of the Service, not only by the better care of the sick and wounded at our military posts, but by its efficiency in field work during the recent riots. The number of Hospital Corps members in service June 30, 1893, was: Hospital stewards 122, acting hospital stewards 79, privates 589. The authorized quota consisted of 146 hospital stewards, 95 acting hospital stewards and 598 privates; but from motives of economy a continuous effort was made to have the current work of the Corps performed with the smallest number consistent with satisfactory results. The appropriation for the year for the support of the Corps was \$215,000. By carefully watching the numbers from month to month so that the cost for each period should not exceed its proportion of the appropriation, the expense of the Corps has been kept within this limit.

The Schools of Instruction have continued their highly valuable work, and although it has not been practicable on account of necessity for economy in transportation, to secure the instruction of the Corps at large at these schools to the extent that is desirable, they have been of great and essential service, especially in the case of those enlisted from civil life. The training given at these schools covers all the duties which the Hospital Corps non-commissioned officer or private is liable to be called on to perform, viz., nursing, and first aid to the sick and wounded; pharmacy and dispensary work; clerical work in the preparation of papers and reports; cooking, mess management and such field work as pitching of tents and cooking and caring for the sick in the field.

The instruction of company bearers in stretcher drill and first aid has been continued during the year at all the posts, but as has before been pointed out, under great difficulties owing to the impossibility of securing the regular attendance of the bearers and their frequent change of *personnel*. It has been suggested and the suggestion has been acted on at some posts experimentally, to instruct each organization at the post in turn in these duties, under the idea that it would be desirable that as many men of each company should be acquainted with the stretcher drill and the principles of first aid as possible, so that in case of action or emergency there would be a certainty of having qualified bearers on hand.

Identification of Deserters, etc.—Fewer identifications were made during the past year than in any one of the three preceding years; 76 in 1891, 97 in 1892, 133 in 1893, and only 60 during the past fiscal year. This diminution in the number of identifications is not to be attributed to any defect of the system. It is the natural consequence of its successful operation. When deserters and others, of the kind sought to be identified by the outline figure card system, become aware that detection is sure to follow their examination for enlistment they will naturally avoid the recruiting office. The object of the system is to keep the ranks free from these undesirable men; and it is accomplished by excluding them even better than by weeding them out.

The office has now accumulated the cards of a little over 9,000 men whom it is desirable to keep out of the ranks; and should any one of these men present himself for enlistment under an assumed name his identification would follow as soon as his outline figure card was received.

Medical Department of the National Guard.—Although there has been but little official communication between the Medical Department of the Army and that of the National Guard, the fourth annual meeting of the Association of Military Surgeons of the United States, held in Washington in May last, afforded an opportunity for personal contact and interchange of views between the members of the various organizations. This Association was organized by the surgeons of the National Guard for cooperation in making the medical department of the military forces of each State thoroughly fitted to take its place in the field, either by itself or as a component of a National Medical Department. This office looked favorably upon the organization of the Association as a medium by which it might keep *en rapport* with the medical corps of the State forces, and sent delegates to its meetings to ascertain the views and practice of these medical officers. The meeting in Washington was attended by the Army medical officers on duty in and near the city, and by several from neighboring posts in the Department of the East. Several others, who were prevented from being present by their duties or the distance of their stations, sent valuable papers on professional subjects to be read by proxy. The Association was pleased to elect me its presiding officer for the coming year, an honor which I re-

garded and accepted as a recognition of my official position, and which gratified me as demonstrating the closeness and strength of the bond uniting the Medical Department of the Army to that of the military forces of the States.

Health of the Army.—The health of the Army has differed but little during the year from that shown by the best of our medical records. The admission rate per thousand of strength present was 1,289.04, practically the same as the rate of the previous year, 1,270.42, a great improvement on the average annual rate of the previous decade, 1,424.20, and only slightly greater than the lowest rate, 1,247 (in 1887) ever furnished by our troops. The number of sick daily was 40.15 per thousand of strength as compared with 39.60 during the preceding year. The number of days lost by sickness was equal to 14.7 for each member of the strength of the Army, as compared with 14.5 days during the preceding year and with 15.8 days for the average annual number of the previous decade. The rate of discharge for disability reached its lowest point this year, only 14.93 per thousand of strength, as contrasted with 18.35 during the preceding year and with 28.82 during the years of the previous decade. The lowest rate recorded prior to that of the present year was 17.23 in 1891. This satisfactory result is certainly due to the greater care taken in the selection of men for enlistment, for were it owing to the retention of disabled men the non-effective rate would give evidence of the fact. The deaths from all causes equalled a rate of 6.91 per thousand living, the lowest rate heretofore recorded having been 6.33 in 1889. Last year the rate was 6.44 and during the years of the previous decade 8.51. Excluding accidents and injuries the death rate was 4.01 which is practically the same as that of the year 1889, the year of least mortality when the death rate from disease was 3.95 per thousand living.

Omitting from consideration detachments, arsenals and small posts, the recruiting depots Columbus Barracks and Davids' Island in the Department of the East had the largest admission rates. The rates of the former have always been high and are due to the location of the depot within the limits of a city. Reference has been made to this in previous reports from this office. During the past year one-third, 333.33 per thousand of the strength present, was affected with venereal disease and the disability caused by this was equal to 24.08 men, per thousand of strength, constantly sick during the period devoted to perfecting the physique of the recruits and their education as soldiers. At Davids' Island the admission rate has been steadily increasing for the past five years from causes that are not shown clearly on the reports.

Outside of the depots for recruits, the military posts having admission rates in excess of 2,000.00 per thousand of strength are Forts Bliss and Clark, Texas, Mount Vernon Barracks, Ala., Fort Myer, Va., and Washington Barracks, D. C. The occupation of the new post of Fort Bliss will no doubt lessen the malarial rate hereafter in this locality. The contamination of the spring water supply by surface inflow is believed to be the cause of the autumnal fevers at Fort Clark, where the use of distilled water is expected to suppress their prevalence. The reports do not indicate why the rate at Mount Vernon Barracks is so high, unless on the allowable assumption that the dissipation which gives large rates for alcoholism and venereal diseases increases the susceptibility to all other causes of disability. At Fort Myer and Washington Barracks the increased rates result from autumnal fevers; at other seasons these two posts have excellent records.

The posts having the best records for the year are Fort Custer, with 333.33 admissions and 13.17 non-effective per thousand of strength; Vancouver Barracks, with 518.18 and 15.06; Fort Yellowstone, with 520.00 and 20.77; Madison Barracks, with 600.00 and 21.43, and Fort Niagara with 666.67 and 17.38.

Quarters.—The remarks made in my last annual report concerning the dilapidated condition of the quarters at a number of posts, as at Forts Keogh, Custer and Yates, Whipple Barracks and San Carlos, continue to be applicable at the present time. At Whipple Barracks crumbling foundations, broken ceilings, leaky roofs, with overcrowding and the closing of the ventilators in the ceiling to prevent down draughts, gave rise to many cases of catarrh, sore throat and febrile malaise, and no doubt increased the predisposition to the typhoid epidemic which prevailed at the post during the year. The miserable accommodations at San Carlos were fully described in my last report. At Ft. Grant, Ariz., the barracks are low adobe buildings entirely inadequate and unsuited for their purpose, with little or no space below the floor, badly ventilated and intolerably hot

in summer. The old buildings at Camp Eagle Pass are in exceedingly dilapidated condition; four of them have been reported by the post quartermaster as unsafe and not worth repairing. At all these posts modern, airy and comfortable buildings are imperatively needed if they are to be continued in service.

Overcrowding in the quarters of the enlisted men was noted specially at the recruiting depots at Davids' Island and Columbus Barracks. At the former the floor space was at one time inadequate, although the height of the barracks gave a fair cubical allowance. The surface barely permitted a passage between the beds and the expired air of one man was breathed by others before admixture with the general atmosphere of the rooms. At the latter depot some of the beds were so close as to nearly touch; and the large sick reports during the winter months were attributed to this overcrowded condition at a time when the windows could not be left open for free ventilation.

Overcrowding in guard houses was of more common occurrence; and exception was taken to the dilapidated and otherwise unsuitable condition of the building in several instances, as at Davids' Island, N. Y., Fort Marcy, N. M., Fort Sherman, Idaho, Fort Myer, Va., and the Presidio of San Francisco, Cal.

Drainage and Sewerage.—Faults of drainage are mentioned in the sanitary reports of the year at three posts only: Angel Island, Cal., Fort Grant, Ariz., and Fort Brady, Mich. The disposal of waste water by open drains is unsatisfactory at Ft. Sully, S. D. The pits at Fort DuChesne, Utah, fully described in my last report, have been replaced by earth closets. Faults in the sewerage system and plumbing of Fort Whipple, Ariz., and Fort Sill, Oklahoma, have been reported. Blocking of sewers occurred at Forts Wadsworth and Schuyler, N. Y. The imperfect and dangerous condition of the sewerage system at Fort Monroe continues as stated in my last report.

The construction by the city of San Francisco of a sewer, called the Locust Street sewer, across a part of the reservation of the Presidio, has resulted in a nuisance which has continued for the past eighteen months. The sewage enters a little rivulet which flows over the southern margin of the reservation into a marsh just below the post hospital where it spreads over the surface. This nuisance should be abated.

Water Supplies.—The water wagon continues in use at Fort DuChesne, Utah, and camp at Eagle Pass, Texas. An insufficient supply was reported from Fort Hamilton, N. Y., and Jefferson Barracks, Mo. At Fort Warren, Mass., and Fort Grant, Ariz., insufficiency was remedied during the year. Improvements in the supply were reported from Fort Bowie, Ariz., Fort Niobrara, Neb., and Mount Vernon Barracks, Ala. A good and free flowing well of water had been obtained at Fort Stanton, N. M., and an artesian well sunk at Fort Myer, Va. The question of a water supply at Fort Reno remains unsettled.

Food and Cooking.—Considering the large number of posts from which reports are received, regularly, covering the subjects of food and its cooking, the small number of references to deficiency or inferior quality of the articles of the ration or to faults in their preparation, demonstrates the amount of care and attention given to these matters by the officers responsible.

From several posts, such as Forts Supply, Reno and Sill, fresh beef was reported at certain seasons as dry, lean, tough and with an excessive proportion of bone. So long as beef contracts are awarded for so long a period as a year, and at a price which prevents the contractor from supplying any other beef than that from the neighboring ranges, poor beef is to be expected with every failure of the local pastures. The suggestion of the Post Surgeon of Fort Sill that contracts should be made to cover two periods appears to merit favorable consideration. From May to December the local pastures are good and contract should be made with a view to accepting range fed beeves; but during the remaining months of the year the stipulation should be explicit for corn fed beef or its equivalent in grade.

Clothing.—During the year many reports were received concerning the unsatisfactory character of the shoes issued to the troops. They were characterized as stiff, heavy and ill fitting. Late in the year a new style of calfskin shoe was issued which is reported as being an improvement on that formerly provided.

The adoption of a white uniform for troops serving in warm latitudes is regarded as having contributed to the health and comfort of the men. The Post Surgeons of Forts Sill and Barrancas speak strongly in favor of this uniform during the heated months.

Habits, Cleanliness, Athletic Exercises, etc.—The reports of medical officers regarding the habits of the men are generally favorable. At some posts where houses of bad repute are established in the vicinity, the sick report often becomes burdened with the results of dissipation, particularly after pay day. The unfortunate exposure of the recruits at Columbus Barracks to harmful influences of this kind has already on several occasions been pointed out.

Several references to inadequate facilities for bathing have been noted, but none charging any command or part of a command with lack of personal cleanliness. Inadequate provision is reported from Forts Canby and Washakie, Key West and St. Francis Barracks, and from San Carlos and Camp Eagle Pass.

The benefit accruing from systematic work in gymnasiums is appreciated by all army medical officers.

Report of the Surgeon-General of the Navy.

The report of Surgeon-General Tryon embraces a statement of the naval hospital fund, the naval medical establishment and other matters of interest pertaining to the Bureau of Medicine and Surgery. It has been the endeavor of the Bureau to have the Medical Department of the Navy as efficient as it can be under existing laws, and, so far as the appropriations will allow, to have the hospitals at different stations always in readiness for the reception of their full quota of sick, to make modern changes and improvements, to pay special care to roads and grounds, and to keep the buildings in a proper state of repair. To this end the electric light has been installed at the naval hospitals at Boston, New York, Washington, Norfolk, Mare Island, and Yokohama, Japan. The repairing and equipment of south wing of naval hospital, Norfolk, Va., fitting up antiseptic operating rooms and introducing elevators at the several hospitals, and supplying them with modern ambulances are all under consideration.

The repairs and improvements made during the year at the various naval hospitals, navy yards and receiving ships are given in the report in detail. A sudden increase of sick at the Naval Hospital, Philadelphia, Pa., required occupancy of the entire hospital, and the north wing, which has been out of commission for several years, has been restored to its legitimate purposes. This part of the building was found sadly out of repair, requiring new water-closets, renewal of surface drains and connections, new water and waste pipes, repair of verandas, roof, gutters, ventilators, chimneys, water-tanks, steam boilers, and heating apparatus, and repainting of all tin, iron, and woodwork to put in habitable condition for the reception of patients. On the completion of the work the hospital will be in condition to meet the wants of the station, and have accommodations for the sick that may have to be transferred from New York during the repairs of the hospital at that station.

The necessity of enlarging and improving the New York Hospital was brought to the attention of the Department last year, and authority was asked and granted by Congress to use \$69,000 from the appropriation "Naval Hospital Fund" of the sum accruing from the sale of New York hospital property under Act of July 2, 1890, to the city of Brooklyn. The buildings and grounds have been carefully inspected with a view of commencing as soon as possible the much needed work, and plans and specifications relating to the proposed changes will be submitted at an early date.

Recommendation is made that, through Congressional action, the Secretary of the Navy be authorized to dispose of the hospital at Widow's Island, Me., and that the proceeds of the sale be devoted to the renovation of such naval hospitals as require to be placed in a modern sanitary condition. This hospital was built in 1887, by a special appropriation of Congress, to meet the necessities then existing for some suitable hospital accommodations in a northern latitude for the reception of patients returning home in infected ships. Before the rehabilitation of the Navy, vessels were built entirely of wood; many of them had been in service during the war, and all of them, by gradual decay, filled with rotten timbers and worn-out construction material, defective ventilation, etc., had become susceptible to yellow-fever poison whenever a port in the West Indies or elsewhere was visited where the disease existed. It was almost impossible at that time, in spite of the greatest care and strictest sanitary rules, to keep such a class of vessels free from yellow fever. Scarcely a summer passed but two or more vessels returned with the disease on board, and the only refuge was at some point North, where the vessel could be broken out and the

sick sent ashore for treatment. Had like conditions continued to exist, the hospital at Widow's Island to-day would be a most valuable and necessary part of the naval medical establishment. As it is, however, everything is changed; naval architecture has undergone a radical departure, wooden vessels have disappeared, and steel ships of every class and size, well ventilated and equipped, have taken their place. These new steel vessels, with ordinary precautions, are susceptible only in a small degree to the introduction and retention of the yellow-fever poison, and should one of this class of vessels arrive North with the fever, or any other infectious disease, on board, under the present enlightened methods of ship sanitation, the vessel would not be ordered to make a long cruise to Widow's Island, where there is only hospital accommodation without a modern plant disinfection, but would be sent to the quarantine station at New York, where all improved appliances exist, where the sick could be cared for, and vessels with their equipment declared free in a very few days, with little inconvenience, and certainly with much less loss to the Government, than by the obsolete methods proposed to be carried out at Widow's Island. Not a patient has been treated in treated in this hospital since its erection, and the buildings year after year require additional repairs to keep them in serviceable condition. In view of all these facts, it is deemed advisable to dispose of the property as soon as it can be done on satisfactory terms.

The health of the Navy, according to the statistical tables, was most favorable during the year. There are few special hospital notes submitted; but among them it is stated that thirty-three cases of acute pneumonia were admitted into the New York Hospital and that of this number thirty-one recovered and were returned to duty. The average age of these men was 24 years. The rate of mortality was very low, and the number of recoveries correspondingly large. The method of treatment adopted is believed to be largely responsible for the result attained, and consisted in the hypodermic use of sulphate of strychnia, one twenty-fifth to one thirtieth of a grain, repeated every three or four hours, according to the severity of the disease, and liberal doses of alcoholic stimulants.

The health of the squadron in the infected harbor of Rio de Janeiro during the recent troubles in Brazil affords convincing proof of the reliability of sanitary rules, if carefully and closely followed. During periods varying from two to five months the *San Francisco*, *New York*, *Charleston*, *Newark*, and *Detroit*, with a combined complement of 1,762 officers and men, suffered exposure to epidemic influences of yellow fever and the sanitary precautions used against the introduction of the disease were the only safeguard, and proved most efficient, thereby enabling an effective military force to be kept constantly on the spot. While war vessels of every other nation had the disease on board, and while merchant vessels from different parts of the world were, in many instances, deprived of their entire crew, there was only one case, a paymaster's yeoman, on an American man-of-war, and that one, from its history, was preventable. The experience at Rio affords a valuable lesson in sanitary history and should not pass unheeded. Interesting reports have been received from the medical officers of the above-named vessels relating to the epidemic, and when all the replies are received to the Department's circular letter of June 21, 1894, relating to the "precautionary sanitary measures used and supposed to contribute in preventing the introduction of yellow fever on board," it is hoped such reliable information will be obtained that the Department will be able to formulate sanitary rules and regulations on the subject that will be of value as a guide to vessels of the Navy when obliged in future to serve in an infected port. Such "general sanitary rules" embracing special precautionary measures against the introduction of yellow fever and cholera on board vessels of war will be submitted at an early date with the request that they be made Department regulations.

Recruiting.—The examination of recruits for the naval service is one of the most difficult and exacting duties to which medical officers can be assigned, and upon them devolves the responsibility of selecting the material on which the efficiency of our Navy depends. Moreover, every medical officer, when ordered on such duty, should be impressed with the importance of the work on which he is entering, and to which he should devote the utmost care and attention. The conditions of life on board ship to-day are so radically different from what they were a few years ago that far greater care is required in the selection of recruits. Formerly, when vessels made long cruises under sail, and the

men lived practically on deck in the open air, their physical condition, if below par at date of enlistment, would improve. Now, however, on board of our new ships, with complete change of environment, as well as the character of the work demanded of them, recruits should be, as far as practicable, free from all physical imperfections.

Enlistments on seagoing ships should be prohibited by regulation, from the fact that many of our new ships are unprovided with suitable accommodations for such examination; some of them with no examining rooms or sick bays, and even in those having sick quarters, they are entirely inadequate for the proper performance of this work. Conceding, therefore, the benefit that would accrue to the service if enlistments were conducted under more favorable conditions, it is suggested that the Department establish a central rendezvous on shore, preferably at the navy-yard, New York, for the examination of all recruits, suitably fitted up with all necessary appliances for the performance of this duty, well ventilated, lighted and so situated as to be free from all disturbing influences. In the course of a few years the Department would recognize an appreciable improvement in the general health of the Navy, as shown by a smaller annual percentage of sick on board of our ships, as well as a great reduction in the number of medical surveys upon men whose disabilities existed prior to their entry into the service, and who probably would not have been enlisted had their examination been made under more favorable circumstances.

Vacancies in the Medical Corps of the Navy.—During the year ending June 30, 1894, thirty permits were issued by the Navy Department to candidates to appear before the naval medical examination boards in session at New York and San Francisco. Of this number, ten failed to present themselves for examination, five were rejected physically, twelve were rejected professionally, and three were found physically and professionally qualified for admission as assistant surgeons into the Medical Corps of the Navy.

The above record, showing a rejection of 85 per cent. of candidates examined, is not satisfactory, particularly when we contrast the large number of properly qualified applicants for similar positions in the Army and Marine-Hospital services, and the promptness with which such vacancies are filled.

The examination to which candidates for admission are subjected is in accord with the teaching and requirements of our medical schools, being within the capacity of every young medical man, properly equipped for the practice of his profession, and the large percentage of failures, as shown by the record of the examining board can only be accounted for on the supposition that the naval service, from lack of suitable inducements, does not attract the class of men who would tend to advance the standard of professional excellence, or from whom the highest degree of medical and military efficiency might be expected.

Notwithstanding that every reasonable effort was made by the Department to fill the corps, there remained at the close of the fiscal year ending June 30, 1894, eight vacancies.

Attending Surgeons.—Officers of the Medical Corps of the Navy, assigned to duty as attending surgeons in the various cities on the Atlantic and Pacific coasts, have rendered valuable service, and have been able to profit by the advantages offered for the study of diseases and operative work at the large hospitals and dispensaries. Coming in contact with the learned general practitioner and accomplished specialist, they are afforded opportunities for seeing unusual types of disease and accident, and of gaining invaluable professional information to assist them in their future duties on board ship.

Passed Assistant Surgeons.—The bill for the examination and commissioning of passed assistant surgeons, submitted to Congress with the approval of the Department, was favorably considered by the committees of both the Senate and House of Representatives, but legislative action was postponed pending the consideration of the bill relating to the *personnel* of the Navy. A physical, mental, moral and professional examination should obtain for every promotion in the service, and particularly for this grade in the Medical Corps, where, under existing regulations, no examination to determine physical and professional qualifications can be exacted until promotion to medical inspector, an average period of nearly thirty years since the last examination.

It is strongly recommended that the Department urge the passage of the present bill, now pending in Congress, so as to remedy, as soon as possible, the defective system acting injuriously to the interests of the Medical Corps of the

Navy, provided the question is not settled in the *personnel* bill at the next session of Congress.

U. S. Naval Laboratory and Department of Instruction.—The regulation issued by the Department over a year ago, creating a system of instruction for assistant surgeons immediately after passing a successful examination for admission into the Medical Corps of the Navy, has proved as valuable as predicted. The medical officers attached to the hospital, examining board, laboratory and department of instruction, New York, have all been interested in the work, and the rules and regulations during the period of instruction have been fully complied with. Four assistant surgeons have had the advantage of the prescribed course, and the records of their work, on file in the Bureau, afford satisfactory evidence of the manner in which it has been done. Two medical officers have taken partial courses in bacteriology and analytical chemistry, and two assistant surgeons who have just completed successful examinations are at present undergoing instruction.

U. S. Naval Museum of Hygiene.—By order of the Secretary of the Navy, dated Jan. 20, 1894, the old Naval Observatory buildings and grounds, situated at Twenty-third and E Streets, N. W., were transferred to the Bureau of Medicine and Surgery, to be used by the Museum of Hygiene. This transfer was requested, as the rented building was no longer adapted to the wants of the museum, on account of the large and increasing value of the exhibit and the necessity of having it properly grouped and classified for the purpose of study and observation; also to provide proper accommodations for the prosecution of microscopic and bacteriologic investigations, which constitute an important feature in the administration of the museum. The transfer of the exhibits was made on the expiration of the lease of the building, June 30, 1894, and necessary minor repairs were commenced as soon as the naval appropriation bill for 1894-95 was approved.

The interest that has been manifested by the service and by professional and scientific bodies in the growth and development of a museum identified with the practical study and advancement of sanitary science is shown by the steady increase in the number of exhibits. By the removal of the museum to commodious and permanent quarters the object of its organization can now be satisfactorily fulfilled, and opportunities offered for accomplishing good work in the future.

One hundred and ten new exhibits were added to the collection during the past year, including the complete and interesting "model of the system of disinfection practiced at the quarantine station at New Orleans." This model was exhibited at the Columbian Exposition at Chicago and presented to the museum by the Louisiana State Board of Health. Thirty specimens of animal parasites, contributed by the Department of Agriculture, have also been received, remounted and labeled.

The delegate recently appointed to represent the Medical Department of the Navy at the Eighth International Congress of Hygiene and Demography was directed to make a complete and thorough inspection of the museums of hygiene at London and Berlin, and to report in detail. Advantage will be taken of all valuable information thus obtained, and efforts made to make the Naval Museum of Hygiene as complete in every arrangement and detail as establishments of like character abroad.

To provide for the growth and proper classification of the instructive exhibit, so as to show the advances that have been made up to date in sanitary science, and to facilitate the further practical study of hygiene, so essential to the welfare of the Navy and the public at large, it is recommended that a small amount be used annually from the "Naval Hospital Fund" to render the establishment, now organized on a permanent basis, complete in all its appointments. Legislation is therefore requested, authorizing the Secretary of the Navy to use annually, when deemed necessary, from the appropriation "Naval Hospital Fund," a sum not to exceed \$5,000 for the benefit and improvement of the present U. S. Naval Museum of Hygiene, located in the old observatory grounds, Washington, D. C.

Statistical Report and Book of Instructions.—The statistical report has been carefully revised and elaborated, having in view the necessity for more complete and accurate data on which to base the health record of the Navy.

As soon as practicable the subject of the revision of the Book of Instructions for Medical Officers will be considered, in order to make it accord with the regulations, general orders and circulars issued subsequent to its publication.

The Bureau has also under consideration the preparation

of a form for the guidance of medical officers in making their annual reports.

Revision of Supply Table.—The supply table of the Medical Department of the Navy has been revised and enlarged to meet the changes and advancements that are constantly taking place in the department of applied medicine. In its preparation the Pharmacopœia has been carefully consulted; new drugs of recognized professional value have been added to the list, and many articles that have become obsolete or regarded as of doubtful utility have been abolished.

The supply of tablet triturations, compressed powders, and hypodermic tablets has been increased with the view of meeting the requirements of the service, and much care and attention have been given to the selection and rearrangement of supplies under the heads of hospital stores, surgical dressings, and dispensary and hospital furniture.

The necessity for such revision becomes obvious when we realize the rapid strides that are annually taking place in all that pertains to modern and progressive medicine, and such changes in the list will be made whenever new appliances and remedies receive official recognition by the profession, and as often as the interest of the service demands it.

There has been a complete revision of the outfit of surgical instruments and appliances, and the Medical Department of the Navy will soon be supplied with every article the practice of modern surgery demands.

Hospital Corps for the Navy.—The necessity of an organized Hospital Corps, well instructed, drilled, and equipped for all duties it is called upon to perform, becomes more and more apparent as new modern vessels of war are being completed and placed in commission. The services rendered by such a corps would be invaluable to the Navy. Its usefulness has already been demonstrated in our Army, and the attention that is being paid to perfecting the system by all first-class naval powers is convincing proof that immediate action should be taken in the matter by our own service. Many important questions relating to the handling of wounded on board modern vessels of war in action, forms of ship ambulances, different methods of transportation, landing parties on shore, instructions to men, first aid to wounded, proper care of sick and wounded ashore and afloat, etc., have all to be considered, and reasonable and effective plans adopted that can only be done by an efficient organization created solely for such special work.

It is strongly recommended that this subject may receive the sanction of the Department and be submitted for legislative action during the next session of Congress.

Ambulances.—It is absolutely necessary that our large hospitals be supplied with ambulances of modern construction, and a system of drill adopted at the different establishments, so as to have a complete and effective system for the transportation of sick and wounded men. This subject has never received the attention it merits, and the delays and discomforts attending the transfer of men to hospital are largely due to the lack of properly constructed ambulances and an efficient organization. Until this service is organized and incorporated in the duties of a Hospital Corps, modern ambulances should be supplied at once to our principal hospitals, which would be a great improvement over the present plan for transporting the sick, and save no end of discomfort and suffering. With light modern ambulances at all of our hospitals, subject to telephone call either night or day from ships or navy-yards, the summons could be answered at once, and there is scarcely a station where the sick or wounded man would not be delivered to the hospital inside of thirty minutes.

The present clumsy method of transportation of the sick and wounded, with their bags and hammocks in the same uncomfortable vehicle, without any pretensions to ambulance fittings, should be abolished.

Sick Quarters on Board Vessels of War.—A special report relating to the importance of providing suitable accommodations on board of our ships for the care and treatment of the sick and wounded of the Navy has already been submitted to the Department. The plans of all vessels in commission undergoing construction and nearing completion, have been carefully examined with a view of selecting suitable locations for sick quarters, and recommendations made when required. On board of ten vessels no quarters are designated for the treatment of the sick and wounded; in the case of the *Minneapolis* the omission was probably due to an oversight, as this vessel was designed on similar lines to her sister ship the *Columbia*. Subsequent to the examination of the plans of our uncompleted warships, the drawings of the armored cruiser *Brooklyn* and the battleship *Iowa* were submitted to the Bureau and, in consultation with the Pres-

ident of the Board of Inspection and Survey and the Bureau of Construction and Repair, suitable sick quarters were located.

It is earnestly suggested that hereafter, before sick quarters are assigned on our ships this Bureau may be consulted as to their location.

Representation of the Medical Department of the Navy at Medical Association Meetings.—Acting upon the recommendation contained in the Bureau's last annual report, application was made to the Department by the secretaries of several associations for the detail of medical officers to represent the Medical Department of the Navy at their annual meetings. Medical officers detailed for such duties were required to notify the Department of the nature of the subjects which they proposed presenting at the meetings, and on adjournment were directed to submit reports in full on the papers presented, and any points of interest that may have developed during their discussion.

At the fourth annual meeting of the Association of Military Surgeons of the United States, which took place in Washington, D. C., May 1-3, last, the Department was represented by Medical Director Gihon and Surgeon Beyer, who read papers on the "Transportation of Sick and Wounded on Board Ship" and "First Aid on the Battle-field," respectively.

At the meeting of the AMERICAN MEDICAL ASSOCIATION, June 5, last, at San Francisco, Cal., the delegates of the Department were Medical Inspector Geo. W. Woods and Surgeon Crawford. The former read a paper on "The Use of Acetanilid in Medicine and Surgery, with Special Reference to its Surgical Applications;" the subject selected by Surgeon Crawford was "Stricture of the Male Urethra." These papers are appended to the report of the Surgeon-General.

Medical Director Gihon was delegated to the meeting of the American Public Health Association, held at Montreal, Canada, September 24, last. His report of the proceedings will be submitted at a future date.

In order that the Medical Corps should be officially represented at the Eleventh International Medical Congress, Rome, Italy, from March 29 to April 4, 1894, inclusive, the Navy Department detailed Medical Inspector Dubois and Surgeon Siegfried for this duty, directing them to report by letter to the Surgeon-General of the Navy for special instructions. The reports of these officers, relating to the subjects to which they were directed to give special attention, and forming part of the proceedings of the Congress, are submitted with the Surgeon-General's report under the head of special reports.

Medical Director Gorgas, in charge of the Naval Museum of Hygiene, was ordered to proceed to Buda-Pesth as the representative of the Medical Department of the Navy, at the Eighth International Congress of Hygiene and Demography, Sept. 1-9, 1894. He was also ordered to report to the Surgeon-General for special instructions in connection with his duty, and his paper on "Naval Hygiene," read before the Congress, together with other subjects of professional interest to which his attention was directed in his letter of special instructions, will be submitted in a future report.

When the system is inaugurated of detailing officers as naval medical *attaches* at important embassies abroad, as suggested in my last annual report, the duty above referred to will be performed by such officers, avoiding the necessity of ordering special delegates from the United States.

SOCIETY PROCEEDINGS.

New York State Medical Association.

Eleventh Annual Meeting, held in New York, Oct. 9, 10 and 11, 1894.

FIRST DAY—TUESDAY, OCTOBER 9.

THOMAS D. STRONG, M.D., Chautauqua County, President
DR. ZERA J. LUSK, of Wyoming County, reported a case in which he had removed by lateral lithotomy a wire nail three inches in length. It is said to have been in the bladder for four years. He also reported a successful case of operation for traumatic epilepsy. Ten days after the injury he had trephined and had found in addition to a fracture, a firm epidural clot covering the lower part of the fissure of Rolando. There had been twenty-eight convulsions on the day preceding the operation, and paralysis of the arm and face, wit-

aphasia. The convulsions ceased two days after operation, and on the fourth day he was able to speak a little.

DR. E. D. FERGUSON, of Rensselaer County, referred to a case in his practice in which, although the symptoms pointed to a lesion rather high up on the fissure of Rolando, the operation revealed a large blood clot near the base of the cranium. This was removed and the patient recovered rapidly.

DR. DARWIN COLVIN, of Wayne County, reported a case of epilepsy due to a gunshot wound, in which he had effected a cure by trepanning the skull.

DR. EDEN V. DELPHEY, of New York County, exhibited a non-conducting speculum made of hard rubber, and intended for use in connection with post-partum intra-uterine douches. He also recounted the principal points brought out in a recent suit for damages. The writer had assisted Dr. A. H. Goelet in anesthetizing a man of 52 years, preparatory to amputating a gangrenous finger. His urine had been previously examined with negative result. After giving not more than 1 drachm of Squibb's chloroform on an Esmarch inhaler, ether was substituted, and administered in the usual way. Just about this time the man suddenly stopped breathing, and in spite of prompt resort to artificial respiration, and its continuance until after the heart ceased to beat, they were unable to resuscitate him. The deputy coroner who made the autopsy reported that he found pulmonary edema and incipient disease of the kidneys, and also pachymeningitis. Judge C. H. Truax, in his charge, instructed the jury to pay no attention to the statement that the family of the deceased had interfered, and had objected to his taking any anesthetic, as they had no legal authority to do so, particularly as the man was competent at the time to judge for himself. He also called attention to another matter of general interest to the medical profession, viz., that if a physician gave any medicine to a patient contrary to that person's wish, the physician was a trespasser, and could be held as such for any serious results that might ensue from the administration of the medicine.

DR. E. D. FERGUSON said that he understood that the courts in Pennsylvania, at least, had held that physicians simply witnessing an operation, without assisting at all, could be held as co-defendants in such a suit.

DR. J. W. S. GOULEY, of New York County, sent a paper in which he suggested the term "typhlenteritis" as being more accurate and appropriate than "appendicitis."

DR. JOSEPH D. BRYANT, of New York County, in a paper entitled "Some Interesting Cases of Appendicitis," (see page 61) reported four cases of secondary appendicitis, representing various types of the disease, in which he had operated successfully.

DR. F. W. GOODALL, of Vermont, said he had been palpating the vermiform appendix, and he had found it quite easy of accomplishment.

DR. J. G. TRUAX, of New York County, said that his experience had led him to believe that if the primary attack was properly treated, there would be very few secondary attacks. The treatment he considered appropriate was keeping the patient in bed on a milk diet, and with an ice-bag over the cecocolic region until all induration had vanished. For two or three weeks after this, the patient should be still kept on a milk diet, although allowed to be up and around. After this he should have a farinaceous diet for five or six weeks.

DR. H. O. MARCY, of Boston, defined an appendicitis to be a proliferation of the bacillus coli communis locked up in a small process of the bowel," and argued from this that we could not freeze them out, or do much good except by operation. After his extensive experience with this disease he was more than ever inclined to go back to his former position as a "radical." One or 2 per cent. represented the mortality from operations performed at an early stage. To operate after rupture of the appendix into the abdominal cavity was only to bring surgery and one's self into disrepute.

DR. E. D. FERGUSON said the fact that operating surgeons saw such a large proportion of cases demanding immediate surgical interference was easily explained. Personally, he had found that the great majority of cases had only a single attack.

DR. BRYANT, in closing the discussion, said that from 60 to 75 per cent. recovered from the primary attack without operation, and that secondary attacks occurred in from 11 to 15 per cent. As it was impossible to tell how near the appendix was to rupturing, he was in the habit of urging immediate operation. He had given up trying to palpate the appendix for two very good reasons, viz.: 1, because he had

rarely been able to feel the appendix; and 2, because palpation might very easily give rise to rupture of a gangrenous appendix.

DR. W. H. PARK, of New York County, then read a paper entitled, "Recent Studies on Diphtheria and Pseudo-Diphtheria." After referring to the work of the New York Board of Health, he said that it had been found that the diphtheria bacilli usually persisted in the throat for about seven days after the membrane had gone, and that healthy persons might carry these bacilli in their throats, and so infect others without themselves being sick with the disease. Pseudo-diphtheria had not been found especially contagious. Unlike true diphtheria it was especially prevalent at certain seasons of the year. Experiments conducted at the Willard Parker Hospital had shown that irrigation of the nose and throat with warm normal salt solution was as good, if not better than irrigations with bichlorid of mercury, or peroxid of hydrogen. The antitoxin treatment had also been given a trial at the same hospital, and so far with excellent results, both as to the curative and preventive powers of the antitoxin.

DR. JOHN CRONYN, of Erie County, then read a short paper in which he argued from the incubative period of the disease, and from the phenomena observed in certain cases, that diphtheria was at first a constitutional infection. He said that necrosis of the mucous membrane must take place before the diphtheritic exudate could make itself manifest.

DR. HERMANN M. BIGGS, of New York County, said that as it was known beyond a doubt that true diphtheria bacilli might be present without any membrane, it seemed absolutely essential to a proper sanitary surveillance of the disease that systematic bacteriologic examinations should be made. He had had excellent opportunities of studying the antitoxin treatment in Berlin, and he had found that the eminent scientific investigators there, engaged in studying this method of treatment, of one mind as to its efficacy.

DR. A. PALMER DUDLEY, of New York County, read a paper on "The Technique of Cæsarean Section," and exhibited three patients on whom he successfully performed this operation.

DR. JOSEPH TABER JOHNSON, of Washington, D. C., read a paper entitled "Hysterectomy for Uterine Fibroma by Baer's Method, with Report of Nine Successful Cases." He had found convalescence after this operation exceptionally smooth and rapid, and the operation itself was quickly performed.

DR. W. R. PRYOR, of New York County, then read a paper on "Hysterectomy in Pus Cases," in which he advocated the removal of the uterus in addition to the pus tubes, on the ground that a large proportion of such cases were not relieved of their symptoms by a simple salpingo-oophorectomy. Another argument in favor of this procedure was the fact that the uterus was often the original source of the disease, and in about 20 per cent. of the cases, the uterus had been found to be tubercular. In his opinion, the removal of the uterus added but little to the shock and risk of the operation.

DR. H. O. MARCY then made some remarks on "The Anatomic and Surgical Treatment of Inguinal Hernia in the Male," illustrating the subject with many stereopticon views.

SECOND DAY—WEDNESDAY, OCTOBER 10.

DR. DOUGLAS AYRES, of Montgomery County, read a paper entitled "Fractures of the Inferior Extremity of the Humerus involving the Articulating Surface; with Report of two Cases Occurring in Children." The author thought the best results in such cases would be obtained by: 1, early elevation of the limb; 2, by cold applications; 3, careful immobilization in the bent position; and 4, by an early resort to passive motion.

DR. A. J. VAN VRAKEN, of Albany County, in discussing the paper emphasized the fact that it was wise to invariably anesthetize children with fractures or dislocations before making the diagnosis.

DR. JOHN CRONYN said it was rare to get a perfect result in this class of injuries, and consequently it was prudent for the surgeon to state this fact very plainly to the family at the outset, and tell them if they know of any one whom they think will be likely to do any better, you would recommend them at once to procure that surgeon's services.

DR. JOSEPH S. GIBB, of Philadelphia, read a paper on "The Stearate of Zinc Compound in Atrophic Rhinitis." The treatment he had found the most successful for this obstinate condition was a thorough cleansing of the parts, both anteriorly and posteriorly, followed by the insufflation of a powder of stearate of zinc containing 25 per cent. of euro-

phen. He had been able to follow thirty-two cases, twenty-seven of which had been entirely relieved of crusts and odor while the moist appearance of the normal mucous membrane had been restored.

DR. DWIGHT L. HUBBARD, of New York County, in discussing the paper, said that while he could from personal experience testify to the benefit to be derived from the use of the stearate of zinc, he still felt that the major part of the improvement noted in the author's cases was to be attributed to his thorough method of cleansing the parts.

DR. GIBB replied that no doubt much of the benefit was due to this cause, but still he had not obtained such good results where the same cleansing process had been used without the stearate of zinc. The chief virtue of the stearate was its adhesiveness.

DR. WILLIAM H. ROBB, of Montgomery County, reported a case of "Suppurative Cellulitis Following an Injury to the Hand." The special interest of the case centered in the fact that in spite of the free use of antiseptics, and finally even of amputation of the arm, the process extended, and eventually proved fatal. This unusual result was attributed by the reader of the paper to the fact that the wounded hand had remained wrapped up in woolen rags full of germs for nearly four hours before there was an opportunity for a surgeon to apply antiseptics.

DR. J. D. SULLIVAN, of Kings County, said that an ordinarily healthy individual ought to have sufficient vitality to resist the onslaught of the microbes for four hours. He was inclined to think the catgut might have been septic. The best treatment for severe cases of this kind was to immerse the limb continually in a bath of some appropriate antiseptic solution.

DR. CHARLES A. CHURCH, of Essex County, said that the effect of the bath treatment could be more conveniently obtained by enveloping the part in bichlorid gauze kept moist with a 1 to 4000 solution of bichlorid of mercury.

DR. E. D. FERGUSON called attention to the liability of having the antiseptic solution become too concentrated by evaporation when applied in the manner just described by the last speaker.

DISCUSSION OF THE PREVENTION OF TUBERCULOSIS.

DR. HERMANN M. BIGGS, of New York County, opened this discussion. He referred to the recent action of the New York Board of Health, compelling notification of all cases of tuberculosis occurring in all the public institutions, and requesting physicians in private to send to the Department similar information. In preference to adopting any plan of disinfection of apartments that had been occupied by tuberculous persons, the Board had decided to require the owner of the apartments to have the rooms freshly kalsomined or papered. If the owner refused to do this, the door of the rooms was placarded, and all persons forbidden to occupy them until the landlord had complied with the requirements of the Board.

DR. LAWRENCE FLICK, of Philadelphia, then exhibited a series of lantern views to emphasize his remarks on the nature of the localities where tuberculosis was most widely disseminated. He exhibited maps showing how health resorts had become an important factor in spreading this scourge. Then followed pictures illustrating the part played by the ordinary life of the tenements. He predicted that as a result of the prophylactic measures now being adopted in various cities—indeed largely by the simple diffusion of knowledge regarding the communicability of tuberculosis—this disease would be completely stamped out in the near future.

DR. J. H. HUDDLESTON, of New York County, spoke of the importance of properly concentrating sputum before examining it for tubercle bacilli.

DR. JOSEPH D. BRYANT described the various steps by which the recent action of the Health Board in regard to tuberculosis had been brought about. It was the result of efforts extending over about five years.

DR. E. G. JANEWAY, of New York County suggested that hotels should have separate rooms, and distinctive bed-clothing and other furnishings for consumptives.

DR. J. G. TRUAX, of New York County, said that tuberculin was now recommended as a diagnostic test, but unless his experience with this agent had been exceptional, it was likely to prove dangerous.

DR. BIGGS replied that Professor Koch, who had been using it extensively in Berlin, had told him that if used in pure tuberculosis it was perfectly harmless, and might even be curative; but that when employed in cases of mixed infection, it was certainly harmful.

DR. J. BLAKE WHITE, of New York County, read a paper on "The Diagnosis and Treatment of Pleurisy." He spoke of the sharpness and distinctness of pleuritic crepitation as an important help in differential diagnosis. He did not approve of the treatment by strapping, as he thought it was likely to lead to permanent changes in the lungs and pleura. Aspiration should be resorted to as soon as the presence of serous effusion was detected. For empyema, simple incision without resection of a rib was the best.

DR. H. O. MARCY, of Boston, paid a glowing tribute to the now historical labors of his old teacher, Dr. Bowditch, in connection with thoracentesis.

DR. CRONYN said he taught his pupils to aspirate before there was more than a pint of fluid in the pleural cavity. It should be remembered that while morphia would relieve the pain of pleurisy it was not like crude opium, distinctly curative.

DR. FRANK VAN FLEET, of New York County, read a paper entitled, "The Treatment of Retinitis Albuminurica in Pregnancy from an Ethical Standpoint." The author showed by quotations from the statutes that the law justified abortion only when this was necessary to save the life of the mother or of the child—nothing was said about permitting it where the mother's sight was jeopardized. As retinitis did not occur until the nephritis was quite advanced many physicians would hold that the mother's life was endangered by the nephritis, and that without taking into consideration the question of the risk to her vision, the prompt termination of pregnancy was justifiable. He then considered at length the moral aspects of the case, giving opinions from certain well-known ecclesiastics.

DR. DARWIN COLVIN, of Wayne County, said that the author had implied that under the conditions supposed to exist in the class of cases under discussion, the death of the fetus was inevitable. This was certainly a mistake, and could be refuted from his own experience. He then reported a case in which he had himself advised the immediate termination of pregnancy, but the patient not consenting to this, she had been liberally bled twice before labor, and had been in due time delivered of a living child. This woman had remained totally blind for about a month after labor, and when he heard from her about one year later was still suffering from defective vision. He had known of two other instances in which notwithstanding marked nephritis, a living child had been born.

DR. E. D. FERGUSON said that fortunately owing to the improved medical and surgical measures of the present time, one was not often called upon to decide absolutely upon the destruction of human life.

DR. CRONYN said the Catholic church consented to Cæsarean section on the assumption that the child would be born alive, and that the risk to the mother was not extreme. It also permitted the induction of premature labor provided the child was viable.

THIRD DAY—THURSDAY—OCTOBER 11.

DR. DARWIN COLVIN, of Wayne County, in a paper entitled, "Reminiscences of a Country Doctor during the past Fifty Years," stated, that in his opinion, the mortality in child-bed was no greater fifty years ago than now. In those days digitalis was almost the sole medicine used for cardiac affections, and when it was remembered that it was prescribed as a depressant, in deference to the then prevailing opinion that all diseases of the heart were inflammatory, one could but feel appalled at the recollection. The older practitioners believed that opium possessed certain curative properties in peritonitis and pleuritis that did not belong to morphia; and to this day he preferred opium to morphia except when he desired to employ hypodermic medication. He did not believe that the next half century would see any such great advances in medicine as had been witnessed in the last fifty years, except in materia medica and brain surgery.

DR. CRONYN, and the PRESIDENT, both spoke emphatically in regard to the greater curative properties of opium in pleurisy and peritonitis, and indorsed fully the statements made by the author regarding the changes that had occurred in medicine in the past fifty years.

DR. THOMAS H. MANLEY, of New York County, in a paper entitled, "A Practical Study of Grave Abdominal Contusions, with a Clinical Report of Twenty Cases," described certain experimental studies that had been made on this subject, and asserted that his own experience had taught him to look upon the free administration of mercury by inunction as of great value in the early treatment of traumatism of the abdominal viscera.

DR. JOHN G. TRUAX, of New York County, read a paper entitled, "Some Facts about the Treatment of Typhoid Fever." After describing the results that he had obtained from the administration of iodine, the use of the cold bath treatment, etc., he stated that he had secured the best result from the use of intestinal antiseptics, and the application of an ice-bag to the ileo-cecal region.

DR. CHARLES A. CHURCH, of Essex County, said that he could heartily indorse the treatment of typhoid fever by the administration of intestinal antiseptics. His plan was to give half a grain of calomel and two grains of soda at the outset every four hours until the bowels moved, and then begin the administration of the sulpho-carbolate of sodium as an intestinal antiseptic.

DR. FARQUHAR FERROUSON, of New York County, then exhibited an interesting specimen of hermaphroditism. The specimens were removed from a person who had been employed as a cook in a physician's family. The hair of the head was like that of a woman, but there had been beard on the face, and the latter, as well as the pelvis, were of the male type. There were a rudimentary penis, a short vagina and normal Fallopian tubes and ovaries. There were also two extremely large supra-renal capsules.

DR. FREDERICK HOLME WIGGIN, of New York County, read a paper on "Intestinal Anastomosis," reporting a case in which he had performed intestinal anastomosis, and also the results of twenty experiments which he had made on dogs. The dangers of the Murphy button he considered to be numerous. It was occasionally retained, necessitating a second laparotomy for its removal; the spring of the button was made sometimes too strong, so that it would cut through the intestine; the weight of the button might, as in a case cited, anchor the bowel in a flexed position, and so cause obstruction; it was liable to become plugged with hard fecal matter; and lastly, the sharp edges of the small lateral openings were very liable to cut through all the coats of the intestine except the peritoneum. He preferred Maunsell's method, which was adapted for any portion of the intestine, and could be readily and safely performed by any experienced surgeon.

DR. PARKER SYMS, of New York County, read a paper on "The Arthropathies of Locomotor Ataxia." The pathologic changes found in this disease, he said, involved both the bone and the soft parts, and the process was in the nature of a degeneration rather than an inflammation. It might be either hypertrophic or atrophic. Some of the characteristic early symptoms of locomotor ataxia were ordinarily present. The fact that the disease was sudden in its onset, and that there was increased joint mobility would serve to distinguish it from arthritis deformans.

DR. J. E. JANVRIN, of New York County, read a paper on "The Early Diagnosis of Tubal Pregnancy, and Primary Laparotomy in such Cases." He said that in addition to the usual early symptoms of pregnancy there would be a tipping of the uterus laterally, an elastic swelling could be detected at the site of the ovum, and an exquisite tenderness would be noted at this point.

DR. CHARLES A. LEALE, of New York County, in a paper on "Restoration of Function of the Lung and Pleura after Thoracentesis," said that in children the lung would often fully regain its function after having been compressed for months. It was important after thoracentesis to keep the patient from tubercular surroundings.

DR. AUSTIN FLINT, of New York County, was elected President of the Association for the ensuing year.

Chicago Academy of Medicine.

[Reported exclusively for the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.]

The Academy met on the evening of Oct. 12, 1894, at the Saratoga Hotel. DR. F. HENROTIN presided.

The subject for general discussion was

EPILEPSY.

DR. SANGER BROWN opened the debate with remarks upon the

SEMIOLOGICAL RELATIONS OF EPILEPSY.

DR. BROWN said: Mr. President, it occurs to me in considering this subject that very little can be said upon the pathologic anatomy of the disease. But what is wanting in that particular can be made up in the symptomatology. It is a broad subject, and in the time allotted me I can say

comparatively little in regard to it. The most important points in the symptomatology of the disease refer to the prodromal symptoms, the aura, the minor attacks of epilepsy, and to the post-epileptic conditions.

The epileptic attack is so well known to you all that it does not demand at such a time as this very much discussion. In regard to the prodromata, they are usually divided into the remote, that is those extending over a few days, and the immediate, the usual warning or aura. For instance, in my clinic just before coming to this meeting, I had an excellent illustration of the remote premonitions. In my experience they are comparatively rare. This girl had had epilepsy for nine years, and her friends could tell for days in advance when she was going to have a series of attacks by the peculiar enlargement of the eyes. I do not recall seeing this mentioned anywhere before. The patient herself was not conscious of this enlargement of the eyes. She had the immediate aura also. In regard to the remote prodromata, I had under my care at the Bloomingdale Asylum a gentleman, a colonel in the war, who had received a gunshot wound of the mastoid process, causing facial paralysis and some general hemiplegia. At first he had Jacksonian epilepsy, and finally developed the idiopathic form of the disease. His attacks occurred once or twice in two or three months, and for three or four days prior to a seizure he would begin to tell us how well he felt and how clear his mind was. Things that had been previously obscure to him were now perfectly clear, and he would lay plans for the future, and then we knew he was going to have a seizure in the course of a few days. When the seizure came it was maniacal in character, and he was entirely oblivious to all of his surroundings and would remain so for several days. He would have several severe attacks of the disease, and all the time during the several days he would be violent and very hard to manage. Then he would go perhaps for several months without an attack. The usual treatment seemed to do him no good.

In regard to the aura of the severe attacks, the symptoms are usually classified as sensory, motor, and of the special senses. The motor phenomena can not be taken up in the short time at our disposal; but I desire to say this, that in considering the peculiar sensations that patients begin to feel in the arm and extending up through the body, gastric sensations, a sense of fear and tremor, I do not think we are warranted in regarding them as evidences of epilepsy unless they are attended by at least some degree of loss of consciousness. In persons whom we know to be afflicted with epilepsy, it is undoubtedly true that very often they have these strange sensations without any disturbance of consciousness, and then we know that they were a symptom of epilepsy; unless they occur in such persons, it would not be proper to so regard them, because many of us who have never had epilepsy have had every one of the aura. The minor attacks require that special attention be given to them in cases where patients are brought to us by their friends, and convulsions and unconsciousness are described.

In referring to the post-epileptic manifestations, I should say that a true paroxysm of hysteria is not uncommon, especially in young men and young women at the age of puberty, and it is a true hysterical attack. This is of the utmost importance, as there may be an attack of petit mal or grand mal, and the true epileptic nature of the attack is very apt to be overlooked, because the manifestations of an hysterical attack last so much longer and have such a peculiar nature that they are more likely to attract the attention of the relatives than a brief attack of petit mal or of grand mal.

In connection with the post-epileptic conditions that have been described, and in which I have had experience in several instances, there are cases of what is known as automatism; that is, the patient immediately after an attack will begin to undress himself and has no recollection of what occurred afterwards. He will pick up things and put them in his pocket, no matter where he may be, and by so doing get himself into trouble. A very interesting case of this kind occurred in the person of a physician in London, showing the extent and importance of these automatic manifestations. The physician during his office hours had an attack of petit mal. His office was full of patients, and he was attending one when the attack came on. He attended to all of his patients, made several calls, and then returned to his house when consciousness returned. He went over the

work he had done during this period of unconsciousness and found he had done it practically all right. He had diagnosed correctly one case of pneumonia in which he had been called, had instructed the nurse properly, and had written the proper prescription for its treatment while he was entirely unconscious. But here, too, I think there has been too much of a tendency on the part of physicians, because there are a few well authenticated cases of this kind, to conclude that where automatism occurs in this way it is conclusive proof of epilepsy. That certainly should not be the case. I knew of a young man in New York, 17 years of age, in good health and with no hereditary taint who went several blocks from home to the house of a friend to get up lessons in the evening, and about 9 o'clock he started to return. He remembered leaving the hall but did not go home, and three or four days thereafter when he regained consciousness he found himself in the upper part of New York where it was not thickly settled, sitting along a railroad track with his feet in the water. That was suggestive of epilepsy, but was not absolute proof of it. This circumstance occurred ten years ago, and the young man has been perfectly well ever since.

FORENSIC RELATIONS OF EPILEPSY.

DR. HAROLD N. MOYER—About the most uncertain chapter in the domain of forensic psychology is that which deals with epilepsy. With reference to this discussion I have consulted several of our standard works on medical jurisprudence, and have found many errors. I mention one in passing: All agree that the importance of the epileptic attacks depends upon their severity, that is, whether it be *petit mal* or *grand mal*. That doctrine is erroneous.

It is a difficult thing to get a starting point from which to discuss the question of the responsibility of the epileptic. But I will advance briefly one or two propositions that are I think well taken; first, that no epileptic shall be held to full accountability who has committed a crime of violence without rational motive. A second is that every physician called upon to investigate one of these cases in the presence of a crime, without adequate or rational motive, should look most earnestly for the evidences of epilepsy.

For the forensic physician, the diagnosis of the epileptic attack is often beset with difficulties. It is but rare that the examiner will have an opportunity of observing an attack himself; and even if he does, must be on his guard lest he be deceived by a shrewd malingerer.

Doubtless many of you are familiar with what in thieves' parlance is known as a "dummy chucker," a man who imitates perfectly the epileptic convulsion. We remember to have observed one such case at the Cook County Poorhouse, who was detected by the fact that the thumb was clinched *outside* the fingers. We have one infallible guide and that is the loss of light reaction in the pupil. At the onset of the attack the pupils are always invariably dilated, but the reaction to light is always lost. This sign alone will enable us to detect a feigned attack.

In cases where we are not able to observe a convulsion, we must rely largely on the history of the case and what we can learn from those who have observed the patient. The essential starting point in this interrogation is the loss of consciousness; it is doubtful if this occurs in every case, but it is so frequent that it is always to be looked for, and if present establishes the diagnosis beyond all doubt. A diagnosis may sometimes be made by carefully interrogating the patient over long periods of time; this may develop the amnesic conditions so common in epilepsy.

I do not accept a classification that would place the psychoses of this disease in a separate class under the term "epileptic insanity." Nor do I believe that clinically we can demarcate between melancholia, mania, confusional insanity, circular insanity and other forms of mental disease associated with epilepsy and those which originate from other causes. When the epileptic becomes insane, the mental disorder may be considered apart from the epilepsy and its forensic relations are the same as those of any other psychosis.

We now come to the last division of our subject, the peculiar mental states which very often accompany, precede or sometimes follow the attacks, and which are often of considerable duration, and again are exceedingly transitory. To my mind this is one of the most interesting and one of the most difficult questions in forensic psychiatry. For hours preceding an attack there may be a condition of insanity, or there may be a condition of unconsciousness in which automatic acts are performed just as Dr. Brown has cited to you, and in which criminal acts may be done wholly without the consciousness of the person. The men-

tal state succeeding the attack is frequently accompanied by marked hallucinations and delusions that often lead to very outrageous acts. The delusions are often of a suspicious character; the people around them are transformed into frightful shapes, and often assume in their distorted imaginations, a violent attitude toward them, and they strike out to defend themselves. Many of the violent acts of homicidal lunatics are to be attributed to this mental state succeeding an attack.

This, then, will conclude a very brief survey of the forensic relations of epilepsy. We will briefly recapitulate a few points we have made. The diagnosis of epilepsy itself is of the utmost importance because it is such a common disease, and one that may be so easily overlooked. In every crime of violence without adequate motive, search carefully for epileptic manifestations. When it is once established that a patient has epilepsy who has committed such a crime, I do not think any one, in the present state of our science, is justified in saying that he is fully responsible. In the psychoses which accompany, precede and succeed the attacks for a varying length of time, very great judgment and circumspection must be used in giving an opinion in a particular case. I know of no special rule to guide us.

ORAL RELATIONS OF EPILEPSY.

DR. EUGENE S. TALBOT—From my experience, there is no form of brain disease that presents so much stigmata of degeneracy as is found among epileptics. Through the kindness of Dr. Dewey, some two or three years ago, I had the pleasure of making a thorough examination of patients in the Kankakee Insane Asylum, and from the classification and facts obtained at the office of the institution, I was able to make a very complete examination of the patients there. The deformities that I noticed among the different forms of insane people are arrest of development and excessive development. These conditions are spoken of in books as hypertrophy and atrophy. These abnormalities of the osseous system are produced early in life, which would go to show that the cells of the brain which preside over the development of the structures of the body affect nutrition. I found the smallest number of deformities of any one class among the alcoholic insane; these individuals might have become insane probably later in life after the osseous system had developed. I found 44 per cent. of deformities in the jaws alone, and at that time I was not paying as much attention to deformities of the face, nose, ears, etc., as I have done later. Among the paranoiacs I found 87 per cent. of deformities. I mentioned this to give you an idea of the deformities I noticed among the epileptics. I found 72 per cent. among the males, and 80 per cent. among the females. It will be noticed that the average of deformities among the epileptics was nearly up to the highest number. It is singular, in examining patients in asylums, that as large percentages of deformities are not found among them as in private patients, people that are born in this country and come to our offices for treatment. I have had the opportunity of examining mouths of some eight or ten epileptics among my own patients, and invariably found these deformities very marked; either a V- or saddle-shaped arch, are the result of arrest of development of the jaws. Then, quite frequently hypertrophy of the tongue, of the lips, the salivary glands and alveolar processes are found. In the mouths of these individuals the saliva collected in the floor of the mouth and upon the surface of the tongue. While operating the saliva moved back and forth upon the lips, showing that there is an excessive development of the salivary glands. In all of the patients in my practice I found deformities of the nose, ears, and face. An arrest of development of the jaws was quite marked in almost every case, I should say 90 per cent., showing that this disease is manifested very early in the condition of the cells of the brain. Unfortunately, not being a specialist in nervous diseases, my examinations are almost entirely limited to the osseous structure and conditions of the mouth. You will invariably (in the patients that come to you) find either an arrest of development or excessive development of the tissues of the mouth and jaws.

(To be continued.)

Bulgarian Students in France.—According to the *Gazette de Gynécologie* of Oct. 15, 1894, the number of Bulgarian students in France has greatly increased since the action taken by the Bulgarian government, in refusing recognition to the diplomas of Swiss universities. It is estimated that from 350 to 400 Bulgarians will complete their studies under French auspices this year.

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SATURDAY, NOVEMBER 3, 1894.

THE STATUE OF DR. J. MARION SIMS IN BRYANT PARK.

For the first time in the history of the United States, a public statue has been erected to the memory of a member of the medical profession.

On Oct. 20, 1894, in one of the most beautiful parks in New York City, in a spot of ground selected and set apart for statues of literary and scientific men considered worthy of such honor, there was unveiled a statue in bronze of a man well known in scientific circles, as well in Europe as in America.

The inscription upon the pedestal tells in concise language almost the story of the man whose statue it supports, and why such distinguished honor has been conferred upon a physician.

On it is written:

"J. MARION SIMS, M.D., LL.D. Born in South Carolina, 1813. Died in New York City, 1883. Surgeon and Philanthropist, Founder of the Woman's Hospital in the State of New York. His brilliant achievements carried the fame of American surgery throughout the civilized world. In recognition of his services in the cause of science and mankind, he received the highest honors in the gift of his countrymen, and decorations from the Governments of France, Italy, Spain, Belgium and Portugal." And on the reverse,

"Presented to the City of New York, by his professional friends, loving patients and many admirers throughout the world."

JAMES MARION SIMS was born in Lancaster district, South Carolina, Jan. 25, 1813. He was the son of JOHN SIMS, a farmer, and MAHALA MACKAY; a descendant of people who took a prominent part in the struggle for independence during the Revolutionary War.

Early in childhood, his father selected this son as the one who gave most promise of achieving a career for himself, and being a poor man, not able to give a college education to each of his children, he gave all the benefit of a common school education in their native district, but sent the subject of this sketch to the South Carolina College, through the regular grades of which he passed, and graduated in 1833.

Selecting for himself a career in medicine, he attended the lectures at the Medical College in Charleston, and later on entered the Jefferson College of Philadelphia, from which he was graduated in 1835.

In 1836 he settled in Montgomery, Alabama, in the practice of his profession. There he founded a private hospital for the treatment of surgical diseases, taking a special interest in diseases of women. In 1845 he systematically began and by 1848 he at last succeeded in inventing a method for the cure of vesico-vaginal fistula by the use of metallic suture, the disease up to that time having been incurable:

By 1849 he had devised a number of instruments, ingeniously constructed, which soon became and still remain an indispensable part of the surgeon's armamentarium. In 1851, he published the result of his efforts in the *American Journal of Medical Sciences*, which attracted such general attention that he was encouraged to seek a wider field of labor. In 1853 he removed with his family to New York City, to establish himself in his profession, and soon after organized the Woman's Hospital Association, which resulted in the construction of the large institution situated at 49th Street and Park and Lexington Avenues, in New York City.

The State Legislature granted a charter to the hospital, the common council of the city gave it a block of ground and an appropriation for its construction.

In 1862 DR. SIMS visited Europe, performing his celebrated operations before large classes of physicians in the principal cities of the old country. So successful were the results that his fame spread rapidly throughout Europe, and with this his services were in such demand that he concluded to remain in Europe for a number of years, located for the greater part of his time in Paris, where he enjoyed a very lucrative practice.

As the result of his operations and demonstrations before the learned bodies of Europe, various Governments conferred upon him the decorations above named. He was made Chevalier of the Legion of Honor by the Emperor Napoleon, and such was the popularity achieved in the organization and command of the Anglo-American Ambulance Corps in the Franco-German War, that, after the cessation of hostilities, he was made a Commander of the Legion of Honor by the Republic of France.

In 1875, he was elected President of the AMERICAN MEDICAL ASSOCIATION, and presided at the World's

Centennial Exposition Meeting of the ASSOCIATION in Philadelphia in 1876, and was also President of the American Gynecological Association. In 1881, he made public his ideas in regard to the treatment of gunshot and other wounds of the peritoneal cavity, which, though not accepted with favor at that time, have since been universally adopted and the ideas evolved by him then may now be said to be the practice of the advanced surgeon of this day.

DR. SIMS married, Dec. 21, 1836, ELIZA THERESA, daughter of DR. BARTLETT JONES, of Lancaster, South Carolina, who survived him seven years. His death occurred on Nov. 13, 1883.

New York in thus placing in public view, the statue of one of the ablest medical men of our time is entitled to the grateful thanks of the medical profession of America. How different the feeling in New York in regard to this great man and his memory, from that dark time in which he founded the Woman's Hospital! That most pathetic autobiography ever printed ("The Story of My Life") tells of the heroic efforts of the almost friendless physician, who with mighty aspirations but feeble fainting frame founded that great charity. The shining metal might well bear upon its escutcheon in letters of gold the legend, "IN ATONEMENT," and those reading the golden letters would learn anew the great lesson of tolerance. The medical profession of the world is the better and nobler for having once had a SIMS, and it is well to thus honor his memory.

BRITISH NEWSPAPER DISCUSSION ON VACCINATION.

It is not needful to discuss statistics of smallpox mortality before members of the AMERICAN MEDICAL ASSOCIATION to establish the practical value of JENNER'S discovery; but as a matter of current news it may be well to refer to a series of interesting letters, spiced with a considerable dash of temper, that appeared in the columns of the *Times* (London) during the month of September, concerning which our article of September 22 was written. The writers were MR. ERNEST HART, Chairman of the National Health Society on the one side, and MR. J. T. BIGGS, member of the Leicester Sanitary Committee. MR. WILLIAM TEBB of the Devonshire Club, London, and others of lesser note on the other. The first mentioned lays himself open to attack by giving utterance to an overestimate of the immunity conferred by vaccination. The others triumphantly assail this weak point and carry the war into the enemy's country by an array of statistics which in the minds of many lay readers who do not see wherein lie the fallacies must raise doubts and questionings, if indeed they are not accepted as showing that smallpox is more prevalent and more fatal in the vaccinated than in the unvaccinated. Speaking of the epidemic of the

last eighteen months in various districts of England, MR. HART says that there has not been a single death of a vaccinated child under 10 years of age nor of a re-vaccinated adult. MR. TEBB overlooks the limitation to the recent English epidemic and shows by German statistics of twenty years ago that such deaths have been recorded. He shows that in the city of Berlin in the year 1746 there were 186 deaths from smallpox in an unvaccinated population of 80,000, giving a rate of only 2.3 deaths per thousand living, while in 1871, with a vaccinated population of 823,569 the deaths were 5,085 or 6.2 per thousand, and he shows moreover that more than half of these later deaths occurred in children under 10 years of age. These statistics of vaccinated and unvaccinated Berlin are very striking; but MR. TEBB does not point out that nearly all the deaths in 1746 were of young children because the others of the population had already been rendered immune by previous smallpox. These deaths were merely the regular tax paid annually to the pest. Nor does he point out that 1871 was an epidemic year in which the city was called upon to pay for its carelessness in respect to vaccination, which was not made compulsory until 1874. Nor does he inform us that from 1874 to 1885 (the last published official figures) there were altogether in the whole period of eleven years only 177 deaths. MR. HART, however, was led enthusiastically to assert that children under 10 years of age, according to the official reports of the recent English epidemic, are wholly and entirely immune from smallpox and can not be infected. The replies of the anti-vaccinationists fairly bristle with figures to show, as they sarcastically phrase it, "the kind of immunity which vaccination affords;" but, indeed, they could have convicted their opponent from his own later utterances, for in the issue of September 22, under the heading of "Immunity from Death of Vaccinated Children under Ten Years," he tabulates eighty-four recent cases of smallpox in such children.

The only other application of statistics to anti-vaccination argument which we have space to notice is a bold and startling comparison of some figures from the records of the British Army with the smallpox death rate of the city of Leicester. This latter is stated to have been 89 per million during the late epidemic. "Perhaps nothing," says MR. BIGGS, "is more frequently appealed to in support of the efficacy of re-vaccination than our re-vaccinated army, yet at page 278, Royal Commission Report, No. 2, we find that '3,953 re-vaccinated soldiers in the British Army suffered from smallpox from 1860 to 1888, of whom 391 died of the disease.' This gives a smallpox death rate of nearly 99,000 per million among a strong, healthy and specially selected re-vaccinated adult population. Compare this appalling death rate of 99,000 per million of the 'efficiently vac-

cinated' and 're-vaccinated' or 'doubly protected' with the death rate of only 89 per million among our mixed and for the most part 'unprotected' population at Leicester, and we may repeat: 'Wherein is the necessity of the operation?' This is positively a superlative comparison!

A careful perusal of this series of letters leads to the conclusion that no good can be accomplished by cultivating a correspondence with men who are disingenuous enough to affect such *tours de force* in their statistical presentations, and particularly in the columns of a daily newspaper not all of whose readers are capable of putting a proper valuation on the data.

TYPHOID FEVER AMONG PLUMBERS.

It is a question not infrequently raised in boards of health, whether it is allowable or not to send plumbing inspectors to houses where typhoid fever exists. Also, if plumbing in such houses is defective shall orders to do the required repairs be enforced while the fever yet remains. It is the practice in some towns to leave the matters of inspection to those plumbers who have no dread of the work, and not insist that a plumber shall go, whether he will or no. There will ordinarily be some one or more inspectors at the service of the health officers, ready for this class of work. As to compelling the prosecution of repairs during the pendency of the malady, it may be assumed that the dangers to the workman can be reduced to a minimum, by the thorough and frequent disinfection of the evacuations of the patient, and of the drainage system by which those excreta are carried away.

When the water closet in the house drains into a cesspool, an arrangement common in many suburban places, where sewers do not exist, the cesspool should be drenched with disinfectants; when the case is recovered the cesspool should be cleaned to the bottom in the presence of an abundant use of chlorid of lime or other approved disinfectant. That plumbers may not with impunity engage in this kind of repairing work we have proof in a case that lately occurred at Montclair, New Jersey. In a recent report by the Health Board of that town, mention is made of a plumber being attacked by typhoid fever in consequence of having done repairs in one or more of the houses where the fever had occurred.

EX-JUDGE W. S. HOLMAN.

Every physician residing in the Fourth Indiana Congressional District should remember that W. S. HOLMAN, as chairman of the Appropriations Committee of the House of Representatives, did all he could to defeat the appropriation for the Pan-American Medical Congress, and that he persistently votes against every measure which is for the advancement

of medical science. If he were governed by purely patriotic motives no one could impugn them, but when we know that a worthless member of his family was foisted on the Geological Survey and there retained for a long time on the public pay roll, we can assume reasonably that his so-called "watch-dog-of-the-Treasury" act is one of hypocrisy, and for demagogic purposes only.

If the doctors in the Fourth Indiana District will exert themselves a little, this interesting person will be properly retired at the next election.

AN ARGUMENT FOR THE ANTI-VACCINATIONISTS.

The wordy war on the value of vaccination, carried on through the medium of letters to the editor of the *Times*, London, which gave occasion to our editorial remarks in the *JOURNAL* of September 22, is continued hotly in October with many fresh participants. Among the letters is one which will bear reproduction:

"Sir:—A few words of common sense would not be amiss. I am 70 years of age. In my boyhood it was scarcely possible to walk a quarter of a mile in London without meeting one or more grown-up persons marked by smallpox. In my own small circle there were three persons so marked.

"At the present time I walk about for days and never see a marked face, although my eyesight is as keen as ever. It might be interesting to learn the experience of other Londoners on this subject, and to know how the anti-vaccinators account for the change that has taken place.

"Your obedient servant, OLD STAGER."

OUR READERS will greatly regret to see in the *Neurology* column an account of the death of WILLIAM GOODELL, M.D., of Philadelphia, a notice of which arrived as we were going to press. His wide acquaintance in the *ASSOCIATION*, his professional skill, and his literary ability leave a void which will not be easily filled.

CORRESPONDENCE.

Status of Eclectics, et al.

AUSTIN, TEXAS, Oct. 4, 1894.

To the Editor:—Yes, we are all proud of the *success* of the *JOURNAL*! It has forged ahead, in spite of prejudice and local jealousies, and now is beyond the experimental stage of its life. See herewith a clipping from our daily paper, of _____ Company, quoting. In various cities and towns of the United States there are both homeopathic, and eclectic physicians who would scorn to drag medicine in traffic-slime, as this company does. Now these said homeopathic and eclectic physicians thrust Dr. _____'s advertising "rot" under my nose, and say, tauntingly: "How do you get on, Mr. Regular?"

You, personally, are well and widely known as a large-hearted liberal man and representative physician of the common sense class. And I hope you will be brave enough (as well as discrete enough, to give us—the rank and file—some definite basis upon which to act, in reference to society affiliation with those homeopathic and eclectic physicians who demean themselves as honorable, well educated physicians and refined persons.

The people at large know full well that *very few* "regulars" refuse to meet with this class (if any class) of homeopathic and eclectic physicians, especially if a good fee is in sight or the patient be a person of consequence. There is not a single physician in this city who refuses to meet homeopathic or eclectic physicians, in professional consultation, under said favorable circumstances. Individually, I have never been a slave to any creed, or suppliant to any sect. The Golden Rule, is enough "code" for any well intending person; other sorts of persons only use codes as a cloak while perpetrating the most contemptible meanness—at least, such is my observation, from various quarters of the United States. I do not mean that all, or nearly all physicians, who advocate the strenuous upholding of the written Code, are dishonorable persons, nay, verily. But we, so-called "regulars," have, by years of misguided management, raised and endeavored to maintain an issue. Now it is high time we met such issue, if we would, as a profession, continue to command the respect and esteem of intelligent people at large.

Yours very truly, Q. C. SMITH, M.D.

ANSWER:—As to meeting or affiliating with any physicians, only those are kept out who announce themselves as adhering to some dogma. We use any means for the cure of our patients that clinical experience or common sense leads us to believe would prove of value, whether it be homeopathic, eclectic, or what not. When a physician announces that he uses only a certain line of remedies ignoring others which are known to be of value, how can a thoroughly educated physician consult with him? When he ceases to use such a line of remedies, he ceases to be truly a homeopath, etc., and is a physician. We do not raise the issue. In many sections, there are persons who are good members of our societies, though they either did not receive a diploma or one from an irregular school, but having ceased to announce themselves as practitioners of a pathy, and as being guided by common sense and employing whatever means to relieve disease had been found of value, they had become practitioners of medicine without dogma.

The following fully explains the correct view of the ethics:

Resolved, That clause I, of Art. IV, in the Code, is not to be interpreted as excluding from professional fellowship, on the ground of differences in doctrine or belief, those who in other respects are entitled to be members of the regular medical profession. Neither is there any other article or clause of the Code that interferes with the exercise of the most perfect liberty of individual opinion and practice.

Resolved, That it constitutes a voluntary disconnection or withdrawal from the medical profession proper, to assume a name indicating to the public a sectarian, or exclusive system of practice, or to belong to an association or party, antagonistic to the general medical profession.

Resolved, That there is no provision in the Code in any wise inconsistent with the broadest dictates of humanity, and that the article of the Code which relates to consultations can not be correctly interpreted as interdicting, under any circumstances, the rendering of professional services whenever there is a pressing or immediate need of them. On the contrary, to meet the emergencies occasioned by disease or accident, and to give a helping hand to the distressed without unnecessary delay, is a duty fully enjoined on every member of the profession, both by the spirit and the letter of the Code."

Announcements in the Press.

NEW ORLEANS, Oct. 13, 1894.

To the Editor:—Please inform me if there is anything in the Code of Ethics to prevent a practitioner: 1, from announcing in the *daily newspapers* that his practice is limited to the diseases of special organs; 2, ditto in the *medical papers*; 3, from announcing in sealed circular letters to the *medical profession* at large that his practice, etc.; 4, ditto to *laymen* at large, etc.

Yours truly,

EDMOND SOUCHON, M.D.

ANSWER:—Art. I, Sec. 4: "Duties of physicians to each

other and to the profession at large." "It is derogatory to the dignity of the profession to resort to public advertisements," etc.

2. While in some parts of the country, physicians do publish cards in medical papers, it is not regarded as wanting in the true dignity of a physician, but as a question of taste.

3. Certainly, there can be no objection to a sealed circular to the profession, announcing that practice is limited, etc. But we find that when a physician is limiting work to a specialty, it soon becomes known to the profession of his town, and by his papers on that subject in the medical journals he soon attracts a *clientèle*.

4. A circular to laymen can not fail to produce in the minds of those who receive it, a doubt as to the ability of the one sending it.

A large acquaintance with the profession in all parts of the country causes us to believe that the dignified earnest practitioner can acquire a practice without resorting to any of these plans.

The Missouri State Board of Health.

St. Louis, Mo., Oct. 26, 1894.

To the Editor:—The Missouri State Board of Health at its meeting held in St. Louis on October 25, unanimously adopted the following resolution:

"No medical college guilty of issuing a catalogue or prospectus in which are contained material misrepresentations concerning its teaching facilities, course of study or false representations in the list of students matriculated, or in attendance, shall be in good standing with this Board."

Very respectfully,

F. J. LUTZ, M.D., President.

BOOK NOTICES.

Addresses, Papers and Discussions in the Section on Obstetrics and Diseases of Women, at the Forty-fifth Annual Meeting of the AMERICAN MEDICAL ASSOCIATION, held at San Francisco, Cal., June 5-8, 1894. Pp. 168. Chicago. 1894.

The volume opens with the Minutes of the Section meeting, and then the chairman's address, by Dr. Joseph Eastman, and concludes with the case of didelphic uterus by Dr. Werder, of Pittsburg. The latter article, by the way, is the first pamphlet entirely finished in the JOURNAL office on one of the new presses, and has therefore an interest beyond its intrinsic merits. All the papers in the volume have been heretofore printed in the JOURNAL, but those interested in the work of this Section will naturally be glad to have the collection in book form for permanent preservation.

The Retrospect of Medicine: A half-yearly Journal, containing a Retrospective View of every Discovery and Practical Improvement in the Medical Sciences. Edited by JAMES BRAITHWAITE, M.D. Volume CIX. January-June, 1894. London: Simpkin, Marshall, Hamilton, Kent & Co. 1894.

This is the bound volume of "Braithwaite," so well known in this country and in Great Britain that it needs no introduction at our hands. There was a time when a volume of this size was extremely useful, but the field of medicine is now so vast that it is not possible, in the small compass of such a book as this, to do more than make excerpts from a few medical journals. Considering its narrow and limited horizon, it serves very well those of its patrons who take the *Retrospect* simply because they always have taken it.

The Nurse's Dictionary of Medical Terms and Nursing Treatment.

Compiled for the use of Nurses; and containing descriptions of the principal medical and nursing terms and abbreviations, instruments, drugs, diseases, accidents, treatments, physiologic names, operations, food appliances, etc., etc., encountered in the ward or sickroom. By HONOR MORTEN. Second Edition. Philadelphia: W. B. Saunders. London: The Scientific Press. Chicago: A. C. McClurg & Co. Price \$1.50.

The title page tells the whole story, and makes the reviewer's task a light one. It is an excellent dictionary for nurses and one, we think, very well calculated to be of ser-

vice to them. Now that nursing has become a branch of medicine, one of the most important divisions of therapeutics, it is necessary that special dictionaries should be compiled for the nurse's use, and this volume, which will doubtless grow with each succeeding edition, seems to fill the requirements.

Materia Medica; Pharmacy, Pharmacology and Therapeutics. By W. HALE WHITE, M.D., F.R.C.P., and REYNOLD W. WILCOX, M.D. Second American edition; thoroughly revised. Philadelphia: P. Blakiston, Son & Company. 1894. Chicago: E. H. Colgrove & Company. Price \$3.

This is an excellent manual, well arranged, and carefully compiled. It has been revised to conform to the American Pharmacopœia with the single exception of dosage, which still remains as in the original British edition. As the British Medical Association at its last meeting appointed a committee on the adoption of the metric system, it is probable that they will join the remainder of the world in due time. The index is very complete and adds much to the convenience and usefulness of the book.

Prescribing and Treatment in the Diseases of Infants and Children. By PHILLIP E. MUSKETT. Third edition, pp. 334. Edinburgh and London: Ewing J. Pentland. 1894.

This little book, which is narrow and slender, may be carried in the pocket and is an epitome of the subject. It is divided into three parts, the first dealing with dosage and therapeutics. The second with the treatment of disease in infants and children, and the third part is given to recipes. It has an interesting summary of the list of drugs and dietary substances which have been found useful in the treatment of diseases of children in Sydney, Australia. Each chapter is alphabetically arranged. Some of the titles, however seem to be rather colloquial than scientific, such as "Inward Fits" page 182; "Rickets in Australia," page 240. The book will be found extremely useful. It is well printed and convenient.

Practical Manual of Diseases of Women and Uterine Therapeutics. For Students and Practitioners. By T. McNAUGHTON-JONES, M.D. Sixth Edition. London: Baillière, Tindall & Cox. 1894. Four hundred and ninety-seven illustrations and two plates. Pp. 766.

This is one of the best manuals of gynecology in the English language; concise, clear and complete. This edition is largely re-written, re-arranged and newly illustrated. There is a large increase in matter and in the illustrations, and many additions have been made in the pathologic and surgical portions. The chapters on diseases of the mammary gland have been omitted, and new chapters on uterine reflexes, sutures and ligatures, surgical fibromata, affections of the Fallopian tubes, tubal pregnancy and ovarian affections, have been added. The author is a man of positive convictions, and he does not hesitate to express his views frankly. His chapter on massage is a refreshing one in these days of namby-pamby, hesitating literature. To McNaughton-Jones a spade is a spade, and not an uncertain "agricultural implement."

Public Health Papers and Reports. Volume XIX. Presented at the twenty-first annual meeting of the American Public Health Association, held in Chicago Oct. 9-14, 1893, with abstract of the records and proceedings. Concord, N. H. 1894.

Many of the papers published in this volume appeared in this JOURNAL at the time of the meeting, and a full report of the proceedings will be found in the JOURNAL of Oct. 21, 1893. The publication of the transactions is of value to those who wish to preserve them in permanent form, and no volumes have been better prepared, or printed in better general style than those of the American Public Health Association. In some respects, it will be a pity if the committee shall abolish the plan of printing the annual transactions, and with the additional matter that will properly come with the quarterly journal of public health, there will come also a feeling of regret at the absence of the scholarly and good-looking volumes from the library shelves. There would seem to be no particular cause for this action, when the medical journals of the country now so fully and accurately publish to the world the doings of this great and public-spirited Association.

The volume under consideration contains necrologic reports of the late Dr. Edward H. Janes, of Massachusetts; Dr. Jones, of Maine; Dr. T. F. Wood, of Wilmington, N. C.; Dr. V. T. Atkinson, of Chicago, and Dr. Joseph W. Redden, of Delaware.

Transactions of the American Surgical Association. Volume XII. Edited by DE FOREST WILLARD, M.D. Philadelphia: Printed for the Association by William J. Dornan. 1894.

This volume of transactions contains the papers read before the Association at the meeting held May 29-31, and June 1, 1894, together with brief obituary notices of Professor Billroth, Drs. B. A. Watson, W. W. Dawson, T. J. Dunott, and James McCann. The frontispiece of the volume is a picture of a gavel which, the volume informs us, is one made from a portion of the office chair of the late Prof. Samuel D. Gross, presented by the retiring President, Dr. Mears, to the Association for the use of its future President.

The papers have been previously published, some of them in this JOURNAL. There is a paper on "Methods of Teaching Surgery," by a gentleman who has neither taught or practiced surgery for the last twenty-nine years, and can not therefore be considered as an expert on the subject. The one paper in the volume that stands out as a landmark is the paper of Dr. Fenger, of Chicago, on "Surgery of the Ureter."

Syllabus of Lectures on Human Embryology: An Introduction to the Study of Obstetrics and Gynecology. For Medical Students and Practitioners. With a Glossary of Embryological Terms. By WALTER PORTER MANTON, M.D., Professor of Clinical Gynecology and Lecturer on Obstetrics in the Detroit College of Medicine; Fellow of the Royal Microscopical Society, of the British Zoological Society, American Microscopical Society, etc., etc. Illustrated with Seventy Outline Drawings and Photo-Engravings. 12mo. cloth, 126 pages, interleaved for adding notes and other illustrations. Price, \$1.25 net. Philadelphia and Chicago. The F. A. Davis Co.

This volume is intended for the class room and laboratory more than the library, and as such will be found a trustworthy guide. Section IX, on "practical work" is very useful. The study of embryology has been too much neglected in medical schools in the past, and this book has been prepared in recognition of the evident need of medical students for a compact book on the subject. While it only purports to give an outline of the subject, it answers very well the demands of those who have not time or opportunity to master the larger works on embryology such as Minot's. It is vastly better that the student should master the contents of this little book than that he should have no acquaintance with the subject. No one can master the fundamental truths of pathology without an acquaintance more or less profound with embryology.

First Aid to the Injured and Management of the Sick. An Ambulance Hand-book and Elementary Manual of Nursing for Volunteer Bearers and Others. By E. J. LAWLESS, M.D. Illustrated with forty-nine engravings. Philadelphia: J. B. Lippincott Company. 1894. Price, \$1.25.

The author in this book has arranged the subject of first aid to instruction to suit the requirements of those attending regimental classes, and the book will be found useful, not only to members of volunteer and civil ambulance classes, but to various ambulance associations. Part I is devoted to first aid to the injured, and contains, beside, the introductory twelve lessons. Following this are questions and answers to the foregoing. Part II is devoted to management of the sick, and contains seven chapters. The appendix of Part I contains a chapter of miscellany relating to fresh air and ventilation, germicides, the administration of medicine, removal of boots in injuries to the ankle or foot, bed sores, field kitchens, directions for pitching tents, ambulance wagons, hand carts, forms of reports, table of poisons and the index. There are forty-seven illustrations. The book will be found of great value to those for whom it is intended, and it would appear as if the great sympathy of the English for the Chinese would necessitate the issuance of a special edition, to be distributed through military channels from the central office at Peking, as from all accounts there

is great lack of organization. The truth is, there have been almost as many books written on aids to the injured as the average man sees of the injured during a lifetime. Many of them are excellent, and it would be difficult to improve upon the one under consideration, but there are simply too many of them—at least in English speaking countries.

Text-Book of Nervous Diseases, being a Compendium for the Use of Students and Practitioners of Medicine. By CHAS. L. DANA, A.M., M.D. Third edition, with two hundred and ten illustrations. New York: William Wood & Company. 1894.

The author has endeavored in this book to place modern neurology in a small and accessible space. He says: "I do not expect or intend to make a light and restful piece of literature; the science of nervous diseases can not be honestly presented in any such guise; but by following the instructions of the preface, the student can master the essentials of neurology without encountering any hard waste of words, and the practitioner who wishes to study special subjects can, as I fondly believe, find them presented concisely and with a fair degree of completeness." This manual is one of the best of its class, and the student or practitioner who masters this book may well indeed warn his antagonist to beware of the man of one book, for he will surely vanquish him if they meet in debate in a medical society, or in the pages of the current medical journal. Dr. Dana, like others of his family, is a master in the use of the English language, and the family trait is shown to perfection in this book. Those who have the pleasure of a personal acquaintance with the author know him to be one of the most painstaking of mankind and one of the most studious. What he says of his own knowledge may therefore be accepted as an unquestioned fact, and what he states upon information has been subjected to the test of a judicial mind.

Lectures on the Diagnosis and Treatment of Diseases of the Chest, Throat, and Nasal Cavities; including physical diagnosis and diseases of the lungs, heart, and aorta; laryngology and diseases of the pharynx, larynx, nose, thyroid gland, and esophagus. By E. FLETCHER INOALS, A.M., M.D. Third edition revised and enlarged. Octavo, 640 pages, 240 illustrations, including colored plate of stained tubercle bacilli. Price \$5. New York: Wm. Wood & Co. 1894.

This well-known and standard treatise has required no great alteration in the text of this edition from that of the second one, which was issued in 1892, and the author, as he says, has evidently succeeded "in his efforts not only to aid laryngologists in their daily work, but also to place those subjects clearly before students and a large class of general practitioners who, of necessity, must be prepared to meet any emergency. Fifteen chapters are devoted to diseases of the chest; fourteen chapters to diseases of the throat; eight to diseases of the nose, and one chapter to diseases of the thyroid gland and esophagus. In the appendix will be found formulæ for various prescriptions, including gargles, troches, inhalations, pigments, insufflations, nasal douches, and the like. In the next edition, we trust the author will conform to the new Pharmacopœia by using the decimal system of dosage. Few books have been published which in the same number of pages contain more references to pertinent contemporaneous literature, and at the same time show such care and originality. The work is a model of its class.

Annual of the Universal Medical Sciences: A Yearly Report of the Progress of the General Sanitary Sciences Throughout the World. Edited by CHARLES E. SAJOUS, M.D., and seventy associated editors, assisted by over two hundred corresponding editors, collaborators and correspondents. Illustrated with chromo-lithographs, engravings and maps. Five volumes. Philadelphia, New York and Chicago: The F. A. Davis Company.

It is probable that at no period has the diamond of medical literature received a handsomer setting than has been given it in this now well-established Annual. Every phase of medical discovery with its many-sided characters are here fully set forth and duly credited to their authors, real or supposititious. No man can possibly keep abreast of the entire range of medical science. Few men are able to keep in touch with any one branch of medical science. Nothing but the steady and continuous work of a corps of men, such

as are gathered together under the able direction of Dr. Sajous, could accomplish from year to year a work of such scope and minuteness as the *Annual of the Universal Medical Sciences*, and there can be no question but that the conceded importance in American medical literature in the past few years has been largely due to the influence of two publications, namely, the *Index Medicus* and the *Annual of the Universal Medical Sciences*, works which serve the same purpose to the general reader and writer as the "Index" to the frequenter of the public library, but the *Annual* is something more than an index. It is an editorial review of all the topics of the year. It is as much superior to the annuals, year books and retrospects hitherto published, as a modern treatise on bacteriology is to the work of Redi on the Generation of Insects.

Home Treatment for Catarrhs and Colds. A handy guide for the prevention, care and treatment of catarrhal troubles, cold in the head, sore throat, hay-fever, hoarseness, ear affections, etc., adapted for use in a household and for vocalists, clergymen, lawyers, actors, lecturers, etc. By LEONARD A. DESSAR, M.D. New York: Home Series Publishing Company. London: Ballière, Tindall & Cox. 1894.

The author says in his preface that an apology seems necessary for having written the work; that it was written "with a view of supplying the general reader with a trustworthy guide of instruction for the proper care, prevention and treatment of catarrhal troubles of the throat, nose and ears, and their complications." He neglects, either in the preface or elsewhere, to inform us what the complications of the nose and throat may be, but he says: "There are thousands of persons throughout this country who use their voice in their vocation, such as vocalists, clergymen, lawyers, actors, orators, and yet who are unfamiliar with the best means of keeping the vocal organs in a condition of health or caring for them when diseased." The author fears the purpose of his book may be misunderstood, for he further says: "We would urge most strongly that the purpose of this little book is not to supplant the physician, but to acquaint the reader with the principles of promoting the health of these organs."

There are thirty-eight chapters which seem to mention most of the general topics included in the subjects under consideration, from bleeding at the nose, to frost bites. The author begins: "The nose serves a double purpose. It is the organ of the sense of smell, assists in breathing, and in the production of speech." This would seem to be a triple purpose by the ordinary rules of mathematics. We doubt if this book will be of much service, as it is extremely problematical if it will ever reach the class for whom it was intended. It is too technical to be read by them, and is too elementary to be useful to the profession.

Landmarks in Gynecology. By BYRON ROBINSON, B.S., M.D., Chicago. Paper, volumes I and II. Detroit: George S. Davis, Publisher. 1894.

The landmarks in gynecology which the author considers of chief importance are "anatomy," "menstruation," "labor," "abortion," "gonorrhœa," "tumors." Exactly why they should be called landmarks, it is a little difficult to understand, but inasmuch as the matter is correct it is of little consequence what title shall be given.

The author is well known as a frequent contributor to this and other journals, an indefatigable worker, and untiring investigator. The present book is an abstract of some of his lectures delivered at the Post-Graduate Medical School.

In conclusion, the author, himself an experienced operator, offers the following practical suggestions: 1, remember it is criminal to learn to do a laparotomy on a patient; 2, do not attempt to do a laparotomy in a private house with no nurses; 3, before undertaking laparotomy, study under a master and a system, if possible, so that you can see the pathology in the abdomen and the methods of removing it. Ask to be allowed to tie a knot once in a while. Never lose the chance of assisting or witnessing a laparotomy; 4, learn the after-treatment; half the battle is with the intestines; 5, study carefully the abdominal and pelvic viscera on the cadaver and as many cadavers as possible. Never lose the chance of doing a *post-mortem* or attending one. Study the viscera of animals; 6, be sure to make systematic experiments on the abdominal viscera of dogs. Always do the autopsy on the dogs yourself. Note what dam-

age to the peritoneum your manipulations have done. Observe what peritonitis really is; 7, be clean without chemicals. Learn to use very few instruments. Beginners should always invite a laparotomist, one who will suggest and criticize in a friendly spirit, to be present; 8, be careful of promises.

A Treatise on the Medical Jurisprudence of Insanity. By EDWARD C. MANN, M.D. Albany, N. Y.: Matthew Bender. 1893. 8 octavo, leather, pp. 420.

This handsome volume on this branch of the insanity question contains not only the views and opinions of one thoroughly expert in matters of which he treats, but gives such authoritative and definite statements concerning the subject as to make it of great value to all who wish to keep abreast of the modern decisions and views. The book is divided into twenty-one chapters, of which several are devoted to the psychologic aspects of various cases. Thus, Chapter XIV is given to the psychologic aspects of the case of Edward Newton Rowell; Chapter XV the same in the case of Lucille Yesult Dudley; Chapter XVII, Chas. Guiteau; Chapter XXI, the case of Prendergast.

In regard to Guiteau the author expresses his unqualified conviction that he was insane. In the matter of Prendergast, his conclusion is not clear, but in this connection he states: "Society must punish crime, not for revenge, but to protect society from evil deeds, to put penal restraint on the criminal and to deter others by the example and him by the memory of his sufferings from a repetition of his acts. The punishment of an insane person or idiot is no benefit to him, as he can not learn by it, while the example of its infliction, so far as serving a warning to others, is an outrage of social feeling and brings discredit on the administration of justice."

He quotes briefly on page 112 the opinions of Judge Edmunds and of Recorder Hackett as to what constitutes insanity. This is what Judge Edmunds says: "A sane man is one whose senses bear truthful evidence; whose reason can draw proper conclusions from the evidence which is received; whose will can guide the thought thus obtained; whose moral sense can tell the right and wrong of any act growing out of that thought; and whose acts can, at his own pleasure, be in conformity with the action of all those qualities. All these things unite to make sanity. The absence of them is insanity." This from Recorder Hackett: "The state of sanity is one in which a man knows the act he has committed is unlawful and morally wrong, and has reason sufficient to apply such knowledge and be controlled by it."

This book will be found of value not only to experts in insanity and the legal profession, but to all physicians wishing to keep pace with the progress of legal medicine.

A Manual of Modern Surgery, General and Operative. By JOHN CHALMERS DA COSTA, M.D. With 188 illustrations and 13 plates in colors. Cloth, pp. 800. Philadelphia: W. B. Saunders. 1894.

The author says in the preface: "The aim of this manual is to present in clear terms and in concise form the fundamental principles of the chief operations and the accepted methods of modern surgery. The work seeks to stand between the complete but cumbersome text-book and the incomplete but concentrated compend." From the earliest times the *Ἀριστον μέτρον*, the "golden mean," has been sought by the *literati*, but alas, like the bag of gold at the end of the rainbow, it has thus far eluded search. We hope that this new aspirant for honors in surgical literature may be more successful than any of its predecessors; but it is a difficult task when the excellence of many of the text-books on surgery which are now in the field is considered, and the charge of "cumbersome" can scarcely be applied to some of them. In Moullin, for example, it is said that the last edition was revised with the deliberate purpose, among others, of eliminating all superfluities of words and phrases.

The author in the preface apologizes for his opening chapter being devoted to bacteriology, an apology which is no longer necessary in view of the fact that every teacher of the principles of surgery is of opinion that the principles

of bacteriology find an appropriate place in works of this character.

The book is rather loosely written as regards English. We open it at random, and we find on page 94 this: "The exploring needle must be used; it will do no harm to an aneurism if aseptic." Page 111: "Within forty-eight hours as a rule the gangrene has mapped out its area," the meaning of which is evidently that the gangrene has become limited or circumscribed. On page 328 we find: "The treatment of these conditions is by their well-known rules." On page 512: "The commonest seat of a felon is the last digit of a finger because the superficial lymphatics run directly *inward*." (The italics are ours.) Page 513: "Opening a felon is exquisitely painful." We presume to the patient. "In effusions into the knee joint, the fluid is behind the patella, and the bone floats up." On page 514 we are told that "when the big toe is pushed inward by ill-fitting boots, a bunion forms," and we are told on the same page that "a bunion is a bursa due to pressure; it is most commonly found about the metatarso-phalangeal articulation of the great toe, but occasionally over the joint of another toe." "In treating a bunion the patient must wear shoes that are not pointed." Therefore, we are led to infer that if the patient does not treat a bunion, it is immaterial what kind of shoes he wears. Again, we find: "Distention of the entire abdomen and of the flanks, linked with tenesmus," etc.

Some of the teachings are unsound. "For example, on page 619, it is said: "Puncture of the intestine with an aseptic hypodermic needle, introduced obliquely, will relieve gaseous distention." Let any one attempt to relieve gaseous distention in the *post-mortem* room by a single puncture or a half dozen punctures if need be, and he will very speedily ascertain that even in the non-elastic dead intestine the opening soon closes after the needle, and the air can not be easily withdrawn. Moreover, the operation on the living subject is itself dangerous, and a caution should have been given, because if the opening were large enough to allow the passage of air through the intestinal wall, it would be large enough to allow the escape of fecal matter.

We have with regret pointed out these faulty methods of expression in order that they may be corrected in the next edition, as the book has many excellent features and doubtless will reach another edition. We notice, too, that the author has used the old British dosage in his prescriptions.

Army (British) Medical Department Report for the Year 1892.

The British Army Medical Reports have had an interest for medical and sanitary men since the days when E. A. Parkes and his pupil, De Chaumont, edited their appendices which were usually stored with the latest views and experiences on sanitary subjects. The present, the thirty-fourth volume, is constructed on the old and familiar lines,—a statistical report and an appendix. From the former we learn that the strength of the white troops during the year was in round numbers 200,000 men, one-half of whom were at home, the other half abroad. Of the latter 68,000 were in India, nearly 8,000 in Malta, 5,000 in Gibraltar, 3,000 in Egypt, 3,000 also in South Africa, detachments of from 500 to 1,500 in the other colonies and settlements, and a mean strength of about 3,000 at sea in transports. The rate of admission on sick report of the 200,000 men was 10.35 per thousand of strength, the death rate 9.46, the rate of discharge for invalidism 13.26, the non-effective rate or number constantly sick 58.08, and the average duration of each case of sickness 20.6 days. These figures differ but little from the average annual rates of the ten years 1882-91.

The admission, death and non-effective rates of the home stations were much lower than those given above: Admission, 7.61; death, 4.38; non-effective, 42.75. In Canada and Bermuda the records show a gratifying freedom from sickness. Halifax is the only station in Canada now occupied by Imperial troops. In Gibraltar, Malta and Cyprus the rates were much similar to those of the home stations, at other places they were higher: India had the worst record, an admission rate of 15.15, giving 83.88 constantly sick with 17.59 deaths and 12.40 discharges, besides 24.41 sent home as invalids out of every thousand men present with the flag.

The West Indies had 71 constantly sick; Egypt 67; the Straits Settlements 64.55 and China 60.

Enteric fever at the home stations occasioned only 132 cases of sickness or 1.3 per thousand of strength. In the United States Army during the same year we had 3.95, and this was a light record, as the average annual rate of the previous ten years was 5.17. There were 1,650 men of the home force constantly sick with venereal diseases, or 16.46 cases in every thousand men. The rate of admission for these diseases was 201.2; the United States Army rate for the same year was 72.46. Malarial disease, rheumatism, alcoholism, injuries and suicide were less frequent in the British Army than among our troops. We had as many suicides among our 26,000 men as they had in a strength nearly four times as large. Of 68,761 recruits inspected 38.3 per cent. were rejected as compared with 63.8 per cent. in the United States recruiting offices. It must not be supposed from these figures that candidates for enlistment in Britain are finer specimens of physical development than those of this country. The explanation lies in the fact that we have a relatively greater number of candidates to select from and our recruiting officers can therefore decline many men with slight defects that would not prevent their enlistment under other conditions. Nearly 79 per cent. of the accepted British recruits were boys under 21 years of age. Omitting boys under 17 years of age, of whom there were 1,421, the average age of the accepted recruit was only 19.3 years.

There was in Malta, during the year, a decided increase of enteric and Mediterranean fevers. A heavy autumnal rainfall was injurious owing to its having washed impurities into the main drinking water supply; and to this fact an unusual amount of sickness in November and December is said to have been due. During the outbreak all milk was boiled and the water boiled and filtered. The result of this latter expedient is said to have been excellent. Fire-places in barracks are urged as a necessity from December to March, when the dampness and cheerless appearance of the present unheated rooms exercise a depressing influence on the men. In the island of Mauritius the chief general causes militating against the health of the troops are the malarial nature of the climate, the general ignorance and neglect of the simplest rules of sanitation among the civil community of all grades, the impure water supply at Port Louis, the total absence of sewerage and the defective system of hand removal of excreta. At Port Louis the sanitary condition is said to be as bad as it possibly can be. In Ceylon the dry earth system is in use at all stations. Of the 86.76 men constantly sick per thousand of strength in the Bengal command, 25.58 were disabled by venereal diseases, 16.17 by malarial diseases and 4.15 by enteric fever. Of the last there occurred several notable local outbreaks, as at Dagshai, among the young men, fresh from home, of the Argyle and Sutherland Highlanders, where there were 98 cases and 12 deaths. Only such cases as presented unmistakable symptoms of enteric fever were returned under that heading. Of 96 occurring at the same time and place, and diagnosed as simple continued fever, some were prolonged and may have really been enteric fever cases.

The conclusions reached by the medical officer in charge were that the disease was brought by the regiment to Dagshai and spread among the young soldiers and that exposure to the sun, wettings, chills, etc., were exciting causes giving rise to fever and thus predisposing the men to enteric fever when the disease was present. Men in the early stage when suffering from diarrhea before admission to hospital used the latrine nearest to them at the time and thus probably spread the disease from one building to another. Many cases of sore throat and erysipelas occurring at the same time seemed to point to some local insanitary cause believed to be of a miasmatic character, as the site of the post is saturated with sewage.

The medical officer at Merut reports that the cause of enteric fever is as obscure as ever. He is inclined to think that a fever of a prolonged nature, having as its pathognomonic sign ulceration of the small intestines, can be caused without a specific excitant; in fact that youth, indigestion, indigestible food, undue exposure to heat and fatigue, are factors enough in themselves to produce a fever, the nature of which is such that over 25 per cent. of those attacked die. He considers that if the five causes above mentioned were eliminated, with them would go nearly all the cases of the disease we call enteric fever. The medical officers at Lucknow and Quetta are inclined to the fecal dust theory of propagation. The latter says that the atmosphere at his station is very dry, and desiccating dust storms from the west are of frequent occurrence. The filth pits and dump-

ing grounds are to windward of the cantonments and particles of dried refuse are blown across the lines and have every opportunity of obtaining entrance into the food and throats of the inhabitants and becoming a probable source of disease. At Benares the infection in certain of the cases is said to have come from the native quarters outside of the cantonments, as some men admitted for gonorrhoea showed symptoms of enteric fever a few days afterwards. Speaking of the Dagshai outbreak the principal medical officer of the district remarks that the question of the microbe being present in excreta is generally received as certain, and as by burying this the subsoil is contaminated, the necessity of destroying by fire all contents of soldiers' latrines is proved. Experiments were carried out for six months in the camp of the Highland regiments at Umballa, and one incinerator was found sufficient to dispose of the excreta of 1,500 men. He is of opinion that the value of the incinerator can not be over-estimated and strongly recommends that this method of disposal be at once sanctioned, certainly for hill stations and in time for the plains.

At Agra there occurred 391 cases of severe fever, each of which rarely lasted over a week. Patients recovered quickly from its effects. There was no eruption nor any specific symptom, and it could not be classed under any other head than simple continued fever. It began and ended very much like an epidemic and lasted from July to October.

From cholera a total of 134 admissions with 95 deaths was recorded. The difficulty of determining sometimes whence comes the infection is illustrated in a report from Ferozepore. The disease was prevailing in the surrounding villages when:

"On the afternoon of April 21 a man of the Royal Sussex Regiment was admitted into the detention ward of the station hospital, suffering from diarrhea and vomiting. The following morning he appeared so much better that he was moved into one of the ordinary wards, where during the day his attack developed into cholera and proved fatal. On his way to this ward he had been placed (in a dhooly) for a few minutes in another ward while a bed was being prepared for him. Two hours subsequently a patient in this other ward was attacked, as were also five other inmates, and two more were seized in the ward in which the first man had been finally placed. All these cases occurred on the 22d. Next day two more patients in the hospital were attacked, and a third on the 24th. On the 25th a patient in a tent in the hospital compound was taken ill, and on the 26th there were three cases, first a nursing orderly, then a patient in a tent, and a second nursing orderly. The last case of this outbreak occurred on the 28th in a patient in a tent. The medical officer records his opinion that as only two hours elapsed between the placing, for a few minutes, of the first case in a ward, and the commencement of the outbreak in that ward, direct infection could not be ascribed as the cause of the patients in hospital being attacked. The second outbreak occurred on June 19, on which day three men of the Royal Artillery in the Fort were attacked in their barrack. They were treated in the detention room in the Fort, the only available place, which is an end room of the building occupied by married soldiers and their families. The next day a woman living in the adjoining quarters—under the roof there is communication between the rooms—was attacked, and on the same day a case occurred in the tents into which the men of the Royal Artillery had been moved the previous afternoon. On the 21st two more of these men were seized, and on the 22d a patient in the station hospital. On the 26th the last cases of this outbreak took place, viz., an officer living in a private bungalow, the wife of a soldier living in the Ordinance lines, and a man of the Sussex Regiment in a tent near the Fort."

In Bombay, Deesa and Aden one-third of the sickness was due to malarial fevers. The troops at Alexandria and Cairo suffered severely from enteric fever—109 cases with 36 deaths. To the unsanitary condition of the native city and especially of those quarters usually frequented by the men is attributed the origin of the disease at both of these places. The quality of the water at Alexandria is so well recognized that all the drinking water used by the troops is boiled and filtered before use. Some of the men were moved from their barracks into the field under canvas. Following this there was at first a considerable abatement in the epidemic but it did not last long. Every possible sanitary precaution was taken and the greatest care used in the isolation, disinfection and treatment of the cases as they occurred. Many of the cases were of a virulent type terminating in early perforation of the bowel.

In the Appendix, Brigade Surgeon Lieut.-Colonel J. Lan Nutter reviews the chief points of hygiene that have attracted attention during the year, discussing legislative literature, work of societies, special points of hygiene and work in the hygienic laboratory at Netley. Under the second heading, favorable notices are given of Leffmann and Beam's "Analysis of Milk and Milk Products," and of Billings' "Ventilation and Heat." The special points noticed are the filtration of water as presented by Koch in his paper on "Cholera and Water Filtration," and the disposal of sewage by the oxidation effected during electrolysis. In the laboratory at Netley unsuccessful efforts were made to separate organisms pathogenic to man from soil taken from the site of the Aldershot camp, and some experiments were

made to determine the value of the new disinfectant, izal. This is followed by a report on the proceedings of the seventh session of the French Congress of Surgery, April 1893, by Brigade Surgeon W. F. Stevenson. A medical report on the mission of Sir C. Evan-Smith to Fez in 1892, by Surgeon-Captain W. G. McPherson, gives an interesting account of the topography of the country between Tangier, Fez and Rabat with sanitary notes on Fez and its surroundings, and remarks on the population and meteorology of the interior of northern Morocco, and on the diseases and medical customs prevalent among its inhabitants. There are also some minor papers; one on the fevers of Alexandria, another on enteric fever in India, a third on myopia and a fourth on gunshot fracture of the lower jaw. The appendix closes with meteorological data from various stations.

NECROLOGY.

WILLIAM GOODELL, M.D., the eminent gynecologist, who had been in failing health for the last two years, died at his residence in Philadelphia, on Saturday morning, October 27, aged 65 years. Dr. Goodell was the son of the Rev. Wm. Goodell, D.D., of Holden, Mass., and was born on the island of Malta, while his parents were journeying to Turkey, where his father was engaged in missionary work.

In 1849 he entered Williams College, Massachusetts. Graduating three years later, he came to Philadelphia and continued his studies at the Jefferson Medical College, and received his diploma in 1854. The same year Dr. Goodell rejoined his father in Constantinople, and there entered upon the practice of his profession. In 1857 he married, at Smyrna, Asia Minor, Caroline, daughter of the late Judge Thomas S. Bell, of West Chester, Pa., who survives him. In 1861 he returned to America on account of the unsettled condition of political affairs in Turkey, and, locating in West Chester, there commenced practicing medicine in this country.

In 1865, on his appointment as Physician-in-Charge of the Preston Retreat, at Twentieth and Hamilton Streets, he came to reside permanently in Philadelphia, and continued to hold this appointment until his health began to fail.

Soon after coming to Philadelphia he restricted his practice to obstetrics and diseases of women, on the subject of which he was a prolific contributor to this and other medical journals, and was also the author of "Lessons in Gynecology."

In 1870 he was appointed Lecturer on Obstetrics and Diseases of Women at the University of Pennsylvania, and in 1874 Clinical Professor of the University in the Diseases of Women and Children. He was also Honorary Professor of Gynecology of the University, a member of the AMERICAN MEDICAL ASSOCIATION, and the Gynecological Society; also of the State and county medical associations. He was a Fellow of the College of Physicians, and a member for many years of the American Philosophical and American Pathological Societies, and a correspondent of the Boston Gynecological Society, of the London Obstetrical Society and of the Imperial Medical Society of Constantinople. His death is a great loss to the AMERICAN MEDICAL ASSOCIATION.

DUDLEY SHARPE REYNOLDS, Ja., M.D., son of Dr. Dudley S. Reynolds, of Louisville; born at Louisville, Feb. 20, 1873, died from the accidental discharge of a pistol, at Collinsville, Ill., Oct. 22, 1894. He was an unusually promising young man, of brilliant intellectual endowments, and more than the average of educational accomplishments for one of his age. His literary education was obtained in the public schools of Louisville, and in Professor Gooch's Preparatory Institute. He was a member of the class of 1890 at the Louisville High School, after which he entered upon the study of medicine, graduating with creditable distinction in the Hospital College of Medicine, June 21, 1893. He had been traveling in Europe during the summer, and on his return had determined to practice his profession at Collinsville, Ill., where he was engaged to marry the daughter of Mr. Oscar B. Wilson, a prominent citizen of that place. His sudden and tragic death shocked the people of Collinsville, and a wide circle of friends and acquaintances. His remains were conveyed to the home of his father at Third and Chestnut Streets, Louisville, Ky., and laid in their last resting place at 3 o'clock P.M., on October 25.

WILLIAM W. REESE, M.D., of Brooklyn, L. I., died October 20, aged 82 years. He had been suffering for two years or more from interstitial nephritis, upon which pneumonia

supervened about one week before death. He was an ex-Treasurer and ex-President of the Kings County Medical Society. In the Physicians' Mutual Aid Association he was for many years an active office bearer. He was a descendant of the Pennsylvania family of Friends, bearing the name, Reese, and was a worthy representative of the religious brotherhood whose motto has for generations been "Peace and Good Deeds."

V. H. GUR, M.D., of New Lexington, Ohio, October 19.—W. H. EDWARDS, M.D., of Warrior Run, Pa., October 19, aged 25 years.—Solomon W. Davison, M.D., of Rochester, N. Y., October 21, aged 72 years.—O. B. Adams, M.D., formerly of Elgin, Ill., October 14, aged 64 years.

ASSOCIATION NEWS.

Treasurer's Notice.—Members of the ASSOCIATION knowing themselves to be in arrears will please send the amount of their annual subscription to the Treasurer, HENRY P. NEWMAN, M.D., Venetian Building, Chicago, without delay.

The great expense on account of the establishment of the new JOURNAL office, makes it more than ever necessary that our members should be prompt in their response to this notice.

SOCIETY NEWS.

Mississippi Valley Medical Association.—The Secretary of this Association announces the following preliminary program for the twentieth annual meeting in Hot Springs, Ark., Nov. 20, 21, 22 and 23, 1894:

Cases of Traumatic Cataract in Children Treated by Extraction, by J. M. Ball, St. Louis; Toxics, by W. F. Barclay, Pittsburg; The Philosophy of Stimulants, by A. D. Barr, Calamine, Ark.; Squint, with Special Reference to an Operation, by Chas. A. Beard, St. Louis; Conservative Surgery, and What it Means at the Present Time, by A. C. Bernays, St. Louis; The Deeper Inflammations of the Skin, by A. W. Brayton, Indianapolis; Intestinal Indigestion, by A. P. Buchman, Ft. Wayne, Ind.; The Medical Expert Witness, by Robt. M. Campbell, Ashland, Ohio; Some Observations on "Sore Throat" Due to Concretions in the Tonsils, by L. C. Cline, Indianapolis; The Differential Diagnosis of Coma, by W. J. Conklin, Dayton, Ohio; Constipation, by G. J. Cook, Indianapolis; Syphilis, and its Relation to Other Affections, especially those of the Skin, by W. T. Corlett, Cleveland; Surgical Treatment of Uterine Fibroids; Disposal of the Pedicle, by A. H. Cordier, Kansas City; Stab Wound of Pericardium; Resection of Rib; Suture of Pericardium; Recovery, by H. C. Dalton, St. Louis; Surgical Treatment of Trachoma, by D. A. Dean, Pittsburg; Possibilities of Medicine, by J. O. DeCourcy, St. Libory, Ill.; Some New Instruments, and Means of Physical Diagnosis, by Chas. A. Denison, Denver; Quinin in Chorea, by F. R. Fry, St. Louis; Report of a Case of Trephining for Cerebral Clot, with Loss of Vision; Recovery; by J. B. Hamilton, Chicago; Spot Specialism, by C. H. Hughes, St. Louis; The Management and Treatment of Endometritis, and the Prevention of Ovarian and Tubal Diseases, by W. H. Humiston, Cleveland; Functional Stenosis; Its Relation to Malformations, Dislocations and Flexions; and Conditions Characterized by Amenorrhea, Dysmenorrhea and Hyperemias; with a Scientific Rationale in Therapeutics, by G. F. Hulbert, St. Louis; The Neatest Method of Circumcising, by B. Lewis, St. Louis; Colles' Fracture, by J. E. Link, Terre Haute, Ind.; Double Nasal Atresia, Due to Smallpox, by H. W. Loeb, St. Louis; Tubercular Meningitis, by I. N. Love, St. Louis; Physicians' Prescriptions, by S. Loving, Columbus, Ohio; Traumatic Lesions of Cranium and Brain; Report of Clinical Cases, by G. N. Love, Randall, Kan.; Observation on Residual Urine and Remarks on Perineal Section, by G. Frank Lydston, Chicago; Modern Surgical Technique, by H. O. Marey, Boston; Tumors of the Neck, by Donald Muclean, Detroit; Advantages and Disadvantages of Kraske's Operation, by J. M. Mathews, Louisville; Resection of the Knee for Separation of Lower Epiphysis of the Femur; Case of Two Years' Standing, in a Patient 13 Years of Age, by A. H. Meisenbach, St. Louis; Accidents and Injuries from Electric Currents of High Potential, by H. N. Moyer, Chicago; The Mental Symptoms of Cerebral Syphilis; A Clinical Study, by F. P. Norbury, Jacksonville, Ill.; Enlarged Tonsils and Their Treatment, by John North, Toledo, Ohio; My Experience

with Gold as a Therapeutic, by A. Owen, Evansville, Ind.; The Surgical Treatment of Injuries of the Head, by Chas. P. Parker, Cleveland; Headache, by Curran Pope, Louisville; Address on Surgery, by Joseph Ransohoff, Cincinnati; Syphilis, by A. Ravogli, Cincinnati; Reform in the Management of the Insane and the Neurotic Viewed from a Gynecologic Standpoint, by Chas. A. L. Reed, Cincinnati; Retinitis Syphilitica, by D. S. Reynolds, Louisville; The Spine and the Elevator, by B. M. Ricketts, Cincinnati; Infantile Paralysis, by John Ridlon, Chicago; President's Address, by X. C. Scott, Cleveland; Climate and Tuberculosis, by S. R. Solly, Colorado Springs, Colo.; Toxicity in the Production of Nervous Diseases, by A. E. Sterne, Indianapolis; Constipation from a Surgical Standpoint, by Leon Straus, St. Louis; Laparotomy for Pelvic Diseases no Longer Necessary, by R. Stansbury Sutton, Pittsburg; Topical Treatment of the Air Passages; With Exhibition of a New Atomizing Vaporizer, by H. M. Thomas, Chicago; The Importance of Urinalysis in Diagnosis, by A. B. Walker, Canton, Ohio; Reflex Irritation as a Cause of Disease, by E. Walker, Evansville, Ind.; Address on Medicine, by J. T. Whittaker, Cincinnati; Tumor Albus of the Knee Joint, by W. E. Wirt, Cleveland; Influence of Inflammation of the Seminal Vesicles in Maintaining Gleet, W. N. Wishard, Indianapolis; Modern Antiseptic and Aseptic Midwifery in Private Practice, by E. G. Zinke, Cincinnati.

The railroad rates for this meeting will be one fare for the round trip. A special train will leave St. Louis for Hot Springs, Sunday night, November 18, via Iron Mountain Route. A stop of several hours will be made at Little Rock, Ark., on Monday, November 19.

It is requested that all who contemplate making this trip, arrange their plans to join the official train at St. Louis, Sunday night, November 18.

FREDERICK C. WOODBURN, Secretary.

399 College Avenue, Indianapolis.

PUBLIC HEALTH.

To Health Officers.—Boards of Health desiring to communicate information to the Public Health Department of the JOURNAL will please address the EDITOR of the JOURNAL.

The Epidemic Contagious Diseases.—Toward the close of October there was a decline in the incidence of typhoid fever throughout the country, a marked increase in the prevalence of diphtheria and only a slight increase, if any, of smallpox—in fact, except in Milwaukee, this disease has been stationary or slightly declining. In that city, Dr. Wingate, Secretary of the Wisconsin State Board of Health, reports, October 29, the situation "not improved," 71 new cases, with 15 deaths, having occurred during the week, and 151 cases remaining under treatment at that date—71 cases in hospital and 80 at their homes. The opposition to removing patients to the isolation hospital continues active and the warfare on Health Commissioner Kempster is still being carried on. The State Board of Health is prohibited from interfering until this attack ceases, and it is feared now that the disease is so widely and firmly lodged that "it will only cease to exist after it finds no more material to feed on." Elsewhere in the State there has been an outbreak among the Indians on the Oneida Reservation, and there are four cases at Two Rivers; all outbreaks, outside of Milwaukee, are taken charge of, more or less directly, by the State Board of Health, which sees that proper preventive measures are enforced. In Chicago the disease has been practically stationary during the last three months, the number of cases under treatment daily ranging between fifty and eighty; at the close of the month there were seventy-one cases in hospital, whither all patients are at once removed. Dr. Baker, Secretary of the Michigan State Board of Health, reports an aggregate of twenty-nine outbreaks, in twenty-three localities, with 160 cases and thirty deaths, since Jan. 1, 1894. At date of report, October 24, there were thirty-six cases remaining in the State—at Detroit, and in Jackson and Washtenaw Counties. Dr. Baker adds: "In the twenty-nine outbreaks there have been on the average 5.5 cases and one death; in eighteen of the twenty-five outbreaks now over, the infection was restricted to the one house in which it first occurred." Another case developed on the 28th ult. among the employes of the Interior Department at Washington, making a total of seven cases with two deaths thus far reported; the latest victim

was a colored messenger, being the third messenger attacked. The other smallpox localities of the month were Walkerton, Ind., Angola, near Buffalo, N. Y., Newark, N. J., and Port Jervis, N. Y., the latter the most serious. Dr. Benj. Lee, Secretary of the Pennsylvania State Board of Health, reports that, except three cases of smallpox in Philadelphia on the 22d ult., the State was free from the disease. On the whole, the smallpox situation is far from alarming at this date, although there are still occasional importations—two cases being reported October 28, on the steamship *Lucania*, at the port of New York.

Diphtheria has been reported in an epidemic form at localities in Massachusetts, New York, New Jersey, Pennsylvania, Kentucky, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota and Nebraska; and typhoid fever at localities in New York, Pennsylvania, Ohio, Michigan, Wisconsin and Iowa. The area of incidence and the severity of the disease seems to be increasing for diphtheria and decreasing for typhoid.

The Prevention of Diphtheria.—The following is self explanatory, and is furnished for publication by the Health Department, 301 Mott Street, New York.

NEW YORK, Sept. 28, 1894.

CHAS. F. ROBERTS, M.D., Sanitary Superintendent.

Sir:—We desire to direct the attention of the Board of Health to the necessity for the adoption of some more adequate means to prevent the extension of contagious disease in tenement houses and apartment houses, and particularly for the enforcement of isolation of persons sick with these diseases. The methods which have been long employed in the Health Department, *i. e.* frequent visitation and instruction by Department Inspectors, have been found to be only partially effective. It has been the custom for years, in cases of contagious disease, for the Inspectors of the Department to visit the families of the sick persons, inform them as to measures of disinfection and methods of isolation, and at the same time to notify other families in the house, of the existence of a case of contagious disease in a given apartment. This method of giving publicity to the case and of warning other occupants of the house is ineffective in the accomplishment of the desired end; *i. e.*, the complete isolation of the patient and the prevention of further infection. Notifying all the inmates of a large tenement is a very difficult matter, and, if notified, experience has shown that they soon forget the existence of illness in the house. Repeated inquiries have demonstrated the fact that frequently many of the inmates of the house where there is a case of contagious disease do not know of the existence of any sickness.

Further than this, this method fails entirely to protect strangers or visitors who may go to the house or apartment. Ladies in search of servants have been repeatedly found in houses or in apartments where cases of contagious disease were present, and servants who have been living with families where there are cases of contagious disease, on obtaining situations frequently go to their employer's house carrying infection with them; or, when relieved from duty for an afternoon or evening, visit where there are cases of contagious disease and not infrequently carry infection back to the houses in which they are employed. Very commonly, washing or various kinds of sewing is secretly done by other members of the family in apartments where such cases are ill, and the garments thus infected on the premises are later returned to the owners. In small shops, business is sometimes carried on, and in one of several instances recently, a number of cases of diphtheria were directly traced to an infected candy store.

Notifying inmates of the house is ineffectual further, because it has been found that, as a rule, intercourse of families in tenement houses is not with others in the same house but with families which live in other houses, and the latter are entirely unprotected by the methods at present followed.

It has seemed to us after careful consideration of this subject that the desired object would be best obtained by the placarding of apartments in tenement houses where cases of contagious disease exist, and we therefore have the honor to recommend that hereafter the Chief Inspector of Contagious Diseases be authorized, in his discretion, to placard apartments in tenement houses where there are cases of contagious disease. The following considerations may render still more apparent the necessity for this action:

1. Under the present conditions it is impossible to prevent strangers and visitors from entering apartments where there are cases of contagious disease, and they or their clothing thus frequently become infected, and either they contract the disease themselves or they transmit it to

others. These strangers or visitors are usually not aware of the existence of disease in the house or apartment, and unwittingly expose themselves and act as media for the dissemination of the disease. If apartments were placarded, this means of dissemination would be prevented.

2. In diphtheria, as has been repeatedly and abundantly shown by the investigations of this Department, patients are often apparently well long before they are free from the infectious agents, and in spite of repeated warning from Department Inspectors these patients, especially when children, mingle with other children and thus transmit the disease to them. This is one of the most common and important means for the dissemination of diphtheria, and it is of no less importance in scarlet fever and measles, as in the latter diseases desquamation frequently continues many days after the patient has apparently quite recovered.

3. There are at present no means by which other inmates in tenement houses can know when convalescent cases of contagious disease have ceased to be dangerous. They can only be governed by appearances, which, as we have seen, are deceptive. If apartments where cases of contagious disease existed were placarded, isolation would be enforced by the other occupants of the house until the Department Inspectors allowed the placards to be removed.

4. The moral influence of such placards, both upon the inmates of the apartments, the inmates of the house and strangers or visitors to the house would be of as great service in enforcing isolation and preventing extension of disease as the visits and instruction of our inspectors. It has been found impossible, even where daily visits were made by medical inspectors, assisted by the Sanitary Police, to enforce the isolation of children convalescing from diphtheria and scarlet fever after the serious symptoms have disappeared. It is undesirable at such times, unless absolutely required, to remove such patients to the hospital and yet in the eruptive fevers this is the period of the disease when there is greatest danger of transmission to others.

During the last year we have had a serious epidemic of diphtheria to deal with. The number of cases reported weekly during the last months, however, has steadily decreased. The schools have just now opened, and it seems to us that the most strenuous efforts should be made to prevent a new outbreak of the disease or its re-introduction to the schools. This measure would be of undoubted service in accomplishing the desired object.

We would recommend, therefore, that placards should be nailed to the outside doors of the apartments in which cases of contagious disease are present, when in the judgment of the Chief Inspector of Contagious Diseases this course seems to be desirable, and that the placards should bear the following inscription, differing as to the name of disease in question and as to color. The color for diphtheria should be white; for scarlet fever, red; for measles, blue.

DIPHTHERIA.

"All persons not occupants of this apartment are notified of the presence of diphtheria in it, and are warned to avoid entering it until this notice is removed. The persons sick with diphtheria must not leave as long as this notice remains here.

"The removal or defacement of this notice is forbidden.
By order of the Board of Health.

"_____, President.

"_____, Secretary."

For some months in certain classes of tuberculosis the system of placarding apartments has been authorized and employed by the Health Department, and has proven very satisfactory in the attainment of the object desired. The only objection apparently to be urged against this measure is that the inmates of the apartment may object to the publicity thus entailed. This, however, is exactly the object which the measure is justly and properly designed to subvert, and is, in our opinion, the strongest argument in favor of its adoption. Respectfully submitted,

(Signed.) HERMANN M. BIGOS,
Bacteriologist and Director of the Bacteriological Laboratory.

A. H. DOTY,
Chief Inspector of Contagious Diseases.
The above report was approved by the Board of Health of the Health Department of the City of New York at a meeting held on Sept. 28, 1894.

(Signed.) EMMONS CLARK,
Secretary.

Brooklyn Board of Health Regulations Against Diphtheria.—An unusual prevalence, and mortality by diphtheria have vexed

the sanitary officers of Brooklyn. The following circular of information has been prepared for general distribution by the sanitary corps, especially among physicians and afflicted families. It contains reference to the free proffer of bacterial diagnosis, and to the new plant for disinfection:

Diphtheria is a contagious and infectious disease and may be conveyed directly by coughing, spitting, sneezing or kissing, or indirectly by the use of infected articles such as clothing, towels, napkins, handkerchiefs or dishes used by the patient. The germ causing the disease is very resistant and may exist in infected articles for months. When a suspicious case of sore throat occurs in a family, the patient should be isolated, and the family physician or this Department should be notified, when a culture can be taken free of cost, to determine the nature of the case. If it is found to be true diphtheria the isolation should be continued, preferably on the top floor, if possible in a well ventilated and sunny room from which all unnecessary furniture and hangings have been removed. As far as possible the patient should be nursed by one person, and no one but the physician and nurse should be admitted to the sick room.

All clothing that can be washed, which has come in contact with the patient, should be placed by the nurse, or under the direction of the physician, in a solution of corrosive sublimate, two drachms and a teaspoonful of salt to a gallon of warm water in a wooden vessel for one hour. The clothing should then be removed and boiled for one hour in water. It should be remembered that corrosive sublimate is a powerful poison and should be handled with care. Soft rags should be used instead of handkerchiefs for receiving the discharges from the nose and throat and immediately burned after using. Non-metallic vessels used to receive the discharges from the patient should contain some of the above mentioned solution. Children from the infected house should not be allowed to attend schools of any kind, or other gatherings, until the patient has thoroughly recovered and the premises have been disinfected.

In order to determine the time when the patient is free from contagion, secondary cultures from the throat are recommended, as a basis for the final disinfection and raising the quarantine. The usual quarantine can often be shortened by this means. Proper disinfection can best be done by those trained to the work and thoroughly acquainted with the most improved methods. The Department is now in a position to perform such disinfection free of cost. In case of death the body should be completely wrapped in a sheet wet with corrosive sublimate solution.

MISCELLANY.

Dr. Alonzo Garcelon.—A recent letter from Dr. Garcelon gives a pleasant reminder of his restoration to health, and his many friends who were alarmed at his condition on the ASSOCIATION train and at San Francisco will take pleasure in congratulating our venerable ASSOCIATION Fellow, on his recovery.

Medical Congress of Mexico.—The second biennial Medical Congress of Mexico will be held November 5-8, at St. Louis Potosi. Dr. Eduardo Liceaga, President; Dr. Luis Ruiz, Secretary, both of the city of Mexico; Dr. Jesus E. Monjaras, Chairman Local Committee of Arrangements, St. Louis Potosi, Mexico.

The Business Law Weekly.—J. L. Rosenberger, Esq., who for several years furnished the reports of decisions of the Courts for this JOURNAL likes the business of journalism so well that he has established a weekly for the use of business men, which as its name indicates, will give them each week the summary of the decisions bearing upon business affairs. The long experience of Mr. Rosenberger in this particular line, and his journalistic training make it reasonably certain that the *Business Law Weekly* will become an authoritative and successful publication.

Air-Testing in Mines.—An acoustic apparatus, called the "formerophone," has recently been proposed for determining the proportions of gas contamination of subterranean air. The testing is done by organ pipes, one of which is

sounded in the mine air, the other being inclosed in a box containing atmospheric air. The sounds are produced by means of bellows, and can be compared by those having a suitable amount of training in sound reading. It has been noted that the sounds emitted by pipes are affected by the air with which they are fed, so that two pipes having the same normal pitch may be used simultaneously in different media and the results be compared. The standard of comparison is an organ pipe inclosed in an air-tight box containing pure air. The other pipe is fed with the air of the mine or chamber to be tested. The sound thus produced varies from the pure tone of the standard in proportion to the quality and quantity of the gas contained in the air thus fed to the pipe.

Chinese Account of the Origin of the Plague.—Dr. Yersin forwards to *Le Progrès Médical* the following explanation which, he says, is current in Shanghai: The Dowager Empress always has eighteen lamps burning, representing the eighteen provinces of the Chinese Empire. Some time ago one of the lamps burned very poorly, although it received exactly the same treatment as its neighbors. The chief astrologer was consulted and, after carefully examining the case, he announced that this lamp represented the province of Canton and that the province was about to be smitten by a pestilence which would carry off eight-tenths of the population—this was decreed by the God of Sickness. The Empress, much affected by this information, asked if the terrible fate menacing the people of Canton could not be averted. The astrologer answered that the god might be touched by prayers and offerings. These being attended to, the Empress asked what result had been obtained. The chief astrologer then carefully examined the situation anew and declared that the god would be satisfied with a compromise—that he would take four-tenths in human beings and an equal number in rats. This is why rats have suffered equally with the people from the plague in Canton and Hong Kong.

Facetia.—The following are the views of several journalists upon an important medical topic:

A GRIM VIEW OF IT.—The death of an ossified man in Tennessee is reported. He died hard.—*Chicago Tribune*. This is as bad as the man who swallowed a thermometer and died by degrees; it suggests also the case of the consumptive undertaker who died of a coffin.—*Medical Record*. These remind us of a man who choked while eating an apple, and died of applepox.—*National Medical Review*. It was in a St. Louis hotel that a Pike County farmer blew out the gas, and died from gastritis.—*Myer Brothers' Druggist*. Not any worse than the man struck by an engine; verdict died from locomotor attackia.—*Montreal Pharm. Journal*. Still worse the case of that pie-eating dyspeptic of Tiflis, for he died of piemia, superinduced by typhlitis.—*Gaillard's Med. Journal*. The other day a negro in Southern Georgia ate six water-melons. He died of, meloncholia.—*Atlanta Med. and Surg. Journal*. Very good; but have you ever heard of the circus man who was accidentally sat down upon, during a performance, by the largest pachyderm in the menagerie. He died of elephantiasis.—*American Practitioner and News*.

This reminds us of the man who "took the cake." He still lives; a victim to the *cacoethes capiendi*.

Inspection of Bakeries.—A somewhat sensational report has been published in the *New York Press* regarding the unwholesome underground places where bread is made in that city and adjacent cities. Some of the bake-shops are kept tidy and in good repair, says the *Press*, but the rule is the reverse. The remarkable fact is brought into view that the inspection and licensing of these important branches of food preparation have in few cities received any attention, and that few boards of health have any explicit jurisdiction over bake-shops. Now that the attention of sanitarians has been pointedly called to this subject, it is more than probable that special powers and special legislation will be sought. It is worthy of mention that London—the senior in sanitation of all our American communities—has only recently taken up this subject, and better laws are being demanded. Dr. Orr, of London, has expressed the opinion that the outcry against the bake-houses of English cities has been overwrought, for he considers that from the very nature of the business these houses must always be to a certain extent unhealthful. All conditions of unfitness, above the necessary minimum, can be met under the general powers of the Public Health Act and the by-laws governing the County Council (for London) and cognate bodies for the country at large, without the increase of power by new legislation.

The ordinary situation of bakeries, in cellars, can not be regarded as a fortunate one, and it may in the future be found necessary to bring those indispensable works, as well as ice-creameries and the like, up into closer relation with fresh air and sunlight. It is true that the brunt of the daily operations falls in the night, and sunlight is not an essential to the labor and its product, but is highly desirable for the well being of the laborer.

The Horace Wells Anniversary Celebration.—The following circular has been issued: Members are doubtless aware of the action of the American Dental Association at its recent meeting held at Old Point Comfort, Va., with reference to holding a national celebration of the fiftieth anniversary of the discovery of the anesthetic properties of nitrous oxid, by Dr. Horace Wells. The Committee by vote of the American Dental Association, was instructed to secure two papers to be read at the celebration. One upon the "History of Anesthesia," by Prof. Thomas Fillebrown, of Boston; and one on the "Benefits of Anesthesia to Mankind," by Prof. James E. Garretson, of Philadelphia. The Committee was further instructed to arrange for a banquet to follow the meeting, at which distinguished speakers shall make appropriate addresses. A full report of the celebration, including the papers and addresses to be printed and issued, as a permanent souvenir of the occasion. Arrangements have been completed to the extent of securing favorable responses from the essayists named, whose papers are now in course of preparation. The banquet arrangements are also largely completed. To cover the expenses attending the celebration, the fee for admission to the banquet has been placed at \$6. It is necessary that the Committee shall have ample notice of the number who will be in attendance, in order that places may be provided for all who may desire to attend.

Subscriptions will be invited later for the souvenir volume, at a price sufficient to cover the cost of publication.

The celebration will be held in Philadelphia, in Association Hall, Fifteenth and Chestnut Streets, on Tuesday, Dec. 11, 1894, at 2 P.M., and the banquet at the Union League at 6:30, same evening. You are cordially invited to participate in this event, which should enlist the enthusiastic support of every member of our profession. To that end you are requested to send your check and notify the Chairman of the Anesthesia Committee, at the earliest date possible, in order that an official invitation may be sent to you.

It will be proposed at the meeting that subscriptions be invited for a permanent memorial, to take such shape as the meeting shall decide.

J. D. THOMAS, Chairman.

912 Walnut Street, Philadelphia.

Aluminum for Military Uniforms and Equipments.—The weight carried by the German infantry soldier, including emergency rations and 150 cartridges, amounts to 73 pounds, or a little more than half the weight of the average soldier, 143 pounds. The field kit of the Russian infantryman weighs 65 pounds, of the French 63, of the Austrian 63½ and of the Italian 57 pounds. Medical authorities are said by military writers to have proved that a man can not, for any length of time, carry more than one-third of his own weight without impairing his powers of action. Professor Fraentzel, of the Berlin University, in examining a number of men who had fought in the Franco-Prussian war, found many affected with heart disease due to the severe strain of forced marching with the full kit. Influenced evidently by these considerations, the German Emperor directed inquiry to be made to ascertain how the weight of the field kit could be reduced. The experiments were made during the autumn maneuvers of the present year, and as a result it is said that the weight to be carried by the German soldier will hereafter be about 57 pounds. A good deal of this lessened weight is due to the substitution of aluminum for brass or other heavy metals. The aluminum canteen, cup and individual cooking vessel have, according to the notes of our Military Information Bureau, been in use in the German Army since 1893. Aluminum has been adopted for the buttons of the shelter tent and for the sockets of its poles, as also for the boxes to contain the field ration.

A patented alloy of the metal, known as Victoria aluminum, whose component parts, the manufacturer claims, can not be determined by analysis, is said to have a much greater tensile strength than the pure metal and to have a specific gravity of 2.8 to 3.4, according to its hardness, as compared with 2.7, the specific gravity of aluminum. Horse-shoes of this alloy are said to have been found satisfactory, but have not as yet been definitely adopted. Stirrups identical in appearance with the large steel hunting stirrups, stood the

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ADDRESS.

CHAIRMAN'S ADDRESS.

Read in the Section on Dental and Oral Surgery at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY M. H. FLETCHER, M.S., M.D., D.D.S.
CINCINNATI, OHIO.

As chairman of the Section, I received from the Secretary of the ASSOCIATION, a circular of information regarding this meeting. Among other items the circular has the following paragraph copied from the By-Laws of the ASSOCIATION:

"The chairman of each Section shall prepare an address on the recent advancements in the branches belonging to his Section, including suggestions in regard to improvements in methods of work, and present the same to the Section over which he presides, on the first day of the annual meeting. The reading of such addresses not to occupy more than forty minutes."

I will gratify you by complying with the last sentence of the By-Law; the others I endeavor to heed.

As to the progress in dentistry,—some points excepted—the name is almost a synonym for advancement, especially in America. The changes which have been made in the past forty years in dentistry must be familiar to all, and if you will recall these changes you will find they relate more largely to the art than to the science of the profession.

An editorial of the *Cosmos* in the last April number says: "In its scientific phase, the growth of dentistry has not kept pace with its development as an art, probably for the simple reason that manual skill is more easily acquired than scientific culture. The disproportionate growth of the dental art, as manifested in the many delicate and precise methods and manipulations which characterize it, is also no doubt largely attributable to the more material fact that the development and exercise of the art is immediately productive of financial return, while the results of the scientific work are seldom or only remotely convertible into money value. "This is particularly the case, when scientific investigation is pursued solely for the purpose of arriving at a knowledge of abstract truth."

It certainly is no discredit that the art has reached so high a state in this country, whether it be from greed of gain, the necessity of bread winning, or the infatuation of invention.

The highest possible attainments in the art of dentistry can not accomplish much without at least some knowledge of the science of the calling. Shakespeare has said: "There was never yet a philosopher that could endure the toothache patiently;" as practitioners of dentistry we all know this to be true. Now is the only relief from this unbearable of maladies, the extraction of the offending organ? To many so-called dentists, I am sorry to say it is. To properly diagnose the cause, and relieve the patient

of pain, requires a knowledge of the laws of health and disease; and these are only acquired by study of the facts brought to light, may be by empiricism, but most likely by the untiring labor of men who have given time, thought and labor to the subject, and in which they are truly interested, and this often means the sacrifice of money or health and perhaps both. A few nights or days do not suffice to bring new truths to light, but years of training are required to establish a habit of scientific thinking.

In the article from the *Cosmos* quoted from above, we read further that: "It is not given to all men to be scientific investigators in the broad sense, but it is after all largely a question of degree, for every one is or should be capable of observation, and the ability to correctly interpret and report the result of such observation is simply a question of practice and training."

An eminent physician who came to me as a patient this day, asked the following very pertinent question: "With all the recent advancements in physiology, pathology and painless surgery, why is it that you dentists have not relieved your specialty of the horrors attending the most frequent operations which you are called upon to perform?" The only answer I could give was that we simply lack the scientific advancement. A recent editorial in one of our most prominent medical journals has the following: "The dentists of America are the best in the world, but they are nevertheless away behind the mark. We appreciate their ingenuity, their skill, their drills and dams, their composite fillings, and artificial teeth; they make the best kind of gold crowns, but do not deserve to wear them; this is because they do not sterilize themselves or teach their patients how to prevent caries. They are wonderful patchers up of things half gone, but do not show how to prevent the going."

"There is hardly a dentist (there are a few) who works in an aseptic way, or uses aseptic instruments; some do not know better, some do not think it necessary. But both are wrong; the one class should learn, the other should think. How many dentists can tell surely when they are dealing with a syphilitic mouth? Yet if such a mouth is being treated, we do not believe that any one would like to be the next patient, though the dentist should wash his hands."

A recent decision in the Supreme Court in the State of Missouri, to the effect that dentists are not exempt from jury duty, as are physicians and surgeons, is another index to the public estimate of our position.

It seems to me it is quite a healthy thing for us "to see ourselves as others see us," after this manner; especially if we wish to improve. And right here I should like to ask a question for each to answer to himself, or to another, and that is, How many

really learned men have we in the profession? We all have the title of Doctor. Definition No. 1 given in the Century Dictionary to the word Doctor, is as follows: "A teacher; an instructor; a learned man; one skilled in a learned profession." Let us answer the question, How many of us deserve this title? How many of us are capable of recognizing a scientific truth, when it presents itself to us? A master of science (which title is given as a synonymous term to that of Doctor) need not necessarily be learned in the dead languages, nor a historian of note, nor even a literary man to any great degree, but he must be a thinker, one familiar with established facts in the sciences, and capable of using such facts; of applying them to the principles involved in the work before him. He must be free from doing a thing in a certain way because some one else does so, unless it appeals to his sense of reasoning as tested by established facts.

Now when we have a *large* proportion of such minds in the ranks of our specialty, instead of a very *small* per cent., such a question as asked by my friend, the doctor, would not be pertinent, nor such editorials as quoted from the *New York Medical News* have any point, but as it is now, they cut deeply, because they strike a defective place, and the future of dentistry, if she hold her own, must progress on a broader line of culture. Then we will *not* be "patchers up of things" to any one, and our specialty will be rid of many of its disagreeable and painful features both to patient and operator.

What is required to be an intelligent specialist, is most beautifully set forth in an address recently delivered before the American Academy of Dental Science in Boston, by the Rev. Reuben Thomas, which is of the more value to us because it does *not* come from one of our own specialty; I would advise its perusal to those of you who have not read it. It is to be found in the last January number of the *International Dental Journal*.

We have here some more wholesome ideas for mental digestion. These intelligent outsiders place us where we rightfully belong, without regard to any opinion, either high or low, which we may hold of ourselves. The reverend gentleman says: "By-and-by a volume will be published, I do not doubt, entitled 'Great Dentists,' as we now have volumes on great surgeons, great lawyers, great divines. But the time has not come for such a volume, as the profession is comparatively new. As a writer in the Encyclopedia Britannica puts it: 'For long, dentistry was practiced to a large extent as a superadded means of livelihood by persons engaged in some other pursuits, and without any professional education whatever. The blacksmith, the barber, the watchmaker, and others of the same class were the dentists of every village and country town; while even in some of our large cities, dentists of the same kind were till lately to be found practicing under the very shadow of our universities and public schools.' These words refer primarily to England, but they sufficiently well fit the past condition of things on this side of the ocean, if the speech of men of 70 years and upward is to be taken as reliable."

We do not have to refer to men of 70 for such things, for within six blocks of my own office, in the midst of an enlightened community of half a million of people, can be found to-day in the window of a barber shop a sign which reads: "Teeth extracted;

twenty-five cents." As a medical relic of the same character, I will state that within three doors of my office, is an old German barber who adds to his income by cupping and leeching, and other cities are probably not different from this.

We have numbers of charlatans in both dentistry and medicine who are little, if any, above these barbers in proper requirements for their profession. But these people must find some patrons, or they would not persist in their willingness to treat them, and the public certainly demands such people or they would not exist. We need an intelligent public to appreciate intelligent specialists; hence, the necessity of the recent discussion, and the suggestions of plans to "educate the public" which have been made in some of our societies and journals. The general public may need some enlightenment on this point; at the same time the more intelligent part of most communities not only values the profession at its true standard, but it distinguishes between practitioners, and places individuals on the proper round of the ladder; and if we wish a higher estimate we must merit it.

The dental ladder may be high or low, but whatever its height it certainly need be higher than it is. I think it is lengthening rapidly in some directions at least, especially as "patchers up of things." In its subdivisions on medicine the Encyclopedia Britannica gives one paragraph to dentistry which is as follows: "Dentistry or odontology is extremely limited in the range of its subject matter; but it affords great opportunity for refinement of technical skill, and it is given up to a dental branch of the profession."

Now all this goes to show that we are looked upon by thinking people as skilled artisans; and that if we are to be regarded as a learned profession, or a specialty of such a profession, we must be able to bear the test which is daily applied to us as a body; and in order to do this we must know all of dentistry, and a great deal more.

Our reverend brother puts these points very nicely; he says: "A learned man in our day, is a man who knows everything of something, and something of everything. Some of his knowledge must be microscopic, but most of the knowledge must be telescopic; he is minutely acquainted with some one thing, and generally acquainted with many things." Now if a learned man is a man who knows everything about some one thing, a learned dentist should be a dentist who knows everything that is knowable about teeth; but in order to do this he must know something about anatomy and physiology and much else besides. For anatomy and physiology are associated with psychology, and mental philosophy generally. He goes on to show what the tendency is, if the mind is not continually exercised in liberal culture. "The mind," he says, "of a specialist has a tendency to conform to the thing about which it is persistently and continually occupied." . . . "So far as his thinking goes, a man is apt to see everything through the spectacles that have invisibly come over his eyes, from the specialty with which he is persistently occupied."

To a mind at all familiar with the laws of mental philosophy this is a potent fact, and true not only of the profession as a whole, but of the specialists in the profession; the artisan through the particular branch of the art in which he is most interested, and the scientist through his special branch. He farther

says: "While, therefore, we pride ourselves on the wonderful advance we have made in dentistry and surgery and other departments of knowledge, and achievements during the last century, there is a necessity for reminding ourselves of the tendency of our age of specialists, to produce men in large numbers who are illustrations of *learned narrowness*; men whose minds are warped, sectarianized, and materialized; men whose world is a very much smaller matter than it would have been if they had given serious heed to other studies than the bread and butter studies of life. Moreover it ought to correct our tendency to conceit and self-congratulations, when we remember that with all our advances there are some things—yes, many things—which animals and even insects can do better than we can do."

You, no doubt, will say by this time that I take an extremely pessimistic view of the profession, advising you first to give more time in perfecting one's self in the speciality, and then saying that this tends to make us examples of "learned narrowness," and so I do, to a certain degree. I am not pessimistic on the subject, but I do say that our egotism and self-congratulations tend not only to make of us a profession of narrow-minded men, but to very greatly retard our progress.

I am fully alive to the fact that dentistry has reached a most remarkable position for a growth of fifty years, and am justly proud of being a member of such a profession, and for this very reason I am anxious that we fully comprehend our exact position, and the dangers ahead, in order that we may progress the more. "Let him who thinketh he standeth take heed lest he fall," is just as applicable to a body of men or a nation as it is to an individual.

Our advancement has been in much the same way as that of many of the arts. Take, for instance, the manufacturing of shoes or watches or the art of printing, the progress and improvement in these and other arts has been just as great in fifty years as that in dentistry, and the real advance in dentistry is only comparable to these arts; excepting in a few points. Other arts like dentistry have their associations for the interchange of ideas and the improvement of the art.

Within dentistry we have had some scientific truths established; for instance, the discovery of the cause of dental caries.

Again, by the combined experience of thousands of men for the past thirty years, the fact has been established that the system will tolerate a pulpless tooth after the pulp cavity and root canal have been obliterated. Again, atavism, and the etiology of the various deformities of the head, face, jaws and teeth have been scientifically studied by the examination and careful records of thousands of skulls and human subjects. There is also a creditable effort now in progress to establish scientifically the cause and proper treatment of pyorrhea alveolaris.

Aside from these few points, and the intelligent discussion of them, and that of the development of tooth structure, I know of nothing that has taken us beyond the advancements made in several of the mechanical arts.

Let some man or men among us formulate a practical plan whereby dental students can be educated to think scientifically, while they are being educated in the mechanical arts of the profession. Let some one rob dentistry of its horrors, by telling us how to

cut sensitive dentine, and insert a permanent stopping without pain; or better, let him give us a practicable prophylactic treatment for dental caries.

Hypnotism may and does accomplish something in the control of pain, but it is not practicable with many operators nor in all cases.

It would seem that the shortest and surest road to these desirable ends is in the proper mental training of the profession. A well balanced mind comes only from broad culture, and not from narrowness of any kind. Sir John Lubbock says: "By concentrating the attention too much on one or two subjects, we defeat our own object." By many, science is considered dry uninteresting work, but this must be only by those who have not tried it or have gotten the wrong conception of it, or a wrong start. I venture the assertion that there are few if any greater enjoyments to the human intellect than the acquisition of new truths. "A cultivated mind," says Mill,—"I do not mean that of a philosopher, but any mind to which the fountains of knowledge have been opened, and which has been taught in any tolerable degree to exercise its faculties—will find sources of inexhaustible interest in all that surrounds it; in the objects of nature, the advancement of art, the imagination of poetry, the incidents of history, the ways and means of mankind, past and present, and their prospects in the future."

This culture may be gotten by constant and persistent effort to comprehend the phenomena and facts by which we are daily surrounded and with which we hourly deal. Lubbock says, again: "The very process of acquiring knowledge is a privilege and a blessing, and if we succeed in gaining the love of learning, the learning itself is sure to follow."

Now when this desire for learning has fastened itself on, a majority of our profession, instead of only a very small number, then we will have more scientific discoveries, and merit the name of a learned profession instead of "patchers up of things." Then will we free our patients from pain, and other disagreeable things. Then we can feel with Bacon: "No pleasure is comparable to the standing upon the vantage ground of truth."

Then, too, as the Rev. Reuben Thomas has put it: "The time will be near at hand when a visit to the dentist will have no more terror in it than a visit to the physician who simply feels your pulse, and looks at your tongue, and asks you the usual questions, and then gives you a bottle of sugar-coated pills."

Let us achieve this end, for it can be done, and the avenues leading thereto will prove to be royal throughout.

DISCUSSION.

Dr. W. J. YOUNGER, San Francisco—The address of the Chairman is not altogether satisfactory because, it seems to me, it does not give dentists credit for what they have done. Its writer does not seem to appreciate to what plane dentistry has attained. There certainly has been a great deal of scientific work in dental circles during the last few years. As an evidence of this, the fact may be cited that the AMERICAN MEDICAL ASSOCIATION has acknowledged dentistry as equal in merit to the other specialties, and has adopted us as a distinct and recognized part of its organization in the formation of this Section. Dr. Fletcher appears not to understand what dentistry has done. I can very well remember when, forty years ago, the condition was as described in the address; but dentistry has lifted itself up, has gone beyond the carpenter and other artisans. We have, for instance, our colleges in which a scientific basis, at least, is laid for the practice of dentistry.

Dr. GILBERT S. DEAN, San Francisco—I do not now care to

discuss the phase of the subject presented by Dr. Younger, but the question of the standing of dentistry should be settled by others rather than by ourselves. There is no question that if we make ourselves a thoroughly scientific body the fact will be recognized. It may take time to accomplish this, but it certainly will come.

DR. L. VAN ORDEN, San Francisco—*I feel that we can not gather all there is in the paper from one reading. In one sense, at least, its writer deserves our thanks. As a profession, we are a little given to self-gratulation. If you recall the progress which has been made in the various arts, you can but see what tremendous strides they also have made. I have been accustomed to accept such statements as the paper refers to, regarding the unprecedented advances in dentistry, and I confess that I am somewhat startled at the possibility that what the paper stated as the actual fact might be so. It is very possible that the paper is correct in its estimate. There is no doubt, however, that the dental profession has a purpose of progress; but unless it is pursued in the spirit suggested by Dr. Fletcher, there will not be much real advancement.*

DR. EUGENE S. TALBOT, Chicago—*It is important that we should recognize the facts as they exist; the more so as the editor of the Dental Cosmos has lately taken up the subject of the scientific position of dentistry. This is a subject of great importance to us, and we have to face it. When we call ourselves a profession we do not know what we do. We are not a profession. Most of what we do is mechanical, and we are nearly to the end of our string in that direction. Take the program of any of the meetings of our State dental societies, and compare it with the program of fifteen years ago, and then say how much better that of to-day is than the older one. As an example, take the program of the Illinois State Dental Society at the last meeting. One of the first things is a paper on amalgam, but it is treated purely from the mechanical standpoint. Not any one knows what amalgam is, whether a chemic compound or a mechanical mixture. We know that it will preserve a soft tooth better than gold, but we do not know why. There is hardly a paper a year on dental subjects which has a bit of science in it; very few with anything new in them. A man can not in a week's time, or after he arrives at a convention, write a paper to be read before it that will contain anything new. That takes years of study. Take the subject of filling teeth with gold. There is nothing new in this line in the papers presented. We have had hardly one in twenty years up to the average of those of forty years ago. In order to improve we must get down to hard work along the lines of original investigation. The English, German and French, as Dr. Kirk says, know what science is. We should take up some subject in which we have an interest, a subject with which we are in love, and follow it steadily. The young man, for instance, should select such a subject, after which the first thing for him to do is to read everything that has been written upon it, digest the knowledge thus gained and write the facts, giving due credit to those from whom they were gained. Then, after a while, he is ready to begin to study it. Lest it be objected that this preparation is unnecessary it is proper to ask, Can you take up the microscope successfully without knowing what others have done with it? It takes years to learn what others have done, preparatory to any effective work, and after that it takes other years to learn something new on the particular subject pursued. I believe it is better to write one paper in ten years which gives something really new and valuable, than to write one every year which is only a rehash of what has been said and done by others.*

DR. C. S. LANE, Oakland, Cal.—*I think that dentists certainly have made creditable advances, and while we may be said to do good patchwork we are something more; are really good tooth doctors. For myself, I am sure that I do more thinking now than formerly, more studying, more doctoring, and I give my patients more instruction in the care of the teeth. The matter of the cleanliness and care of the teeth has received a good deal more attention at the hands of the dentists during the last ten years than previously. We look into cases more carefully than we did, and we save roots, when the crowns can not be preserved, better than we did; we apply medicaments that overcome adverse conditions better than we did. We are saving teeth and roots which were sacrificed then. We ought to be proud of the vigorous growth of our profession; of our progress in inducing great cleanliness. In combating the diseases we are called upon to treat, we are fully as successful as other specialists. A good practice, and one which I am accustomed to pursue is to give patients a little clinic at the chair*

every time they are in it, and I find that I have to tell them over and over again that all our efforts are useless unless they attend carefully to cleanliness.

DR. YOUNGER—*When we look through a window and find a prominent fly-speck upon it, it interferes with our enjoyment of the view presented. So when we put a young man through a course of study and grant him a diploma and then say his work is only on a par with that of a carpenter, it is like a fly-speck on the window. Otherwise, I agree with Dr. Fletcher, and thank him for his paper.*

ORIGINAL ARTICLES.

FIFTY CONSECUTIVE INTRA-PERITONEAL OPERATIONS—ONE DEATH.

BY A. H. CORDIER, M.D.

KANSAS CITY, MO.

Any surgery that involves the handling of, and injury to life-essential organs, must of necessity require more care, judgment and skill than that in localities of less import to healthy and comfortable existence. Of all surgery that of the abdomen and pelvis entails the greatest risk to the life of the patient, hence the birth and existence of abdominal and pelvic surgery as a specialty. That it should be so separated from general surgery is amply proven by the comparative results of the specialist and the general surgeon. This paper is not intended to condemn the work of the general surgeon, neither is it my desire to laud the results of the work of the specialist, only in so far as it is necessary to show that a concentration of one's thoughts and education along a special line must of necessity beget more accurate deductions, and uniformly better results. It is not only necessary that the abdominal surgeon be able to quickly recognize any unlooked-for complications, but equally deft must he be in quickly devising and applying the best method to meet the indications in the case.

In reporting fifty intra-abdominal and pelvic operations with only one death, I anticipate that a selection of cases and a failure to report all deaths will be brought forward by some one. Many of these cases have been operated on in localities where the surroundings were not the best to conduce to a low mortality, yet by the free use of pure boiled water and soap, cleanliness and complete work, I have been enabled to maintain this low mortality. My cases have not been selected, only in so far as my past experience directed me was best for the future of my patient, *i. e.*, no hopelessly malignant cases have been operated on, save one case, at the earnest solicitation of friends and of the patient. An exploratory (?) incision was resorted to, to confirm my unfavorable prognosis, to *their* satisfaction. This case is tabulated because I desire to lay stress on the fact that to me it was not an exploratory incision, (my diagnosis was made prior to the incision) and incidentally to call attention to the fact that too many diagnoses are made only after the abdomen is opened. It does not show a profundity of knowledge to hear an operator and teacher say to his class: "I have here an abdomen, and in the abdomen a tumor. Whether it is from the uterus or the liver it matters not," etc. No opinion is worse judgment than a wrong diagnosis.

Most of my work is done in hospitals where trained abdominal nurses can be in constant attendance, and where my visits may be as frequent as possible. It is far easier to prevent a peritonitis than

to cure it after it has once gained a stronghold. My only death in the series was in a private residence, but it was not due to the surroundings so much as to the condition of my patient at the time of the operation. It requires more time and care on the part of the operator in making and maintaining favorable surroundings in a private residence than in a hospital. I have endeavored to have a trained nurse with all my cases in private houses, yet in some instances the family physician and myself have assumed the whole responsibility. The best results are obtained in hospitals.

The patients have been secluded as much as possible from the meddlesome presence of friends and relatives for several days following the operation.

My patients have in all cases, except the emergency cases, had from three days to a week of preparatory treatment, consisting of dieting, purging with salines, douches, enemas, baths, and as a routine, *tr. nux vomica* in 15 drop doses, three times a day. I do not starve my patients before the operation, but a period of fasting begins on the morning of the day set for the operation. This is kept up for forty-eight hours, or longer, if symptoms of a peritonitis develop, or nausea from the anesthetic persists. If necessary, a nutritious rectal enema is given each four or six hours. This method of nourishing the patient will relieve the vomiting often, and at the same time relieve the intense thirst.

I withhold liquids from the stomach for at least twenty-four hours. This starves the tissues for water, causes the peritoneum to drink up any fluids in its cavity, and thereby diminishes the culture fluid for the growth and multiplication of any microorganisms that may have gained entrance during the operation, from outside sources or by any unavoidable accident liberated during the breaking of a septic cavity during its enucleation. I have avoided raising the temperature of the operating room above a comfortable warmth, (70 to 80 degrees F.) believing as I do that a patient may become much exhausted from a protracted sweat inaugurated in a superheated operating room. I have operated, when possible, in the forenoon. This gives the operator several hours of daylight to see his patient after the operation is completed, and the patient goes on the table soon after a night's rest, and not too long after the beginning of the fasting period. I get along with as few assistants as possible, one usually being all that is necessary to wash and handle the sponges, and assist in the handling of hemostats. No one but myself and this assistant is permitted to touch an article or instrument that is being used in the operation.

I make all my preparations for operation, such as scrubbing the instruments, washing the bowls, etc., and I use my own instrument trays. I have used no antiseptics in my work, but have relied upon thorough cleanliness and pure, boiled, filtered water. I am a firm believer in the bacterial origin of septic processes, but believe that these microorganisms can not exist in dangerous numbers where thorough cleanliness is obtained, and boiled, filtered water freely used.

Visitors at an operation are asked to refrain from talking, and to maintain their positions. This prevents any confusion on the part of the operator from remarks made by onlookers, and causes less dust and other floating particles to be moved about the room and into the field of operation.

In this series I have not used a sponge. The flat gauze pads have been used in each case. They are easily made pure by boiling at the same time with the instruments. I prefer the regular sponge, but too much care and time are required in their preparation. I have used only the purest and strongest Chinese twist for my pedicle ligatures, using the smallest possible strand compatible with safety. In none of my cases have I had cause to regret the use of silk ligatures. In my intestinal sutures and work, the same material has been used. I boil, at each operation, only the amount I anticipate that I will need. A second boiling weakens the silk. Any left over is thrown away. I use silkworm gut sutures for the parietal incision. The same precaution is used here as that observed in the preparation of the silk ligatures. I use very few instruments in my abdominal work. They are always boiled just before using.

Ether has been the anesthetic in most instances, and has not produced any more unpleasant after effects than chloroform. I endeavor to have the anesthesia as short as possible, by having every preparation for the operation completed before the anesthesia is begun.

The abdominal incision is made in the median line, and is as short as is compatible with easy manipulation. A short peritoneal incision minimizes the risk of septic material entering, prevents escape and consequent handling of bowel, and reduces the number of post-operative hernia.

Many of these cases have been pus cases (ovarian abscesses, appendicitis, etc.,) and have required the free use of irrigating fluid—pure, boiled, filtered water. I have used in my irrigations from two to eight gallons of water. In every case where it has been necessary to use irrigation there I have also introduced a drainage tube. The more I use the tube the more am I convinced that it is a life saving device. I never regretted having used the tube, but have had occasions to lament its absence. Even though the doubtful drainage case recovers, the convalescence will be more tardy and less comfortable than if the tube had been used. The vomiting has been more persistent, the bowel less responsive to salines and injections, and the gas pains of greater intensity. If I had to abandon the use of the drainage tube in abdominal surgery, I am sure that the mortality would be increased very much. There is a wrong way and a right way of using and caring for the drainage tube. Those using it correctly will continue to use it. Others will abandon it, and hunt for something new to try.

The after care of my cases has been one of vigilance, that any untoward symptoms might be quickly discovered and early remedied. It is easier to prevent or avert life destroying post-operative complications than it is to cure them when once fully established. It is impossible to give definite rules as to when food and drink should be given these cases. Each case is an individual, and should be treated as such. The judgment and experience of the operator must dictate in each case what course to pursue. It is safe to say that the less fluids and nourishment the patient gets for forty-eight hours, the better will he or she be for this abstinence.

I will endeavor to give a brief summary of the pathology and manner of dealing with individual cases.

The two cases of cholelithiasis presented histories of cystic obstruction, accompanied by the usual recurring painful exacerbations and corresponding interval of comparative ease and comfort. The stones were from the size of a millet seed to that of a filbert, one case having five, and the other some forty odd stones.

The operations were completed at one setting, stitching the gall bladder into the parietal incision, as recommended and practiced by Tait and Price. A rubber drainage tube introduced into the viscus was allowed to remain from two days, in one case, to a week or over in the other. Both continued to discharge more or less bile for several weeks, but ultimately closed, and have remained closed.

My patient on whom I performed the intestinal anastomosis was in a most desperate condition at the time of the operation. No bowel movement for fourteen days, vomiting feces, and in collapse at time of operation. Obstruction due to band across a coil of the ileum, distended gut ruptured above the stricture, feces in peritoneum at time of operation. Lateral anastomosis with the Murphy button. This patient carried the button for one hundred and six days. He has remained perfectly well.

The six ovariectomies were on patients from 22 to 56 years of age, the growths being from the size of a goose egg to that of a good-sized coal hod. Some of the cases were firmly attached to all structures with which they were in contact. Others were very simple, easy operations. Drainage was used where there existed many adhesions, as a precaution against hemorrhage, or part of the contents of the cyst were spilled into the peritoneum during the operation. In two of the cases both ovaries were removed because of evidence of early cystic development.

This young married woman, while shopping, became faint and was taken home in a carriage. A physician was called, and as her general symptoms were those of an early miscarriage, she was so treated for five days. I saw her at this time, and advised an operation. She was bloodless and septic. Operation revealed abdomen full of blood, and a large abscess on one side of the uterus. This was unavoidably ruptured in its removal. Irrigation and drainage failed to save her, as she had a progressive sepsis (true septicemia) at time of operation. Very early surgery would have saved this case also. The tubal rupture had set free more septic material than her weakened and anemic resistance could withstand.

The Tait operations (the removal of healthy appendages) to check the hemorrhage and growth of multinodular uterine fibroids, have been very satisfactory so far. These operations, while usually very simple and easy of performance, are occasionally most difficult to perform, owing to the difficulty in getting the adnexa up into the abdominal incision while ligating. Such was one of my cases. Two easy cases of removal of cirrhotic ovaries for pain *antedating several days the menstrual flow*, are included in my tabulation. In both the cases a varicose state of the Pampiniform plexus was noticed. In both the cases the pains have been relieved, and the results are all that could be desired. This comparatively rare pathologic condition, from its importance, demands more attention from the pathologist and surgeon, even though it be admitted that it is only the result of a chronic interstitial ovaritis, simple or infectious. (Smallpox, etc.)

Four abdominal hysterectomies have been for the removal of non-malignant neoplasms of the uterus. The pedicle has, in each case, been anchored in the lower angle of the incision, the Koeberle sœur-nœud, and wire being used in all. The pedicles have come away within fifteen days, and there have been no fistulæ or herniæ in a single case.

The six vaginal hysterectomies have been performed for malignant disease of cervix in four cases, and for procidentia with suppurating appendages in two. The clamp has been used in each case. No hemorrhage and no untoward results have accompanied the use of the clamps, or followed their removal. The malignant cases have not been far advanced, thus insuring the least risk of recurrence.

Hysteropexy is an operation that, in my experience, is of inestimable value, but we must not lose sight of the fact that, in the majority of these cases, the operation that fixes the uterus to the parietes also breaks up many retro-uterine adhesions, thus liberating other sound imprisoned organs as well as the uterus.

I have used silkworm gut sutures through all the structures, including with the sutures an inch or less of the uterine fundus.

Two of the cases of appendicitis were operations done during the primary attack. Two had had a number of severe spells. The other was a recurring case, with a large walled in abscess. In this case the appendix was found lying loose in the abscess cavity, having sloughed. This case was drained, as were the two cases with recurring histories.

The stabbed wound case demanded an operation to stop bleeding from divided mesenteric vessels, and to remove and clean a portion of the omentum that was protruding and infected.

| | No. of cases. | | Died. | Recovered. | Drainage. | Both sides removed. | One side removed. | Metrostaxis. | Ether. | Chloroform. | Remarks. |
|---|---------------|----------|-------|------------|-----------|---------------------|-------------------|--------------|--------|-------------|----------------------------------|
| | Males. | Females. | | | | | | | | | |
| Cholecystotomy | 2 | 1 | 2 | 2 | | | | | | | |
| Intestinal anastomosis | 1 | 1 | 1 | 1 | | | | | | | Lateral by aid of Murphy button. |
| Ovariectomy | 6 | 6 | 6 | 2 | 2 | 2 | 3 | 3 | 6 | | |
| Extra-uterine pregnancy | 5 | 5 | 1 | 4 | 5 | 2 | 3 | 3 | 5 | | All with tubal rupture. |
| Tait's operation | 3 | 3 | 3 | 0 | 3 | | | 3 | 3 | | |
| Cirrhotic ovaries | 2 | 2 | 2 | 0 | 2 | | | 2 | 2 | | |
| Suppurating Fallopian tubes and ovaries | 9 | 9 | 9 | 7 | 9 | | | 8 | 9 | | |
| Abdominal hysterectomy | 4 | 4 | 4 | 0 | | | | | 4 | | |
| Vaginal hysterectomy | 6 | 6 | 6 | 6 | 5 | | | | 6 | | |
| Ventral fixation of uterus | 4 | 4 | 4 | | 1 | 1 | 1 | 1 | 4 | | |
| Appendicitis | 5 | 2 | 3 | 5 | 3 | | | | 3 | 2 | |
| Abdominal nephrorrhaphy | 1 | 1 | 1 | 0 | | | | | | 1 | |
| Stabbed wound of abdomen | 1 | 1 | 1 | 0 | | | | | | 1 | |
| Exploratory operation (so-called) | 1 | 1 | 1 | 0 | | | | | 1 | | Malignant uterine and omentum. |
| | 50 | 54 | 149 | 26 | 24 | | 9 | 20 | 46 | 4 | |

In five cases of undoubted extra-uterine pregnancy, tubal rupture had taken place in every case before the eleventh week. In one at the end of six weeks. In one case a peritonitis had developed after the rupture, and the case was being treated for typhoid fever. I found in that case universal adhesion of inflammatory mass and placenta, making one of the most desperate cases in the list, yet by complete work, irrigation and drainage, her recovery was complete. The other cases presented nothing of unusual interest, save the one death in my tabulation.

The so-called exploratory incision was to confirm my diagnosis of malignancy, to others interested in the case.

Suppurating and diseased Fallopian tubes and ovaries make up 20 per cent. of all cases. Gonorrhoea and abortions have held first and second places as etiologic factors in the suppurative diseases of the adnexa. In every case both tubes have been found diseased beyond repair, and have been removed. The amount of pus found has varied from a few drops in sealed and strictured tubes to a pint in a large abscess, the walls of which were made up of the remains of the cheesy ovary and its coverings.

Irrigation drainage were practiced in 80 per cent. of these cases, and while the per cent. of recoveries was 100, the two in which no drainage was used would have had a nicer and quicker convalescence had I used drainage. The tube remained in from three to ten days.

ELECTROLYSIS AS A TREATMENT FOR DEVIATIONS, SPURS AND RIDGES OF THE NASAL SEPTUM.

BY WILLIAM L. BALLENGER, M.D.
CHICAGO.

Having seen no contribution from an American observer on the electrolytic destruction of deviations, spurs and ridges of the nasal septum, I offer a report of three cases selected from my private practice.

Mermod, of Switzerland, reported in 1887 excellent results in two cases of chronic rhinitis treated by electrolysis. He limited the application to the mucous membrane. To Dr. Miot, of Paris, however, belongs the honor of recommending electrolysis for the destruction of septal spurs and deviations. In the wake of Dr. Miot, Dr. Garel, of Lyons, reported thirty cases of septal thickening treated by the monopolar method, with success. Drs. Moure and Bergouié still later improved the operative technique of the bipolar method. They claim superior results for their method, and I will briefly outline it here:

Each needle is insulated, except so much of the point as is needed to penetrate the bony growth. The needle connected with the negative pole of the battery is introduced into the spur (or other thickening) in a line with the axis of the nasal fossa, parallel with the septum. The one connected with the positive pole is placed over or above the negative. An important point made by Drs. Moure and Bergouié is not to put the needle too near the base of the deviation, in order to avoid perforation of the septum. The amount of current should vary from eighteen to twenty-five milliampères, according to the volume and density of the growth, and should last from twelve to fifteen minutes. If all conditions are well arranged, a spur or deviation can be removed at a single sitting. Other references might be given.

I do not wish to be understood as advocating electrolysis to the exclusion of other methods. The drill, saw, chisel, galvano-cautery, bistoury, forceps and punches are all useful, indeed indispensable methods of treatment, and electrolysis is also a good method. The judgment of the operator must be exercised in determining the method or methods to be employed in each case individually.

The cases reported below were treated by the monopolar method, with the success narrated with

each case. I have never used the bipolar method, but shall do so in the near future, believing it to be an improvement over the monopolar electrolysis of spurs and deviations of the septum.

Case 1.—Mrs. T., aged 46, consulted me for a painful, dry condition of the pharynx. Upon inspection I found the mucous membrane of the pharynx almost dry, but glazed over with a film of thick pasty mucus. The pain and discomfort were always increased by exertion or emotion of any kind. She had been conscious of the trouble for sixteen years. A large cartilaginous spur projected from the anterior inferior portion of the right side of septum. One of almost equal size was on the left side. Marked hypertrophy of membrane over the middle and inferior turbinates on the left side. Some hypertrophy also existed on the right side, but not nearly so much. I do not intend to review the treatment, except so far as it relates to the destruction of the spurs. On July 2 the spur on the left side was removed with a drill propelled by an electro-motor surgical engine. The hemorrhage, while not so profuse as that attending the operation with the saw, was much more profuse than that attending the operation of electrolysis. On July 15 the spur on the right side was removed by electrolysis, the monopolar method. The membrane over the spur was first cocainized with a 10 per cent. solution of hydrochlorate of cocain applied by laying a pledget of cotton saturated with the solution over the spur. At the end of five minutes the cotton was removed and a gold-plated electrolytic needle was introduced through the spur near its base. This needle was connected with the negative pole of the battery. The patient held the positive pole (a small sponge electrode) in her hand. The galvanic current was gradually turned on until eighteen milliampères of current was passing through the spur. I maintained a close observance of the membrane on the opposite side of the septum, to see if there were bubbles of gas, indicating that the electrolytic effect was penetrating too deep. At the end of fifteen minutes the current was gradually turned off. Three months after the operation by electrolysis, I made an observation and there was no trace of the spur except a smooth base covered by a normal membrane. The wound left after the operation with the drill did not heal so kindly, still a satisfactory result was obtained.

Case 2.—Mr. John M. P., English, aged 28. Without giving a general description of the case I will refer at once to the condition of the septum. There was marked deviation of the septum to the right side, causing partial stenosis. The crest of the deviation was much thickened. The needle was carefully introduced into the bony accretion along the line of the crest, the current being applied as in Case 1. At the end of twenty minutes the needle was removed. The result was not entirely satisfactory, only a portion of the crest being destroyed. One week later the treatment was repeated with complete success.

Case 3.—Mr. W. T. H., age 25. On the right side of septum, extending horizontally a distance of one inch, was a bony ridge causing serious stenosis. The needle was introduced the entire length of the ridge and the current applied as in Case 1. At the end of ten minutes the patient became faint and the current was turned off. The patient was changed from a sitting to a reclining posture and the treatment continued for fifteen minutes, making a total of twenty-five minutes. Upon slight pressure the ridge collapsed, and one month after the operation the septum showed slight evidence of the former existence of the ridge.

No sloughing or other ill effect followed the treatment in either of the cases.

31 Washington Street.

SERIOUS ABDOMINAL CONTUSIONS: SUMMARY AND CONCLUSIONS.

Read at the Annual Meeting of the New York State Medical Association, Oct. 11, 1894.

BY THOMAS H. MANLEY, M.D.
NEW YORK.

1. The abdominal cavity, through its exposed position, is not infrequently the seat of serious injury.
2. Posteriorly, superiorly and laterally it is powerfully supported by the osseous walls of the vertebral

column, the spine and *ossa iliarum*; besides, it derives the powerful auxiliary support of its muscular walls.

3. The abdomen, because of the physical position and function of its anatomic structures is better able to sustain and resist either concussive, percussive or compressive violence than either the cranium or thorax; and hence, of the great cavities, most often escapes the consequences of serious trauma.

4. The gaseous elements which predominate in volume, impart a buoyancy and tympanitic quality to the abdomen, well calculated to neutralize and diffuse the impact of concentrated force.

5. Experimentation on the lower animals and clinical observation with autopsies quite conclusively demonstrate that percussive force, *per se*, is never a cause of vascular or intestinal rupture; but rather that it is caused by the damaged structure or organ being engaged, by the crushing force from before, and the bodies of the vertebral column behind; the promontory of the sacrum, the sharp edge of the superior straight, or the lateral wings of the ilia.

6. The qualities of force commonly sustained by the abdomen, in the order of gravity and frequency, are compressive, percussive and concussive.

7. The symptomatology of abdominal non-penetrating traumatism is extremely vague and indefinite. As a general rule, even in the most serious cases of internal organic injury, the integuments at the seat of injury, bear no trace of damage.

8. This class of injuries jeopardizes life through:

a, hemorrhage from the mesentery, the great blood trunks, or the solid viscera.

b, through septic peritonitis, consecutive to rupture of the intestine, the stomach, gall or urinary bladder, the gall duct, or ureters.

c, through shock, from great violence suddenly applied over the solar or cardiac plexus, though death from this source, without internal tangible lesion, is so rare as to throw a doubt on its possible existence.

9. Sudden and extreme collapse, with well-marked signs of exsanguination, point to free internal hemorrhage; while emesis, intense agonizing pain and tympanitis are quite certain indications of intestinal or vesical rupture.

10. Simple traumatic peritonitis almost invariably succeeds all severe abdominal bruises; the septic, only when there is leakage from the intestinal tract, the gall or urinary bladder. The former type usually running a benign course, and the latter, fatal only in the presence of complications; or when the extent of intestinal perforation is considerable.

11. The treatment of grave abdominal crushes is tentative and radical. The former in all cases attended with great collapse, and others in which we are assured there is no intestinal rupture. Rest and opium must constitute our sheet anchor, with such topical applications as secure the most comfort. Surgical intervention in the way of exploratory incisions into the abdomen is to be resorted to only when symptoms of intestinal rupture are supported by unequivocal symptoms, and all hope of saving life by other measures is lost. Nor shall we operate while our patient is in deep shock. But, nevertheless, desperate and extreme, as this resort must always be regarded, in certain cases it offers the only prospect of saving life. Laparotomy, as a process of effecting hemostasis in hemorrhage following non-penetrating abdominal injuries, should not be permitted.

12. Inasmuch as bruises of the bowel may undergo

sloughing, and cause a consecutive perforation at a distant date it is important, in all severe cases, that the bowel be kept quiescent by a restricted fluid alimentation per rectum; and the body be kept at rest until such adhesive inflammation forms as will effectively seal up threatened breaches.

13. Although there can be no question but serious injury to the organs in these cases often leaves diminished function there is no proof, as far as can be gathered from my own experience, or that of other observers, that hernia is directly induced by contusions of the abdomen.

STIGMATA OF DEGENERACY IN THE ARISTOCRACY AND REGICIDES.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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A false hypothesis betrays its untruth the further it is traced. If, therefore, the hypothesis of the dental stigmata of degeneracy be untrue, the further this is followed its erroneous nature becomes the more demonstrable. If these stigmata are of value, their existence is the more demonstrable under "the fierce light which beats upon the throne."¹

While degeneracy in kings is, as Dr. Ray remarks, medically no more important than degeneracy in peasants, still sociologically it is far more serious. While there are data denoting the existence of dental and oral stigmata in the Cæsars, the most important illustrative evidence is found in that Portuguese family which has for several centuries richly supplied the thrones and aristocracies of Europe with degenerates. The mother of Pedro I., of Portugal, was the first in whom this degeneracy is decidedly demonstrable. In her, it is, however, the outcome of more than one generation. Pedro the Cruel had irregular epileptic attacks and bad periods of stupidity and inventive malignancy, so often characteristic of epileptics. His son, Fernando I., was an imbecile with prognathous lower jaw and receding forehead. He died without issue. His bastard brother John I., succeeded him. Mentally he much resembled Pedro. From John's marriage with Philippa, daughter of John of Gaunt, came a daughter, Isabella, the mother of Charles the Bold (more properly the Rash) of Burgundy. In Charles the Bold, the jaw defects were noticed, with considerable inventive stupidity and one-sided genius, in marked contrast with the level-headed ability of his father, Philip the Good of Burgundy. Mary, the daughter of Charles the Bold, inherited his jaw, and bequeathed it to her son, the Archduke Philip.

The granddaughter of Pedro the Cruel married the grandson of the bastard brother who succeeded Pedro on the throne; from this union came John II., of Castile; he married Isabella of Portugal, the mother of Queen Isabella of Columbus fame, whose union with Ferdinand founded the Spanish monarchy. Isabella of Portugal become demonstrably insane and so remained for several years until her death. The children of Ferdinand died early with the exception of Joanna who became the wife of the Archduke

¹ A good account of the insanity running through the royal families of Spain may be found in "Ireland's Blot on the Brain." Personal examination of living descendants of the royal families of Spain reveals pronounced stigmata of degeneracy.

Philip. The son of this pair, Charles V., was melancholy, epileptic and spasmodically religious. He had defective teeth; his lower jaw was longer than the upper, which disparity interfered with mastication and made his utterance indistinct. The brother of Charles V. founded the German house of Austria; Maximilian (his son) married Mary, daughter of Charles V. From this taint has proceeded the neurosis still evident in the Austrian and Bavarian royalties. The son of Charles V., Don Carlos, had an imbecile genius, of an asymmetrical frame and with an exaggeration of the jaw deformity of his father; Philip II. had no children by Mary Tudor; his second wife bore him two daughters who introduced fresh taint into the houses of Savoy and Austria. His third wife was his niece, daughter of Maximilian by Mary, Philip's sister. Of the end of this line Macaulay gives the following vivid picture:

"The Prince upon whom so much depended, was the most miserable of human beings. In old times he would have been exposed as soon as he came into the world; and to expose him would have been a kindness. From his birth a blight was on his body and on his mind. With difficulty his almost imperceptible spark of life had been screened and fanned into a live and flickering flame. His childhood, except when he could be rooked and sung into a sickly sleep, was one long piteous wail. Till he was 10 years old his days were passed on the laps of women and he was never once suffered to stand on his rickety legs. None of those tawny little urchins clad in rags stolen from scarecrows, whom Murillo loved to paint, begging or rolling in the sand, owed less to education than this despotic ruler of thirty million subjects. The most important events in the history of his own kingdom, the very names of provinces and cities, which were among his most valuable possessions, were unknown to him. It may as well be doubted whether he was aware that Sicily was an island, that Christopher Columbus had discovered America, or that the English were not Mohammedans. In his youth, however, though too imbecile for study or business, he was not incapable of being amused. He shot, hawked and hunted. He enjoyed with the delight of a true Spaniard, two delightful spectacles, a horse with its bowels gored out and a Jew writhing in the fire. The time came when the mightiest of instincts ordinarily awakens from its repose. It was hoped that the young king would not prove invincible to female attractions, and that he would leave a prince of Asturias to succeed him; a consort was found for him in the royal family of France and her beauty and grace gave him a languid pleasure. He liked to adorn her with jewels, to see her dance, and to tell her what sport he had had with his dogs and his falcons. But it was soon whispered that she was a wife only in name. She died; her place was supplied by a German princess nearly allied to the imperial house. But the second marriage, like the first, proved barren and long before the king had passed the prime of life all the politicians of Europe had begun to take it for granted in all their calculations that he would be the last descendant in the male line of Charles V.

Meanwhile a sullen and abject melancholy took possession of the King's soul. The diversions which had been the serious enjoyment of his youth became distasteful to him. He ceased to find pleasure in his nets and boar spears, in the fandango and the bull fight. Sometimes he shut himself up in an inner chamber from the eyes of his courtiers. Sometimes he loitered alone from sunrise to sunset in the dreary and rugged wilderness, which surrounds the Escorial. The hours which he did not waste in listless indolence were divided between childish sports and childish devotions. He delighted in rare animals and still more in dwarfs. When neither strange beasts nor little men could dispel the black thoughts which gathered in his mind, he repeated aves and credos; he walked in processions; sometimes he starved himself; sometimes he whipped himself. At length a complication of maladies completed the ruin of all his faculties. His stomach failed, nor was this strange, for in him the malformation of the jaw, characteristic of his family, was so serious that he could not masticate his food and he was in the habit of swallowing ollas and sweatmeats in the state in which they were set before him. While suffering from indigestion he was attacked by ague. Every third

day his convulsive tremblings, his dejection, his fits of wandering seemed to indicate the approach of dissolution.

In a very short time the King's malady took a new form. That he was too weak to lift his food to his misshapen mouth, that at 37 he had the bald head and wrinkled face of a man of 70, that his complexion was turning from yellow to green, that he frequently fell down in fits and remained long insensible, these were no longer the worst symptoms of his malady. He had always been afraid of ghosts and demons and it had long been necessary that three friars should watch every night by his restless bed as a guard against hobgoblins. But now he was convinced that he was bewitched; that he was possessed; that there was a devil within him; that there were devils all around him. He was exorcised according to the forms of his church, but this ceremony instead of quieting him scared him out of almost all the little reason that nature had given him. In his misery and despair he was induced to resort to irregular modes of relief. Meanwhile, in this distempered mind of Charles, one mania succeeded another. A longing to pry into those mysteries of the grave from which human beings avert their thoughts had long been hereditary in this house. Joanna, from whom the mental constitution of her posterity seems to have derived a morbid taint, had sat, year after year, by the bed on which lay the ghastly remains of her husband, apparelled in the rich embroidery and the jewels which he had been wont to wear while living. Her son Charles found an eccentric pleasure in celebrating his own obsequies, in putting on his shroud, placing himself in the coffin, covering himself with the pall and lying as one dead till the requiem had been sung and the mourners had departed leaving him alone in the tomb. Philip II. found a similar pleasure in gazing on the huge chest of bronze in which his remains were to be laid, and especially on the skull which encircled with the crown of Spain, grinned at him from the cover. Philip IV., too hankered after burials and burial places, gratified his curiosity by gazing on the remains of his grandfather, the Emperor, and sometimes stretched himself out at full length, like a corpse, in the niche which he had selected for himself in the royal cemetery. To that cemetery his son was now attracted by a strange fascination."

The daughter of Philip IV., of Spain, married Louis XIV. Of her descendant, Louis XV., Carlyle remarks:

"He had always the kingliest abhorrence of death, unlike that praying Duke of Orleans, Egalite's grandfather—for indeed several of them had a touch of madness—who honestly believed there was no death. He started up once upon a time, glowing with sulphurous indignation on his poor secretary, who stumbled on the words: 'The late King of Spain.' 'Late King, Sir?' 'My Lord,' hastily answered the trembling but adroit man of business, 'It's a title they take.' Sometimes Louis IV. would go, or stopping his court carriage, would send into churchyards and ask, 'How many new graves there were to-day?'"

The French descendants of the Spanish line have continued to display the mental defects which led to the expulsion of the Bourbons from the thrones of Europe. The suicide of Crown Prince Rudolph and King Ludwig of Bavaria, and the imbecility of King Otto demonstrates that the taint is still rife. The interesting point in this history is not the long persistence of the neurotic taint, but the persistence of the dental and oral and final stigmata so emphatically as to be recognized by historians.

The following history of Charles VI., of France, has just come to light for the first time and is of unusual interest to us in the present paper:

At the Congress of French-Speaking Alienists, (Report in *Le Progrès Medical*, August 18, 1894) M. August Brachet, former examiner and professor at the Ecole Polytechnique, Laureate of the Institute, read a note entitled: "Concerning the Nature and the Form of the Insanity of Charles VI., of France." The clinical interest is in the richness of the predisposing cause (unique, since it is the only insane individual of whom we have in pathologic documents the history of eighteen direct ancestors) and in a historic point

of view, as regards the capital question of the responsibility of Charles VI. in the remissions of these twenty-eight years of insanity. The history has not been studied by alienists for lack of access to the sources (government archives, chronicles of the times, relations of ambassadors).

Predisposing Cause.—Paternal line (father, Charles V., gouty, cardiac disorder; grandfather, Jean le Bon, arthritic; great-grandfather, Charles of Valois, apoplectic; great-great-grandfather, Philip III., the Hardy, sexual pervert. Maternal line (hitherto unknown to alienists or historians); mother, Jeanne de Bourbon, insane; grandfather, Louis de Bourbon, married the daughter of a lunatic; great-grandfather, Robert de Clermont, traumatic insanity, consecutive to cerebral commotion.

Determining Cause.—Typhoid fever in May, 1392.

Immediate Cause.—Two months later, isolation in the Forest of Mans, Aug. 5, 1392. Insanity for thirty years. Character of the remissions, mental confusion, as might have been expected from the infectious nature of the primary cause. Hence com-



Figure 1.—John II. of Castile.

plete incapacity for government during the forty-eight remissions in these thirty years of insanity.

Conclusion.—Charles VI., insanity of infectious origin in a hereditarily predisposed individual (maternal, vesanic; paternal, arthritic heredity).

I regret that it is impossible to obtain a picture of this monarch because we should, without question, be able to show marked stigmata of the head, face and jaws.

Figure 1.—In John II. of Castile we observe marked stigmata. A receding forehead, small sunken eyes, a long, slender, excessively developed nose, short ram; and long body of the lower jaw and arrest of development of the chin.

Figure 2. Charles the Bold.—The picture of a boy apparently 6 to 8 years of age. While too young to determine the exact stigmata of the entire face, there is a general appearance of hereditary taint with one side of the face lower than the other. Defects in the eye and arrest of the lower jaw.

Figure 3.—The portrait of Pedro I., of Castile, shows a very narrow forehead. Eyes set close together. Long, slender nose. Prominent cheek bones. Arrest of development of the upper jaw and fairly well developed lower jaw.

Figure 4. Ferdinand the Catholic.—Is not unlike the father (Fig. 3). Narrow forehead. Eyes set closer together. Long, slender nose. Cheek bones undeveloped. Arrest of the upper jaw and excessively developed lower jaw.

Figure 5. Charles V.—Illustrates a very deformed face. The forehead broad and low. The eyes wide apart. The left eye higher than the right. The nose long and slender. Cheek bones, bone of the face, and upper jaw arrested in their development. The lower jaw protruding from three-fourths to one inch beyond the upper. Mouth open, owing to excessive development of the ascending rami, and mouth breathing.

Figure 6. Ferdinand of Austria.—Presents marked degeneracy. Long, handle-shaped ears. Narrow forehead. Eyes set close together. Marked deformities of the orbits and eyes. Long, slender nose. Arrest of bones of face and upper jaw. Narrow lower jaw.

Figure 7. Philippe I.—Has a narrow forehead, eyes set wide apart, long slender nose, excessively developed zygomae, arrest of the face at alae of the nose and arrest of upper jaw.

Figure 8. Philippe II.—Shows a long, handle-shaped ear. Full forehead. Left eye smaller than right and irregularly placed in their sockets. Face arrested from superior orbital ridge producing concavity of the face as far down as the cutting edges of the superior teeth. The nose long, slim and sunken. The lower jaw apparently well developed.

Figure 9. Philippe III.—Illustrates a small cranium. Nar-



Figure 2.—Charles the Bold.

row, receding forehead. Eyes set wide apart. Short, stubby nose. Marked arrest of the bones of the face and bridge of the nose, also arrest of the superior maxilla. Marked protrusion of the lower jaw, which may be normal. The apparent protrusion being more noticeable owing to the marked arrest of the bones of the face and superior maxilla.

Figure 10. Philippe IV.—Shows a very striking neurotic face. High, narrow forehead. Although the ear is not shown, with such a long, narrow head we would expect a long, narrow, handle-shaped ear. Eyes set irregularly and close together. The right lower than the left. Long, thin nose. Arrest of the bones of the face and upper jaw. Excessively developed and protruding lower jaw.

Figure 11. Philippe V.—Here is a sensual face. Low, full forehead, eyes set far apart and high in forehead. Long slender nose, high cheek bones and arrest of the upper and lower jaw.

Figure 12. Charles II.—Also illustrates a very neurotic face. Low forehead. Eyes close together. Long, slender nose. Marked arrest of all of the bones of the face and upper jaw, carrying the nose inward. Apparently protruding lower jaw.

Figure 13.—The beautiful face of Catharine d' Aragon displays very little stigmata. All that can be observed is a

fullness at the left superior orbital sides, a long slender nose and arrest of the lower jaw.

Figure 13. Queen Mary of England.—Shows a very striking face. Large, full forehead with excessive development above and to the left of the left eye. Eyes set abnormal and wide apart. Nose short, arrested at bridge, and flat and broad



Figure 3.—Pedro the Cruel.

at alae. Facial bones arrested, carrying the nose inward. Body of lower jaw excessively developed. Chin arrested. While I can not state positively that deformities of the vaults and dental arches are present in all these cases, my experience is that in most cases where there is arrest of bones of the face and upper jaw, we also find V- or saddle-shaped arches.



Figure 4.—Ferdinand the Catholic.

NOTE.—These illustrations are taken from photographs of paintings by famous artists, and were obtained from Sucesor de Laurent, Madrid, Spain.

Stigmata of degeneracy are just as marked in regicides (who represent the canaille, middle class and

aristocracy) and the percentage of deformities as great as in the aristocracy. In an examination of the mental condition of these individuals, while they are not always absolutely insane, as a rule they can not be said to be normal individuals. They can not be classed in



Figure 5.—Charles V.

the same grade; each is a study in itself and no two possess exactly the same peculiarities, yet all are on the verge of insanity. Most of these individuals as will be observed, possess some systematized delusions, and are therefore called paranoiacs. If a



Figure 6.—Ferdinand of Austria.

study of the parentage of each individual could be made, abundant cause would be found in each case for not only their peculiarities, but the marked deformities which exist throughout the entire body showing manifold signs of hereditary taint.

Figure 15.—John James Ankorstrom or Anckerstrom, Swedish gentleman, born 1760, executed 1792. Sworn regicide. Killed Gustavus III., of Sweden, March 16, 1792. No statement about him in Regis' text, only his picture.

Head excessively developed at occipital region. Low receding forehead; arrest of the bridge of the nose; long,



Figure 7.—Philippe I.

slender, aquiline nose; arrest of development of the lower jaw.

Figure 16.—History of Mariotti, as communicated to Dr. Regis by Dr. Deny, of the Bicêtre:

Mariotti is a man aged at present 63 years, who has followed various occupations, and lastly was an employe of the



Figure 8.—Philippe II.

Panama Canal Company. During a month's sojourn in the hospital on account of fever, his daughter died, and this became the starting point of his delusion. He imagined that his daughter had been enticed away, dressed as a man and assassinated. From this time on he had but one object in life; to secure the punishment of her murderer, and repara-

tion for his loss. All his endeavors having failed, he concluded that the chiefs of the Canal Company, M. de Lesseps especially, were endeavoring to suppress the facts, and so one day, receiving no response to his demands, he posted himself where the Minister of Foreign Affairs would pass, and fired a pistol at his carriage. Arrested at once, he de-



Figure 9.—Philippe III.

nied positively any intention of killing the Minister. Nothing would have been more easy, said he, as the carriage was not moving; he did not even aim at it, but fired into the ground. His only idea was to force the government to bring him before the court so that he could obtain justice. He was clearly a paranoiac, one of the persecutory type in which the suf-



Figure 10.—Philippe IV.

ferer, from delusions of persecution, becomes himself a dangerous individual.

Upper part of head very small, tapering from the ears upward. Receding forehead. Excessively developed upper left side of head—arrested right side. Eyes small and sunken. Nose short and thick. Cheek bone excessively developed. Ears long, handle-shaped. Arrested development

of the upper jaw. Arrest of development of right; excessive development left lower jaw.

Figure 17.—Jacques Clement, Jacobin monk. Born at Sorbonne (Diocese of Sens) in 1567; killed Aug. 1, 1589. Typical regicide (religious mysticism). Assassin of Henry III., Aug. 1, 1589. (Knife). (Engraved by Massard from the original in the Library at Blois.)



Figure 11.—Philippe V.

Clement was an ignorant monk, of gross libertine tendencies, excessively bigoted; the mere word "heretic" made him furious; he had hallucinations, as is shown by the following, quoted by Dr. Regis, and given by him as the type of those of the regicide:

"One night, Jacques Clement being in bed, God sent to



Figure 12.—Charles II.

him his angel in a vision, who appeared with a great light and showed him a naked sword with these words: 'Brother Jacques, I am a messenger from Almighty God, who comes to announce to thee that by thee the tyrant of France is to be slain; think, therefore, of the martyr's crown prepared

for thee.' Thus saying, the angel disappeared." (Palma Cayet).

Full, low forehead. Eyes set far apart. Dark brow, excessively developed. Long, slender nose. Arrest of development of lower jaw.

Figure 18.—Francois Ravallac. Domestic, clerk, schoolmaster, etc. Born at Touvres, near Angouleme, in 1578,



Figure 13.—Catharine d' Aragon.

executed May 27, 1610. Type, religious mystic. Assassin of Henry II., May 14, 1610. By a contemporary. (Fac-simile of one of the rarest of the collection of historic engravings.)

"Ravallac, of rather tall stature, powerful and large of limb, cross-eyed, with dark, reddish hair, was a somber melancholic, tormented like Clement with hallucinations. See



Figure 14.—Queen Mary of England.

how he is described by the judge and historian, Matthieu, his contemporary: 'He threw himself into the Monastery of Feuillans, and left it on account of his mental weakness. Those who stayed there have since told me that he was altogether beside himself, and that the word "Huguenot"

turned his madness into fury. His mind was distracted and bigoted, susceptible to every impression. After he returned home he was in prison a year for homicide. He was wayward in the palace, insane in the cloister, and became desperate in the prison, where he had visions and dreams." Regis, "Les Regicides," p. 20.

Long, narrow head. Long, slender nose. Prominent cheek bones. Arrest of development of the bones of the face and upper jaw. Normal lower jaw.

Figure 19.—John Wilkes Booth, the third son of the noted English tragedian, Junius Brutus Booth, born in this country in 1839 and was 26 years old when he shot and killed Abraham Lincoln, President of the United States, April 14, 1865. He was a rank secessionist, and was one of a party of



Figure 15.



Figure 16.

conspirators who had for a long time contemplated the death of the President, but were foiled in every attempt. At last when Lee surrendered and it seemed that the defeat of the Rebel Army was complete, he with others sought to kill the men who were at the head of the government, hoping thereby to paralyze it.

Booth had received from his father, who was himself called by the significant name of Junius Brutus, the name of John Wilkes, in memory of the English politician who, in the reign of George III., had given pretext to the rallying cry of "Wilkes and Liberty." The entire life of Junius Brutus Booth, a genuine lunatic though an actor of genius, was, moreover, only a long succession of eccentricities, impulses and acts of insanity. Among other things, he was a mystic. His belief in the sacred character of the lives of animals was such that he could not bear to see them killed or mal-



Figure 17.



Figure 18.

treated without reason, and that he never ate meat, even forbidding his family to eat it. He was well versed in the knowledge of different religions, giving great importance to the Koran, passages of which he annotated; he read the Talmud in Hebrew and gravely discussed religious mysteries with Catholic priests. He never failed to bow his head in passing a church, he frequented churches of all denominations, participated with fervor in all their ceremonies, scrupulously observed all the practices of devotion, and passed whole hours in prayer. His last words, pronounced in the ear of the ship's steward, his only attendant at the hour of his death, were: "Pray; pray; pray." (Kellogg). Regis, pp. 27 and 28.

It is said of the elder Booth that, one evening while playing Richard III., in the last act, he refused to die (believing

he was the original Richard); he fenced his opponent off the stage through the door into the street. His opponent becoming exhausted from parrying his deadly thrusts called upon the people to interfere.

The photograph from which this picture was taken was obtained by the author in Boston the winter before the mur-



Figure 19.

der, and is an excellent likeness. The stigmata are nicely shown.

The head and forehead are apparently well developed, eyes small and sunken; ears excessively and abnormally developed; nose normal; facial bones and upper jaw arrested; partial V-shaped dental arch; well developed lower jaw.

(To be continued.)

THE EFFECTS OF MODERN DRESS ON THE HEALTH OF WOMEN.

Read before the Indiana State Medical Society, Indianapolis, Ind.,
May 17, 1894.

BY MARTHA J. SMITH, M.D.

INDIANAPOLIS, IND.

Every woman's dress expresses, not only some of her own individuality, but it expresses even more, her unity with the race; the common history and status of her sex. Of all nations of the earth we suffer most from the cruel tyrannies of dress.

American women are known abroad for two distinguishing traits (besides possibly their beauty and self-reliance), and these are their ill health and extravagant devotion to dress. We strike the sturdy German and English matrons with dismay. Without the trailing skirt of a year ago we were told we were bereft of our grace, our loveliness, our womanliness. Men are excellent theorizers upon the absurdities of modern dress, but when a practical application of their theories is made by their wives and daughters or sisters, few are found brave enough to stand by and encourage them to wear only such garments as are conducive to their health and comfort. Yet what pathetic sentiments they pen upon the physical frailty of women.

The dress adopted by the women of to-day certainly is conducive to the development of many diseases, and proves both a predisposing and exciting cause of them.

Dr. Thomas J. Mays, of Philadelphia, who studied

the types of respiration in eighty-two Indian girls, varying in age from 10 to 20 years who had never worn tight clothing, found the abdominal type of breathing was very marked in every case. He came to the conclusion that the costal type usually observed in civilized women was artificial, and the result of modern dress.

Dr. J. H. Kellogg has since then examined the mode of respiration of several Chinese and Indian women, whose dress does not constrict the waist, and found also the abdominal type of breathing. He found the same in civilized women who wore no corset, and that this type of breathing was prevented by putting on a corset. He produced the costal type of breathing in a man by putting him into a corset.

Hutchinson found the costal type marked in twenty-four girls, whose ages varied from 11 to 14 years, who had never worn a corset or tight clothing around the waist. Gibson states that the difference in the type of breathing begins as early as the tenth year. Reigel asserts much the same thing. It seems there is reason to believe that the costal type of breathing has become established in civilized women, and it has not been proven that it has any injurious effect, but the harm done by tight lacing and tight bands about the waist must be admitted.

Rosenbach says that in a certain number the use of the corset seems to be productive of no ill results, yet this is not the case with the greater number of women. All hollow organs require room for the proper performance of their functions, and this the corset prevents. Especially are they injurious to those who labor with their hands, such as workers with sewing machines, and others who require free bodily action. The first effect of the corset on the muscles of the trunk and abdomen is limited motion. The constant pressure of tight bands and stiff steels debilitates and shrinks the muscles, rendering the flesh flabby, and exaggerating the bony structure in consequence. Entire freedom of action should be given to the chest for the perfect performance of the functions of respiration. Especially is this true at the base of the thorax near the diaphragm. The habit of contracting the body at the waist by tight clothing confines this part as by splints, and as the diaphragm thus contracts, all lateral expansion being prevented, it presses the contents of the abdomen upon the movable uterus, and forces this organ downward, and in addition to this about ten pounds of skirt are bound around the waist by tight bands, and held up by the hips and abdominal walls, which are rendered protuberant by this compression, and at further intervals pressed upon by the stomach. The displacement of the pelvic organs is in this way favored. In estimating the effect of direct pressure upon the position of the uterus, its extreme mobility must be constantly borne in mind.

This is illustrated by examining it by a Sims speculum, when, if the clothing be not loosened around the waist, the cervix is thrown so far back into the hollow of the sacrum as to make its engagement in the field of the instrument often extremely difficult; attention to this point in the arrangement of the patient will at once remove the difficulty.

Another result of this compression is the pressure upon the abdominal vessels, which interferes with the return circulation from the lower half of the body, producing congestions in these regions. The effect

on the muscles of the middle portion of the trunk is to bring on partial atrophy or arrest of development. It has been said that injury caused by tight bands about the waist is avoided by wearing corsets beneath them. You need but a moment's notice to see this can not be true; the bands only help to adjust the steels and bones more closely to the yielding portions of the body. Most women will tell you they do not wear their corsets tight. I have never been able to find one who did, if we accept her own statement. A corset worn ever so loose, the moment the wearer sits the steels incline inward, and pressure begins upon the stomach and diaphragm, which in time shortens the front length of the body from the neck, drawing it downward perceptibly, and ungracefully crowding the bosom upward and abdomen forward and out of place.

The stomach does not have the assistance of the diaphragm to pump lymph out of its walls in digestion. The bile is not removed from the biliary apparatus; the pancreatic juice is not pumped out of the pancreas. The kidneys lie in a state of motionless inactivity until the blood pressure is so great as almost to break through the delicate tubules.

The peristaltic motion of the bowels is impeded, and constipation with indigestion and malnutrition with fecal intoxication results.

W. B. Neffel, of New York, says his experiments on animals have demonstrated that a prolonged compression of the chest and abdomen invariably produces general anemia, serious congestions of the liver and other abdominal and pelvic viscera. The pressure on the cervix uteri when the abdomen is restrained causes it to move backward and forward over the pelvic floor with every respiration.

This is the point, you will remember, most frequently attacked by cancer in women. The uterus is exposed to this downward pressure about fourteen out of every twenty-four hours. The effect of the ends of the stays on the breast is to deform the lacteal tubes, and when they begin to secrete milk a cyst is often formed, which is not easily emptied. This retention often causes abscess of the breast. Cancer of the breast, there is great reason to believe, is often brought about from the irritation of the clothing.

The liver is not only compressed, but often folded upon itself, so that deep furrows are produced in it, and pieces have frequently become detached. Cancer may result from the irritation of the organ in this way. Abnormalities in the form of the liver and lateral distortion of the thorax are very common, and as a result a displacement of the organ or an alteration in form. Sometimes it is found rolled up into a conical mass, but more frequently deeply notched by the turning in of the margin of the ribs.

From its daily occurrence, the tight-laced liver has an importance in diagnosis greater than is otherwise its due. By the narrowing of the base of the thorax, the liver is compressed from side to side, and not infrequently there is produced a series of folds. At the same time, as a consequence of this circular contraction, a part of the right and usually the left lobe also becomes separated by a depression, the depression being sometimes higher or lower, according to the locality of the lacing. These furrows may penetrate deeply into the parenchyma, until only a ligamentous connection remains which allows a free motion of the separated portions. Tight lacing is one of the most frequent causes of abnormal positions

of the liver. The position varying according to the part of the gland which is subjected to the compression.

Frérich says one cause of chronic atrophy of the liver is tight lacing, corresponding to the extent and force of pressure.

Prof. F. Marchand, of Marburg, believes that tight lacing is one of the most frequent causes of the formation of gallstones. The pressure of the border of the ribs upon the liver during the day and at night no pressure, he claims, favors the stagnation of the bile and the formation of concretions in the gall-bladder. It becomes distended during the day and can not empty itself at night. He also states cancer of the liver may arise from this pressure. As a rule the course of the lacing furrow is obliquely across the right lobe of the liver, from which there is a tendency to atrophy of various degrees in the region of the gall-bladder.

It is not infrequent to find the gall-bladder tightly distended and extending far beyond the border of the liver, and in these gall-bladders stones are frequently found. Anything that exerts pressure on the biliary passages, especially the cystic duct, favors the formation of biliary calculi.

Dr. Rotter, of Munich, according to whose researches on gall-stones of 1,034 necropsies, found stones were present in men in 3.9 per cent. of the whole number, and in women 9.9 per cent. In as many as 40 per cent. of the female cases with gall-stones, there were present grooves and constrictions formed by stays.

Schuter found that a lasting compression of the chest would cause albuminuria.

Professor Bouchet draws attention to the fact that pressure of stays on the intercostal spaces in women suffering from intercostal neuralgia may give rise to paroxysms resembling angina pectoris.

It is said the soldiers of Austria were accustomed to retain their trousers about the hips by means of a leather strap; disease of the kidneys increased so alarmingly among them that especial attention was drawn to the subject, and it was decided that the closely buckled band about the loins was the cause of the evil.

Meyer states that tight lacing decidedly manifests an injurious influence on the eye in consequence of congestions resulting from obstructed reflux of blood from the head along the jugular veins.

Probably no other part of the human form except the waist has suffered more abuse and distortion especially among civilized people, than the feet. Many who condemn the Chinese custom of stunting the growth of their women's feet to the extent of practical uselessness deliberately squeeze their own into shoes too small for comfort and grace of movement. Chiropodists tell us the most distressing diseases result from cramping and pressure from badly-made and tight-fitting shoes. Few women are able to poise the body firmly and elegantly because of deformity of the feet, brought about through ignorance of the complex mechanism of these useful members and bungling efforts to improve their natural shape. Corns and bunions are evidence of ill-fitting shoes and shoes worn too tight, and no denial changes the fact. What man or woman can lay claim to fine mental balance who will deliberately stump through life with an ungraceful gait? It is a mistake to suppose the foot can not be clothed elegantly and attractively in any except French heels and pointed toes.

Only look for a moment at the anatomy of the foot and you will see that muscles that are unused remain in an infantile condition. This is illustrated by the arm kept in a sling and unused; it loses strength and at last size. The interference in the function of the muscle may be voluntary or involuntary; the result is the same; atrophy or arrest of development. The nerve which supplies the muscle is unused, and it suffers arrest of development.

If you put the foot of an infant at an early age in a modern shoe, the toes become immobilized and there is restricted motion at the ankle and the muscles in the sole are arrested in their development. The arrested movement of the ankle results in arrest of development in the strong flexors of the foot that are situated in the calf of the leg. The burden of walking is thrown on the muscles of the thigh and back, and they are consequently over-developed. The same thing follows when the well developed and mature foot is irrationally dressed. The imperfection of this organ restrains locomotion; this induces the sedentary habit with malnutrition and either dyspepsia and its concomitant evils or the stealthy onset of obesity, which may be well called the second curse of women. The intravascular and lymph circulation of the foot is much impaired and the bones become either sclerotic or vascular from over dilatation of their vessels when the constriction is removed at night.

The ligaments, too, become degenerated from improper blood nourishment. The plantar fascia is drawn up by the sole or heel of the shoe. A greater strain than normal is thus brought upon it during locomotion and standing.

When the shoe is removed the fascia takes a straight line, the abutments of the arch separate, a greater strain is thus brought on the lower ligaments of the joint and the upper ligaments are loosened.

The upper edge of the bones are crushed together and the pain is unendurable, and tight shoes must be put on to make walking possible. It is not difficult to imagine the pain which attends these changes in healthy bones, if one has ever suffered from a so-called bunion. But the effect on the general health, the spirits, the digestion, the assimilation are conceived with more difficulty.

The habit women have of wearing cotton underwear during the cold season of the year is extremely absurd. Pneumonia, diphtheria, tonsillitis, rheumatism, la grippe, etc., are often contracted in this way. Many women will tell you they can not wear woolen underwear, but the reason they do not wear it is because they fear they will increase their waist measure a fraction of an inch. Many have never seen or heard of the neat-fitting union suit or shirts fastened to a simple waist by two rows of buttons at the bottom.

The custom of wearing mourning is a ridiculous one from every point of view. Cases of melancholy are traceable to wearing heavy crape for mourning. The custom is simply shocking when discussed from either the standpoint of health or fashion. Sorrow should be too sacred for outward display and sign-board advertisement. It has a depressing effect at a time when one needs to rally all one's Christian fortitude and human philosophy to meet life with becoming resignation. We should not despise the charms that dress can give or neglect the adorning of our person, but we should also remember health and comfort are not to be sacrificed.

The dress need not be one so closely resembling that of men as to subject us to the charge of wishing to be men. All I envy in man's apparel is the opportunity for pockets which it affords. These I would like.

Although all men disclaim any preference for an unnaturally small waist, all women persist in believing that a wasp-like appearance, at whatever age and conditions is sure to render them lovelier in the eyes of their admirers. As the struggle to live becomes more intense men will select their wives from the healthy and strong if they are not attracted now by the beautiful and graceful.

Oliver Wendell Holmes has said with characteristic humor that it is impossible to make a perfect human being without beginning several generations before he is born. Men could have a great influence for good in this work if they realized its importance. Women dress not for their own comfort or health of posterity, but to please their brothers, their lovers, their husbands. Women physicians work here at a great disadvantage. With most women, save those in advanced rank of thought, any suggestion in the way of hygiene in dress is immediately branded as dress reform, and straightway the masculine type of radical dress is brandished.

Medicine has become the science of the prevention of disease rather than the cure of it, and it is true that the intelligent application of hygienic measures is supplanting the empirical use of drugs. The physician should give more attention to removing the predisposing as well as the exciting cause of disease, anticipating rather than awaiting the actual presence of sickness. It was not my object in this paper to give examples of dress. I have only tried to give you the effects of modern dress on the health of women.

DISCUSSION.

DR. C. S. BOND, of Richmond—Mr. President, I do not wish this paper to go by without some discussion, because it is of great importance. Yesterday we had a paper on ophthalmia neonatorum, which was considered of such importance as to justify us in pleading with our legislators for protection against some persons who do not pay sufficient attention to that matter; and it might be important to plead still further with this same body to enact a law on the subject of women wearing corsets. It is certainly a bad thing. I do not see why the women do not quit it. The women seem to have this matter in their own hands, one might say, but they tell us the men are inclined to admire a woman who wears a corset. It is foolish in women to court admiration at their own cost. There is no doubt in the world that women would be more gracefully formed, more useful in the lines that they have to pursue, if they did not wear corsets. Every doctor who has much experience in the line of diseases of women sees frequently in his office persons who are suffering more or less from this trouble. All the difficulties that have been so admirably pointed out by the essayist come before us for observation almost every day in one form or other; and it is a matter of great importance, and might easily be remedied without subjecting the women to ungraceful forms. The time will come, probably, when the matter will right itself. I suppose among some of the Chinese and Japanese women to have a large foot would be an unpardonable sin. In this country it seems to be an unpardonable sin among women to have a large waist. The only way is to start a different style. A woman with a waist twice as large as is in vogue, were it not for the style, would be just as much admired. It is only that we have started to admire people in certain directions; so it seems to be a matter of fashion.

DR. J. I. ROOKER, Castleton—Mr. President, this is the thirty-fifth year that I have been attending the State Medical Society, and this is the first time I ever heard a woman take the rostrum and read a paper. The paper was certainly a very good one, and it would be a good thing if we could

get it into the hands of the ladies. I know something about shoes; I think I have made, in my practice of thirty-five years, several thousand dollars on ladies' shoes. Shoes that are nothing but brown paper, and the result is that we have pneumonia. This paper should get into our public schools, and if the doctor would read it to the ladies it would be an excellent thing.

DR. P. McNAB, Indianapolis—Mr. President, I regard this paper as one of the very best and one of the most practical papers we have had during this convention. As a discussion of the question of hygiene it is certainly very fine. I do not want to discuss it at all; I only want to express my admiration of the paper.

DR. JOHN W. HALL, Portland—Mr. President, this is one of the most helpful papers we have had during the convention, and I desire to expressly commend something that will perhaps come to the minds of most members of the society, and that is the most excellent reading of the paper. We could hear it in the back part of the house more clearly than we could hear the majority of papers read by gentlemen. On yesterday we passed a resolution on the subject of nurses looking after the eyes of infants, and recommending that they be fined ten to a hundred dollars if they don't do it properly. It seems to me if we would appoint a commission to get the Legislature to pass a law that women should not wear corsets it would be much more sensible than the resolution passed yesterday. It has been said that men admire women with small waists. I know that sensible men, regardless of the medical profession, don't admire women who wear corsets and have small waists.

DR. WM. FLYNN, Marion—Mr. President, throughout the State of Indiana, in almost every town, are societies composed of women, the object of which is the bettering of their condition, physical as well as moral and mental. Now I think if every doctor here would go home and get the ear of those societies and tell them that at Indianapolis there is a lady who is capable of giving them practical instruction, and have them courteously invite her to read her paper throughout the length and breadth of this State, she can accomplish something. All this jovial talk about the legislature goes for nothing. It strikes me that the best way to get good results is to get the facts in the paper before the people; and I would suggest that physicians—of course not gynecologists, because it would ruin their business—courteously bring up these questions at home, and get Dr. Smith to read this paper.

DR. FLORENCE W. HAYS, Indianapolis—Mr. President, I think the subject-matter is one that has not attracted the attention of the medical profession until recently. Leaders in the dress reform movement have not been doctors, but have been educated, sensible women of the world, who have been hampered somewhat because they have not the requisite knowledge to know and understand the scientific facts. The paper this afternoon would be quite a revelation to a great many of the warmest advocates of dress reform, and in some way it should be brought to their attention. I think physicians owe themselves and society a duty in regard to this matter. They should take a more practical interest in affairs of this sort, and put themselves in line with dress reform and the teaching of physical culture. I think the series of lectures given this winter by some of our Indianapolis physicians before the Y. M. C. A. is a very good start in this direction, and the work should be continued and put on some practical basis, which would include hygiene of dress as well as the matters already discussed. In putting this question before the people directly, however, the trouble would be mostly not with the younger women, but the mothers and dressmakers. The younger women will be found willing enough to make changes that add so much to their comfort. In one of our large institutions of the higher rank in our State, even so long as ten years ago, while I was attending a college myself in which there were some three or four hundred young ladies pursuing the higher branches, fully one-half of those young ladies did not wear corsets through the week and study hours; and since that time the establishment of gymnasiums and the impetus given to outdoor sports of all sorts has, no doubt, lessened even that number.

One of the points not mentioned in the paper is the effect of corsets upon the vocal cords. This is well recognized by all teachers of the voice, both of elocution and of singing; and the rule is that corsets must not be worn during practicing hours. Some of our most talented and beautiful actresses and singers, Ellen Terry and others, abjure corsets altogether. Of course, artistic drapery is the essence of beautiful dress, and this can be easily attained without

corsets; but as to bringing this about in any practical way, no radical immediate changes could be made. Beauty is a very important note to strike in this connection, and should be considered in all methods of reform. I saw in a fashion journal of a recent date a number of illustrations of dresses designed particularly to be worn without corsets. They were models of artistic excellence, and at the same time utility and comfort were much added to; and any changes to be made—of course no radical changes from the method and general appearance of dresses as now worn by women are to be made—must be on the principle of avoiding constrictions and supporting the dress from the shoulders in preference to the waist. In this connection union under suits and skirts fastened to waists with the dress are practical illustrations. When the details are perfected the future woman will be not only beautiful, but healthful.

DR. L. H. DUNNING, of Indianapolis—Mr. President, I do not rise to discuss the subject, but when Dr. Smith read this paper before our county society she gave us in response to questions a very excellent system of arranging clothes. It is a very practical point. Physicians need to advise. Our patients want some guide. If we are going to reform our lady patients we must give them something in place of their corsets, and suggest some improvements. I would ask the Doctor to give us her ideas of what advice we should give our patients when we tell them to take off their corsets.

DR. MARTHA J. SMITH, of Indianapolis—Mr. President, I believe I have nothing further to say, except that as Dr. Dunning has asked me to explain my ideas of dressing I will do so as briefly as possible. Have the dressmaker make a waist of the lining material of the dress, fitted to the form, with no stays at all, finished at the bottom with two rows of buttons, an inch apart, the lower one for the under skirts and the upper one for the dress skirt; or have the dress all made in one piece, such as the Empire or Grecian costume, and then the union suits for underwear. I think this is as simple a dress as any one could have, and it can be made in most any of the modern styles that one wishes. I wish to express my appreciation of the kind words spoken, and I thank you all for your attention.

SELECTIONS.

AN INTRODUCTORY ADDRESS TO THE STUDENTS OF THE MEDICO-CHIRURGICAL COLLEGE.

Delivered Oct. 3, 1894.

BY L. WEBSTER FOX, M.D.

PHILADELPHIA.

PROFESSOR OF OPHTHALMOLOGY IN THE MEDICO-CHIRURGICAL COLLEGE.

A Senator, quite famed for his eloquence, asked a brother Senator, who sat beside him during an introductory debate in Congress to stop and hear him speak. The friend replied: "If you are going to make a speech I would be very glad to listen to it, but if you are going to read one of your infernal compositions I do not propose to stay." By a dispensation of your Faculty, I have been obliged to trespass upon your indulgence this evening, and ask you not to leave the room before my composition is read.

This day marks an epoch in your lives. You have launched your canoe on a stream full of hidden rocks; many snags, much disappointment, and no few hardships will overtake you before you arrive at the great ocean of your professional life, which as yet hides from you those worlds you intend to conquer. You do not here leave behind you your student life,—you have only shunted to another track; you now only concentrate your studies to a more definite purpose. You have elected to master the subtleties of a noble profession, and an inestimable service lures you toward its mastery. You have no doubt decided upon this avocation only after the most careful consideration and thought. Your friends trust you, and we trust you; see therefore to it that you neither disappoint yourselves nor us.

No profession demands more from her students than Medicine. She is a jealous mistress. The midnight oil must be consumed; untiring and unceasing your efforts must be made before you can become proficient in your art. The late Sir Andrew Clark, in an address to a class of medical students, said: "Labor is the life of life. Nature will let no man overwork himself unless he play her false."

The majority of you come from the rural districts, all endowed with strong constitutions, clear heads, and good nerve force. See to it that you do not play your natures false. You will be surrounded by the glitter and glamour of city temptations—fascinating and pleasant as the Lorelei's glance. Some of you may become easy victims to the sorceress. Leave her and turn aside, and stick to your calling. Remember, as Dickens has said: "It is well for a man to respect his own vocation whatever it is." You have more to do than simply to respect your calling. Remember, that, in joining the ranks of the students of the Medico-Chirurgical College, you must respect them. You have also a Faculty to consider, who is closer to you than a parent. But I feel confident, when I look upon the bright, intellectual countenances about me, that the above advice is perforce unnecessary. What a grand thing it is to meet students with a purpose! I see it stamped on all your countenances. I see more; and I hear you utter: "Oh, gentle Faculty, by and through your aid we will win." It is written in letters of burning flame upon all your pennants. You ask, Is it fair that all should be demanded from the student and nothing from your instructors? No; your Faculty have grave responsibilities in directing you in the way you are to acquire the science of the healing art. They have been awake to this fact for a long time. The changes in the policy of the school, the selection of the best teachers in the various departments, the addition of new chairs, the selection of laymen of recognized and superior ability in their respective walks of life, all tend to make this College one of the most scientific and practical in the country. Your College has adopted a course which is out of the beaten track, ambitious outside of the old-fashioned type of college teaching. Your Faculty do not wish to be known as men who simply know their books; they will show you that here you will obtain, not only a safe and sound scientific education in medicine, but also eminently a practical one as well.

"The foundation of our art is knowledge of the material to be worked upon,—the human body. Anatomy to its uttermost details, anatomy naked-eyed and minute, normal and abnormal, healthy and diseased, is the foundation of all good surgery." So said J. Greig Smith, and so says our Nestor of anatomy, Professor Pancoast.

Your teachers of anatomy will lead you on, gradually and pleasantly, through the structure of the human body, which you must know all about. How can you expect to become proficient except you know thoroughly the genesis of your profession? The great Titian was a master at mixing paints before he could produce the matchless gems which are still the admiration of the artistic world. Michael Angelo had to know how to temper his chisel before he aspired to produce that wonderful statue of Moses; Morse, the conductivity of metals before he could send messages with lightning speed to the uttermost parts of the earth. Houston, in connection with his former colleague Thomson, had to produce a dynamo before

they could let loose the Promethean spark that now illuminates this and hundreds of other cities the world over. In all the mechanical arts men must understand the foundation of their calling if they wish to succeed. Is it less to ask you to labor unceasingly to understand the framework, the chemical laboratory, the animated organism, the wonderful handiwork of God,—man?

In the acquirement of your profession you will not so much, as time rolls on, be carried to greater heights, but to broader fields of knowledge; and, at last, when you have filled the cells of your brain with theory, then the practical side of your teaching will be given you,—a knowledge so essential to your success in life. Many of you will elect to become general practitioners. Of what value to you is the knowledge imparted by your professor of anatomy, unless you can appreciate and follow the teaching of an Anders, or the application and technique of surgery as taught by Laplace and Ashton? "What hearing is to the physician, so is touch to the surgeon. It is the intellect which teaches both. So, when the opportunity arises, educate both ear and hand."

In this class we confidently hope to find many young men born to be masters of their art. To such I would say: Though work comes easy, work all the harder; make the talent given you increase and multiply. Though you may have genius, yet patience and hard work are necessary to make even genius fruitful. To those who have not been so well endowed, much may, nevertheless, be accomplished by perseverance. Your Faculty will lend all of you an ever-helping hand. The fable of the victory of the tortoise over the hare should be fresh in your memories. As the masses, your future patients, become more highly educated it behooves you to aspire to a higher grade of intellectuality. We must to-day have physicians who are not only skilled in their profession, but who have a mind sufficiently broad to cope with the living questions of the day. In no time of the world's history are the intelligence and judgment of physicians so largely sought after and so highly esteemed in the important questions as how best to cope with epidemic diseases in densely populated communities. If I may make a criticism, I must say that the preliminary education of the young men who are choosing the medical profession for their life-work has not been as thorough as it should be. In this State it is now necessary to pass two boards of examiners before you can practice medicine. Is this fair under existing laws? I say emphatically, no! The State puts on the restrictions, but does she in like manner give us a preventive? While our commonwealth is doing much to foster education, she is far behind in giving aid to young men who eventually must look after the health of her people. The actual prevention of outbreaks of virulent diseases or of blindness is far cheaper than trying to eradicate such evils after they have become epidemic. But in the meantime where must this aid come from? Clearly, we must look to the men who, in the abundance of their wealth, can afford to build laboratories and found institutions where young men can get this preliminary schooling.

The older countries of Europe are far ahead of us in these matters; their medical chairs are richly endowed by the State, and their occupants do nothing but investigate, analyze, and transmit. If the public wish protection, they must perforce lend us a help-

ing purse. I must quote what one of our leading teachers in medicine says on this subject:¹ "In this country, for the most part, we can not look to the State for endowment for medical education, but we must appeal to private beneficence. A few public-spirited and generous men and women have already given practical proof of their appreciation of these facts. With more general and fuller realization of these needs and present condition of medical education, and the results that can be secured by its liberal endowment, there is every reason to believe that these benefactions will be largely and rapidly increased, and that thereby the condition of medical education in this country shall cease to be a reproach to us."

How can we escape from this reproach? You young men who have not had a college education can now take advantage of your environments. You have arrived at an age when your mind becomes retentive and capable of becoming burnished by attrition. In this large city instructive lectures are given on a variety of intellectual subjects. The Franklin Institute throws her doors open to you all. The Academy of Natural Science in like manner extends a helping hand. The Young Men's Christian Association and our churches, whose pulpits, are filled by the ablest clergy in the land, will also welcome you. Select such plays at our theaters as will rest your mind by the way of diversion. Study not only the words, but the grace and movements of the actors. Remember, it is not fair to yourselves to try to brighten your minds and let your bodies remain awkward and ungainly. Plato said: "That one must form not only a mind, and not only a body, but both a mind and a body, to become a man."

In practical medicine, as in many of the mechanical arts, we need not fear reproach. We have shown the world what we can do; but how much better it would be if our scientific knowledge were equal to our mechanical skill! Then we should have students flocking to America for their medical education, just as we are having students from all over the world flocking to our twin sister, the Philadelphia Dental College, which leads the world to-day in practical dentistry. Handicapped, as we are, we are nevertheless progressing. Your college is heading toward that plane of efficiency which places her in the front rank of medical institutions. Many additions have been made to the corps of instructors. Two new chairs have been added, a chair of physics, and it is with great pride that I revert to the fact that the gentleman who fills that chair is eminent in his department, and honored not only in this country, but throughout the whole scientific world. Gentlemen, it is a rare privilege that you will have the opportunity of listening to such a teacher as Prof. Edwin J. Houston. Another chair which has been added, and which will be of superlative value to you, is that of electro-therapeutics. In Professor Kennelly you have an instructor who is one of the leading masters in this new department of science.

And so I could continue to speak of the other teachers recently added to the College. With such additional advantages, you will continue to keep the olive and the gold² ever bright, ever shining. There are other opportunities given you for advancing yourselves. You have a variety of fraternal associations;

¹ Prof. William H. Welch, M.D., Baltimore, Md.

² College colors.

you will be asked to join quiz classes and societies. Join them, and become active workers. Let the "pride of ambition and the inspiration of generous emulation" help you to individual achievement. Let each week have its review. Not only drive the nail, but clinch it. By this means you will become adepts by asking and answering questions. If you fall below your classmates, their success will be a means of stimulating you to better work. Some of the most pleasing recollections in after-life will be your class-day associations. As you go on from one semester to another, your line of instruction will be in keeping with your progress. Your last two years will find you in the field of practical medicine. I mean by this that you will be given the opportunity of becoming thoroughly acquainted with disease at the bedside. You will learn the technique of surgery, gynecology and obstetrics and in the special departments, such as ophthalmology, otology, and dermatology you will have opportunities unsurpassed. Our large clinics in the various departments warrant me in making this statement.

You are on the verge of a future which will, at the touch of your hand, show mighty developments. Let another Pancoast, Gross, Pasteur, or a Koch be found among your class. "Do what you can in your life; make what you can of your life; but, above all, love the highest and deepest and best that you can." As you stand on the shore of the great ocean before you, do not think that you have no other motive than to acquire sufficient knowledge to enable you to pass your examination and thus get a diploma. Medicine is not a complete science; many changes have taken place in the medical world during the last decade; many more will be unfolded in the next ten years. Look what changes have been produced by the discoveries of Pasteur and Koch! In many diseases the whole line of theory and treatment has been changed. Contrast the surgery of to-day with that of a few years ago! How little is known about contagion! The vast field of preventive medicine is almost entirely unexplored. I feel sure that the day is not far distant when such a chair will become the most important in medical colleges. You, who are inspired, remember that many crowns of laurel await you. You may not acquire wealth in gaining these honors, but you may do more,—you may confer blessings upon your fellow-man. "Who can estimate the money value of the discoveries of Louis Pasteur to humanity?" asks one of our ablest writers. In the opinion of Professor Huxley, these discoveries "have made good the war indemnity of five thousand million francs paid by France to Germany."

Personal habits have much to do in making or unmaking a professional career. Abstain from all unpleasant habits. See that your bodily health is as well looked after as your mental. Young men when they join college classes are sometimes led away by the idea that to chew tobacco, use profane language, and approach the slovenly are passports to manliness. Do not make this mistake. If education refine the mind let your habits refine your body. Remember that, of all men, the medical practitioner should be, above all things, a perfect gentleman.

A Case of Double Penis and Imperforated Anus and Rectum.—

On the night of July 7, I was called to attend Mrs. T. in her sixth confinement, and delivered her of a ten pound boy. The first thing to attract my attention after the child was

delivered was that it had two well developed male organs. Each penis is perfectly formed, situated on a line, one one a little to the left, the other a little to the right of the median line. They are one-quarter or half inch apart. Each organ is as large or perhaps a little larger than usual for an infant and fully up to the standard in every particular. He passes a good stream of urine through each organ at the same time. The urethra bifurcates in the perineal region sending a branch through each penis. The scrotum is divided into three compartments by two raphe; the right and left compartments each contain a testicle, and the middle compartment contains a mass resembling a testicle to the touch. Not thinking of any other malformation, I did not make any further search for anything that night, as I thought the little fellow had enough already to make him famous if he lived. I left the mother and child doing well, and on the following afternoon was consulted by the child's father, who stated that it was nauseated and vomiting occasionally. I suggested that they give it a dose of castor oil, thinking that perhaps its bowels needed to be evacuated. On the next morning I called to see the mother, and upon inquiry, learned that the infant was still nauseated and vomiting. Upon examination, I found the abdomen and



stomach greatly distended, respiration very much accelerated, pulse very rapid, face cyanosed, and the child crying out as if in pain. It strained frequently as if its bowels were acting. I examined further and found an imperforate anus. There was not any rectum. Just a little to the right of the median line was a depression resembling an anus, covered with a subcutaneous areolar tissue. There was not any bulging at this point to indicate a rectum or cul-de-sac inside as is usual in these cases. In the median line was a rather hard gristly substance. While Dr. Cherry administered an anesthetic, I made a crucial incision, as Gross advises in his admirable work on surgery. The incision was extended across the median line into the depression on the right of the median line, and carried upward and backward, going about two and three-quarters or three inches up, when we reached the gut or cul-de-sac. A free incision was made into the cul-de-sac, which was followed by a copious discharge of dark offensive meconium. After this was discharged the distension was diminished greatly relieving the infant, who came out from under the anesthetic all right, and rested well during the night. We advised the administration of a dose or two of oil, which was followed by several discharges from the bowels, after which time the bowels acted regularly.

The mother was instructed to dilate the artificial opening with her index finger, two or three times daily. The parts were kept oiled with carbolyzed oil, and syringed out after

each discharge with carbolized water for two or three weeks. The mother failing to keep up the process of dilating, there was a tendency to close up, and at the expiration of thirty days from the operation, it was necessary to dilate the artificial opening more thoroughly. While my friend, Dr. Wynne, administered an anesthetic I dilated and extended the incisions until we got a good free opening. The mother is keeping up the process of dilating three times a day since then. The bowels act as regularly as any child's, and the process of dilatation does not give the child any pain. It is in perfect health and has been all the time. It is now over three months old and is developing nicely. At the age of thirty days it weighed fourteen pounds, and at the age of sixty days it weighed seventeen pounds. The malformations were photographed at the age of two weeks, and the other photograph was made at the age of three weeks.—(By Dr. J. D. COLE, in *Nashville Medical and Surgical Journal*.)

Kaat, the Indigenous Stimulant of Southern Arabia.—Dr. Zwermer, writing from Sanaa, Yemen, to the *Christian Intelligencer*, brings to notice some facts regarding a plant, whose name is almost unknown outside of southern Arabia. In Yemen, however, it is consumed very largely by the adults of both sexes, and is highly taxed. Not less than one thousand camel-loads are brought from the interior to be disposed of at the Aden markets. It is commonly brought into the market in the form of bundles of green twigs, the leaves of which are chewed by the Arabs who have become familiar in its use. The chosen hour for kaat chewing is the close of the day, and it is a strange sight to the foreigner to see the sober-minded Arabs sitting down in groups for the purpose of a social chew of the leaves of the kaat. The following is the best description thus far given in the journals, of this comparatively unknown substance:

"Kaat (*Celastrus catha edulis*) is a shrub or small tree which grows at an altitude of about five thousand feet in the lower mountains of Yemen, especially on the slopes of Jebel Sobr near Taiz. It is uncertain whether the plant is indigenous, but if introduced into Yemen from Africa it came very early, with coffee, when the Abyssinian conquest caused the fall of the Himyarite empire. Perchance some savant will yet find kaat among the inscriptions on the temple at Mareb, and then there would be no doubt that the Queen of Sheba used it herself!

"Kaat is planted from shoots which are left to grow for three years, and then all the leaves and buds are pulled off except on a few twigs; these develop the following year into juicy shoots which are cut off, tied in bundles, wrapped in grass to preserve their moisture, and sold under the name of *Moubdrreh*. The second crop is of better quality, and is called *Mouthanee*. A small bundle, *kilwet*, sells at Taiz for about 5 cents, and a larger quantity, yet scarcely a handful, called *zirbet*, for 10 cents. Only the leaves and young twigs are masticated, but I have seen the poor glad to pick up even the castaway dry leaves and branches to get what comfort they could out of them. The taste of the leaves is feebly bitter and astringent, very like that of the peach leaf. It has stimulative properties, produces wakefulness, in large quantities hallucination, is said to preserve the teeth, and some use it as an aphrodisiac. All Arabs claim that it gives wonderful power of endurance, and that with their kaat and tobacco they can do without food on long journeys. Every one, young or old, Arab, Jew or Turk, uses it, and many use it in incredible quantities. One soldier told me he spent a rupee a day for his kaat, and the Cadi of Taiz pays \$20 a day for this luxury—his household, however, is as large as the Koran and divorce can make it.

"The Ottoman government receives 25 per cent. customs on the market price of the plant above the land tax on kaat culture. That the total revenue from this source is considerable can be judged from the fact that at Taiz, a town of perhaps five thousand population, all the other taxes are farmed for ten thousand dollars per annum, while the daily sale of kaat amounts to over three hundred dollars!

"Directly opposite my lodging at Taiz was the kaat market, open from early morning, when the fresh bundles came on donkeys and camels, but busiest in the afternoon, for the proper thing is to eat kaat just before sunset, and to invite your guest to chew leaves an hour or two before dinner. The sellers sit in the open air and are mostly women. In their rather picturesque costume, unveiled, (none of the

peasants wear veils in Yemen,) they sit the long day, with a basket of the green luxury before them. Sprinkling their ware from time to time to keep it moist; untying a score of bundles to satisfy some proud epicure who tastes before he takes; haggling over the price of a damaged bundle with some soldier; and again swearing as only Arabs can to the genuineness of the kind in question, for kaat has six distinct flavors and varieties, each with a special name, and alas for the slave who was sent for 'Java' and returns with 'Mocha.'"

SOCIETY PROCEEDINGS.

Chicago Academy of Medicine.

[Reported exclusively for the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.]

(Continued from page 688.)

UTERO-OVARIAN RELATIONS OF EPILEPSY.

DR. THOMAS J. WATKINS—Text-books on nervous diseases say but little in relation to pelvic disease as a cause of epilepsy, although most of them mention pelvic disease as an occasional etiologic factor. Treatises on gynecology seem to avoid the consideration of the symptom which we are discussing. Epileptic convulsions may be divided into idiopathic, reflex and hysteroid or hysteroid-epileptic. The two latter alone interest the gynecologist. Many authors, among them Charcot, Dana and Gowers do not believe hysteroid-epilepsy to be epilepsy, but hysteria. William A. Hammond inclines to the belief that it ought to be considered separately from either epilepsy or hysteria. Hysteroid convulsions may occur in cases subject to attacks of true epilepsy and *vice versa*. It is usually possible to differentiate between true epileptic and hysteroid convulsions. Hysteroid convulsions are of rare occurrence in this country and one seldom meets cases of reflex epilepsy, utero-ovarian in origin. The pelvic conditions which cause epileptic convulsions may be physiologic or pathologic. The physiologic are puberty, menopause, pregnancy and menstruation. The pathologic are disease of the uterus or its appendages. The convulsions may comprise a part or all of the features of true epilepsy. The aura is usually present and often consists of a pain starting from one or both ovaries. Pressure over the ovaries will frequently produce convulsions, and a seizure may often be checked by the same process.

Treatment.—When the convulsions occur with puberty, relief may be obtained by general medication or by such measures as are necessary to establish regular normal menstruation. When occurring at the menopause, general remedial measures are also indicated. When the etiologic factor is pregnancy, the convulsions may be a result of a displaced uterus which will require the usual treatment for this condition. The pregnancy, however, may be normal and it may be necessary to produce an abortion to effect a cure. Dr. Geo. J. Engelmann relates a case of epilepsy occurring during pregnancy relieved by cauterization of the cervix uteri, but later it became necessary to produce abortion to cure the patient. She again became pregnant and the epileptic attacks returned, cauterization of the cervix uteri produced no effect and an abortion had to be induced. Convulsions occurring only at time of menstruation may be due to dysmenorrhea or to the nervous excitability which frequently accompanies this function of the uterus. Relief may be obtained by the employment of general remedies, or by the use of such local measures as may be indicated. Three cases have come under my observation where the uterine appendages were removed to stop menstruation; no relief followed in any of these cases.

Experience has demonstrated that removal of the uterine appendages is usually followed by an excitable condition of the patient at the time of each menstrual period, and this condition usually extends over two, three or more years. From limited observation and from theoretical considerations, it is my belief that removal of normal uterine appendages for relief of epileptic attacks which seem to be apparently dependent upon menstruation is an unjustifiable procedure.

Dr. Polk has recently reported a case in which hysteroid convulsions were limited to the menstrual periods. The uterus was retroverted and the ovaries prolapsed and adherent. He removed the uterus and its appendages with the hope of obviating the distressing symptoms which usually follow the artificially produced menopause. The time intervening since operation was too brief to judge of the ultimate

results. The treatment of convulsions due to, or associated with, utero-ovarian disease can be given in a few words. An epileptic should not be deprived of the treatment of any uterine disease from which she may be suffering, such as laceration of the cervix uteri, endometritis, dislocations, displacements, etc. Relief of these conditions is certain to improve her general health and so benefit the epilepsy, and a cure may result. Dr. Chester Morris, of Philadelphia, reports a case of hystero-epilepsy of fifteen years' duration. The patient had had 651 convulsions, but after the restoration of a retroflexed uterus a cure resulted. Dr. Engelmann relates a case of hystero-epilepsy relieved by treatment of endometritis and erosion of the cervix uteri. Dr. Engelmann believed that the great mass of the symptoms due to pelvic disease depend upon uterine changes and not upon disease of the ovaries. Dr. Graily Hewitt is of the same opinion.

Epileptics afflicted with hydrosalpinx, pyosalpinx, ovarian abscess or ovarian cyst should receive the usual treatment for those conditions regardless of the epileptic convulsions.

Cases are on record where relief of such conditions has resulted in cure. Dr. H. Marion Sims reports seven cases of hystero-epilepsy cured by surgical treatment. Two patients had pathologic ante flexion of the uterus; after relief of the displacement perfect cure resulted. The other five patients suffered from cystic or prolapsed ovaries with enlarged Fallopian tubes and adhesions. In these cases the symptoms permanently disappeared after removal of the appendages. In the majority of Dr. Sims' patients the convulsions were not confined to the time of menstruation. Dr. T. Gaillard Thomas, Dr. Sims and Dr. Pollen have each reported three cases and Dr. Vander Veer six cases cured by removal of the uterine appendages. The improvement in the general condition of the diseased appendages will naturally benefit the epilepsy. It must be remembered, however, that epileptics are often improved like all neurotic patients by the mental effect of gynecologic patients; hence it is possible to value the operation itself too highly.

RHINOLOGIC RELATIONS OF EPILEPSY.

DR. HOMER M. THOMAS—The cases of epilepsy which are of nasal origin are exceedingly rare. If we have a case of epilepsy due to nasal obstruction, the condition would have to be an outgrowth of some specific disease or direct pressure which would produce irritation in the cerebral cortex. Hence if we have a swelling of the cavernous muscular plexus underlying the nasal mucosa, the trigeminal nerve being exposed to friction, this condition can be transmitted through the cerebral cortex, and we may have, through reflex irritation, epilepsy.

The literature of this subject, as far as it relates to rhinologic conditions as causative factors in producing epilepsy is exceedingly meager. As a general proposition, the cases can be classed under two general heads. First, those where there is the presence of a foreign body in the nasal passage, such as a shoe button, or bean or kernel of corn, which are quite frequently passed into the nasal passages by children during play or through curiosity, producing slight attacks simulating epilepsy, purely from the mechanical irritation. Again, we may have deviations of the septum in which there are true hypertrophies, septal excrescences or spurs which produce conditions simulating epilepsy from either mechanical irritation or pressure. In regard to the recorded cases, Hinsdale reports two cases of epilepsy cured by removal of a foreign body from the nose. The first case was a sailor 43 years old, and three months after the operation there had been no return of the fits. The second was a man, 51 years of age; but in this case the convulsions did not ensue until thirteen years after the trauma, and the relationship between cause and effect is therefore very vague. A third case was in a girl, 17 years of age, in whom was found a bean in the nose, which was removed, when the fits entirely ceased. It is not, however, stated for how long a time the patient was under observation.

E. H. Griffin, of New York, reports an interesting case of reflex epilepsy, in which the attacks occurred once or twice a week, accidentally and completely cured by the removal of a shoe-button forming the nucleus of a large rhinolith in the left cavity.

A case of petit mal, with concomitant asthma, is described by W. C. Ayres, of New Orleans, in which relief of septal and turbinate hypertrophies, seated far back, relieved all symptoms.

F. Kjellman reports two interesting cases. The first was that of a school-boy, 12 years of age, who had had spasms for two years, with inability to close the jaws, sometimes asso-

ciated with momentary unconsciousness, which gradually increased in severity. There was found, upon nasal examination a spongy hypertrophy of the mucous membrane of the two inferior turbinated bones. The turbinates were cauterized, but a return of the trouble occurred after repeated cold baths during cold weather. Cauterization of the turbinated bones again caused the disappearance of the untoward symptoms, and the boy remained perfectly well. In this case there was a morbid dilatation of the cavernous vascular plexus underlying the nasal mucosa, through which condition the terminal filaments of the trigeminal nerve were exposed to friction, which condition of irritation was transmitted to the motor centers of the cerebral cortex, and resulting in epilepsy, tonic cramp and occasional loss of consciousness. The second was that of a boy aged 6 years. In the slighter attacks he had spasmodic movements in the left hand and arm, and asthma; in the severer attacks epileptic symptoms appeared, with loss of consciousness and clonic spasms. At the examination Kjellman discovered a moderate diffuse swelling, soft to the touch of a probe, on the right inferior turbinated. Cauterization was not followed by any amelioration of the symptoms. The boy had, for three years past, been addicted to the bad habit of sleeping with his thumb in his mouth, and closing, at the same time, the left nostril with the other fingers. Thus, nasal breathing was obstructed. This case seems, according to the author, to prove: 1, that epileptiform attacks of nasal origin are not always due to an irritation of the nasal ramifications of the trigeminal nerve; 2, that certain cases of so-called epilepsia nostrurna are initiated by an asthmatic attack, and are essentially dependent upon obstructed nasal respiration.

My personal experience with cases of epilepsy in which there were nasal symptoms is confined to one case. A young lady from northern Michigan consulted me for well-defined epilepsy. After thoroughly examining the case, I sent her to my esteemed colleague, Dr. Brower, for the treatment of her epilepsy, while I looked after her nasal and throat relations in the case. This case was one of direct and central epilepsy, but in which there was a persistent chronic catarrh with hypertrophy over the turbinated bones. Cauterization of the surfaces produced some relief; at the same time the patient was taking large doses of the bromids, which I have no doubt had more direct influence on the disease than my local applications. In this case I observed that the prolonged use of the bromids tended to excite nasal inflammation—a Schneiderianitis, which is often a secondary result of the constitutional effect of the bromids, and in specific cases where it is combined with the iodids we get a still more marked inflammatory condition. The disease of epilepsy therefore, as an outgrowth of nasal disease, is rather indefinite and ill-defined except when due to the presence of foreign bodies in the nose, or of septal deviations, or from traumatic causes.

RELATION OF PATHOLOGIC CONDITIONS OF THE RECTUM AND ANUS TO EPILEPSY.

DR. JOSEPH B. BACON—Since it is an admitted fact that the sympathetic nervous system is a very important factor in epilepsy, it would seem that diseases of the rectum must call for careful consideration in the diagnosis and treatment of this neurotic condition. So abundant is the sympathetic nerve tissue supplied to the rectum that we might correctly speak of it as forming one of the layers composing the rectal walls. Another anatomic fact is that at the anal end of the rectum there is an equal excess of spinal nervous tissue, composing an intimate anastomosing of branches of the third, fourth and fifth pairs of sacral nerves, together with the small sciatics. When a part of the body is thus supplied with this unusual amount of vasomotor and sensory nerve tissue, we must expect serious reflex disturbances if that organ becomes the seat of disease.

It is a well-known fact that the reflex centers of the rectum are the last to yield to narcosis, coma or the allied states. It is hence easily irritated and such irritation, if continuous, in cases having an unstable nervous equilibrium could set up and maintain an epileptic habit.

In cases of auto-intoxication, a condition frequently found in epilepsy, hepatic derangement occurs and resulting in portal congestion causes hemorrhoids, hence an epileptic hemorrhoidal state occurs and often precedes the epileptic onset. In all such cases an examination of the rectum is necessary and of value.

When the epileptic habit is once established, any exciting cause will tend to keep up the condition; such as vitiated blood, uterine disease, inadequate elimination from the kidneys, etc., causes which frequently are produced from diseases

of the rectum. Impacted feces, irritable hemorrhoids or ulcer, fistulae, all excite the sympathetic nerves of the rectum; the irritation is carried over the whole system, but especially to the uterus, kidneys and liver. This irritation in the rectum causes a vasomotor disturbance in the kidney, for that organ is almost exclusively supplied with sympathetic nerves; as a result a decreased amount of urine is eliminated, the blood is thus vitiated and causes an irritable condition sufficient to excite the epileptic habit to a renewed attack. Again, the rectal irritation after being reflected to the solar plexus, takes the channel of least resistance and expends its force in producing a vasomotor disturbance of the uterus, a condition frequently observed from rectal disease. Thus the uterus, if primarily the cause of an epileptic habit, is again excited sufficiently to become the reflex center and act as the cause of renewing or continuing the epileptic status.

Much more could be said concerning the rectum from the standpoint of spinal nerve irritations and reflexes. While it is necessary to speak of recto-anal diseases as causes of reflex disturbances, with care, on account of the great amount of abuse and quackery going on at present under the guidance of men who work only for financial gain, yet there is and has for a long time been sufficient exact knowledge concerning the reflex centers of this organ to justify us in claiming that in all cases of epilepsy, if pathologic conditions are found in the rectum they should be if possible removed.

AUTO-INTOXICATION RELATIONS OF EPILEPSY.

DR. W. A. EVANS—The discussion that has preceded what I have to say is conclusive evidence that there is something more to epilepsy than the exciting factors which the various speakers have emphasized. That conditions so diverse and so far removed from each other can produce the same train of symptoms and the same effects can follow treatments so diverse is proof positive that there is a common underlying condition. It is a well recognized fact that every body produces substances that are suicidal or destructive to it. It is a well recognized fact, also, that the human body is no exception to this rule. It is equally a recognized fact that the great eliminative organ of the body is the kidney, and the great eliminative product is the urine. Human urine is toxic under circumstances that can be most accurately computed. Normal urine is toxic. Pathologic urine is likewise toxic. Pathologic urine is frequently less toxic than is normal urine. The morning's urine varies in its toxic properties from that of the night. The urine passed during the night time possesses a preponderance of principle that is convulsive. The urine passed during the day time possesses a preponderance of principle that produces or tends to produce coma. There are several physiologic effects of urine. It depresses temperature; it causes salivation; it causes contraction of the pupil; diuresis; a condition of coma, and a condition of convulsion. These conditions are frequently antidotal each to the other. You can readily understand that the urine containing that principle which causes convulsions can have it greatly modified or curtailed by the presence of the principle which causes coma, and *vice versa*. As a consequence, the amount of effect which we get from the night's urine in the one direction of convulsion is much greater than the amount of effect in the direction of convulsion which we get from twenty-four hours urine. The nature of these various substances are complicated. The substance that we have particularly under consideration to-night is the convulsive, which is perhaps a compound of an inorganic substance, probably a potassium salt, and an organic substance whose nature has not yet been determined.

Féré, in 1890, claimed that he had isolated from the urine a toxin which was purely a convulsive product, and always present in the urine of epileptics. This observation has been confirmed by Raymond and Voisin. Bouchard, to whom the greatest credit is due, has proven the presence of a convulsive agent or agents, but he does not hold that the agency producing epilepsy varies from those present under ordinary circumstances except in degree. A number of observers in this country have extracted from the urine of epileptics an increased amount of the aromatic sulphates, skatol, phenol and indol. They are combinations whose original factors are the products of putrefaction, particularly and not exclusively in the intestinal tract. The observations of these men go to show that there is no one toxin which produces convulsions and which stands in a causative relation towards the convulsions that we term epilepsy, but that in this condition there is an accumulation within the system of the toxins which exist there more or less constantly—so constantly that under our conditions of health we must always call them normal. It has seemed to me that epilepsy is not an

entity; that epilepsy is not a disease, but that it is an expression of conditions. The fundamental condition which should overshadow every other is an accumulation within the body of the products of tissue change which should have been eliminated by some of the excretory organs. We know very well that the organ which should eliminate them is the kidney, but we remember further that their production lies beyond the kidney; that the kidney stands in simply an eliminative relation; beyond that, there are areas which stand in a productive relation; the blood itself, the nervous system, liver and spleen, the muscles and other organs;—and perhaps especially with us, the products of putrefaction within the intestinal tract. Putrefactive products are convulsive. In epilepsy there is this condition of affairs: An accumulation in the system of excretory products poises the organism so delicately that some factor hitherto perhaps not of great importance pushes it over and a cataclysm results. Migraine furnishes a minor parallel, a neuralgia due to an accumulation within the body of products which the kidneys should have eliminated. The urine preceding, during and succeeding an attack is similar to that of the same stages of epilepsy. There is a condition of vasomotor spasm similar to that constituting some of the minor forms of epilepsy.

It is well to bear in mind the fact that, if we are examining for the toxins that are productive of any condition, that they may not be found in the urine prior to the attack in great quantity. The increase of toxin production may be followed by either a decrease or an increase of toxin excretion. But that the increase of production is always in excess of the increase of excretion. It is probable, however, that increased production and decreased excretion seldom go hand in hand for protracted periods, for the results would not be compatible with life. A side-light is thrown by the dramatic picture history of chill in which there is an increased production and a decreased excretion of heat. We must bear in mind, also, that the urine of an attack and the urine following an attack may not give us a toxin in the form in which it circulates in the blood, for the condition of affairs that constitutes an attack represents its partial destruction on the part of the nervous system. A chemic change in the product bringing about the condition of affairs that we know as an epileptic attack. An epileptic attack is followed by the emission of a large quantity of very pale urine which may contain an increased amount of the toxin, but it is more probable that it contains an increased amount of the derivatives of the toxin. I have examined urine within the last few weeks from an epileptic boy, and the following was the condition of affairs: The boy weighed 110 pounds. He was passing in twenty-four hours 270 cubic centimeters of urine, with a specific gravity of 1031; total solids for twenty-four hours, 255 grains. Amount of urea for twenty-four hours 136 grains. There was a very marked increase of the aromatic sulphates. This urine was not taken at the time of the attack, nor immediately after, but it was taken in the interim. There was an especially marked increase of indican. It seemed clear that the boy had a condition of intestinal putrefaction, that his albuminoid foods were not being digested, but were being broken down, putrefying in the intestinal tract; absorption was taking place faster than his kidneys were able to eliminate. At first there was a slight accumulation, after awhile there was such a soaking of his system that it was ready to be pushed over by any factor such as eye-strain, nasal or rectal trouble, or whatever path of conduction in that particular boy might be most out of balance.

In conclusion, permit me to offer the following: Epilepsy is not an entity. Most of the cases are fundamentally due to retention within the body of a toxin or toxins whose most marked characteristic is irritativeness to motor nerve areas. During the interim the excretion of this toxin may be increased or decreased. During the paroxysm and immediately subsequent thereto there is at first an enormous excretion of these substances mostly as ash, and then an enormous production of a narcotic substance which is antidotal to the first cause. The increase in production is most often in the intestinal tract. When saturation has taken place by the excess of addition over subtraction, any added irritation may make the first fulminant.

There are cases in which there is so nearly a balance between addition and subtraction that an occasional "vicarious" diuresis or diarrhea would "strike a balance" were the added factor of a pressure on nerve filaments, in nose or rectum, or elsewhere removed.

SURGICAL RELATIONS OF EPILEPSY.

DR. G. FRANK LYDSTON—Perhaps it is incumbent upon me

to apologize for the paucity of results from the application of various surgical measures in the treatment of epilepsy, and not for our surgical resources, for they are multitudinous. It must be confessed that surgery has accomplished very little in idiopathic epilepsy. I suppose that it would be a fair proposition to say that it is almost time for us to abandon operative measures in this form of the disease. It is unquestionably a fact that most of the brilliant cures reported have relapsed, and that very indefinite results have been obtained from surgical operations in this type of the disease. Anesthesia and the effect of shock probably temporarily inhibit the abnormal cell action characteristic of epilepsy. A brisk spanking might do the same. If the theory of the relation of toxins to epilepsy be right, it is easy to understand the failure of operative procedures in epilepsy of idiopathic or central origin. As far as epilepsy of reflex origin is concerned, it is unquestionably true that operative measures applied sufficiently early—and by that I mean prior to the time when permanent changes in the structure and biochemism of the cerebral cells have occurred—are not only indicated but are likely to bring about excellent results. But even in these cases the effects are in a large proportion of cases only temporary. Nearly every man who has operated for the removal of the supposed reflex cause of the disease, has reported the case so speedily after the operation that most of the recorded cases are valueless. The statistics of operative results in epilepsy in my estimation are about as nearly worthless as any statistics that could be mentioned. You will observe that I am not offering any enthusiastic arguments in favor of surgical interference. Operation in some of these so-called reflex cases undoubtedly temporarily inhibits the morbid cell activity, or whatever you choose to call it, that underlies the manifestations of epilepsy, whatever the source of irritation may be. In some cases of reflex neurosis, we have this temporary inhibition of the epileptic phenomena, and from that the conclusion is arrived at that the supposed source of reflex irritation is really the cause of the disease, when it was merely a coincidence. These coincidences in my opinion explain most of the relapses following apparent cures or temporary relief by operation on the sources of alleged reflex irritation.

Regarding the failure of surgical operations for various forms of reflex neuroses, perhaps it would not be out of place to state that the more brilliant results I have in my operative experience, the more skeptical I become after observing these cases. I remember two cases in point as showing how in reflex neuroses we are very apt to form erroneous opinions. One of these cases my friend Dr. Moyer saw with me. It was one of apparent incipient paraplegia in a young child in which I detected the undoubted cause in an extremely adherent prepuce and phimosis. The suspicion in my mind at the time was that there might be incipient tubercular disease of the spine. The improvement which followed the operation was as marked as one could wish. About three months later the patient had definite signs of disease of the spinal column. I referred the case to Dr. Moyer for consultation, and he confirmed my diagnosis.

This case while perhaps not exactly akin to epilepsy, is germane to the question of reflex neuroses in general. It is probable that epilepsy, when of idiopathic or central origin, depends on varying conditions of the brain and perhaps of the spinal cord. This, in combination with the difficulty of cerebral localization, is perhaps responsible for a great many of our surgical failures. It is true that we find in some cases circumscribed changes that are very marked; but in others, although there is a distinct focus, the pathologic condition is not easy to define even when the brain is exposed by operation. It was Van Gieson, I think, who suggested that an expert microscopist should be present in all operations for epilepsy, in order that a correct diagnosis might be made on the spot. This suggestion is not a practical one perhaps, but it illustrates the difficulty of cerebral localization in these particular cases. While an operation may be done for the removal of the diseased focus, the influence of the morbid process is often so far beyond reach that operation fails. In some of these cases there is a distinct pathologic condition of the cerebral cortex, and the relapse or recurrence after the removal of the condition is usually attributed to the formation of the cicatrix which every one present knows is capable of perpetuating a similar condition of irritation to that produced by the original focus. We know that in certain cases in which epilepsy is due to intracranial conditions, such as internal exostosis, localized pachymeningitis, subdural cysts, and tumors of various kinds, relapse often occurs after the removal of what was undoubtedly the original focus of irritation. This shows plainly that what

ever the source of irritation may be, a profound morbid influence upon the cerebral cortex may remain after the removal of the original exciting cause. The most curable variety of epilepsy is the syphilitic form; when I say the most curable variety, I mean when it is taken sufficiently early. We may, however, remove by proper treatment all evidences of syphilis, and still after a certain length of time epilepsy goes on as if no treatment had been instituted. The results are very little better than we have in the ordinary idiopathic or central form of the disease. A gumma of the brain, which it is reasonable to suppose was the origin of the epilepsy, may have been removed and yet the epilepsy may continue. This, I think, is a fair illustration of the limitations of cerebral surgery in epilepsy.

The relations between the various cerebral centers and ganglia and peripheral muscles are not easily established, but we do know that disease of the cerebral centers will bring about epileptiform referable to the muscles; the exact manner in which it is brought about we do not know. We are apt to be guided in our clinical and surgical deductions for operative interference by the most prominent phenomena that are first observed. The removal of the diseased focus may be ignored, in view of the fact that the initial symptoms described by the patient or observed by the physician may be indicative of disturbance of the center of one or the other extremity. This may lead to erroneous deductions, and a wrong cerebral focus may be excised.

A very interesting field, showing that we are not strictly limited to operative measures in these cases, was recently read by Professor Hadra, of Galveston, Texas, before the Southern Surgical and Gynecological Association. He had been using electricity for the purpose of localization of the focus of irritation, after the removal of a greater or less area of the skull. His observations led him to conclude that the repeated application of the electric current to the diseased focus was likely to be beneficial. He does not say that he has obtained any very striking results; but from a careful perusal of his paper I am inclined to think that the treatment he recommends is at least worthy of further experimentation and trial.

The most fruitful field for surgery in the treatment of epilepsy is its early application in cases of traumatic origin. It is unfortunate, however, that in most cases of traumatic origin the epilepsy does not come on until very late, and by that time certain conditions have arisen which render operation for the removal of the original focus of irritation practically useless. So that if operation in cases of traumatic epilepsy is to be of any value, whatever, it should be done very early. Cases have been reported in which encouraging results have been had, but the principal deduction from the results of the operations is that operative surgery, as far as traumatic epilepsy is concerned, should be chiefly prophylactic. I firmly believe that a great many cases of head injury, followed by epilepsy later in life, might have been prevented by an early operation. I know many physicians who condemn interference with the cranium, unless it is an adult, because of the notion that the young skull is elastic and the brain able to tolerate almost anything short of being run over by the wheels of a locomotive. Nature is therefore relied upon. Particularly is this true where there are no pronounced symptoms of compression. I believe this conservatism is carried too far. I believe that in many cases, even without distinct depression of the skull, epilepsy will develop later on as a consequence of localized pachymeningitis, with or without sclerotic changes in the cerebral cortex. Even when there is no depression, a clot may form which may subsequently undergo transformation into a cyst and produce epilepsy. Spiculae of bone may be driven down upon the brain without serious evidences of injury to the cranium. I believe if more radical surgery was done in head injuries, it would be the means of preventing a great many cases of traumatic epilepsy. With regard to the technique of the operation for epilepsy, the suggestion of Victor Horsley, of operating in two stages is a wise one. Here we expose the brain and tamponade with iodoform gauze. It would seem from the history of the cases reported, in which this method has been followed, that the brain tolerates the pressure of the gauze for a day or two very nicely.

I have here a photograph which was sent to me by my friend, Dr. Bernays, of a case of focal epilepsy involving the right arm in which I saw him remove the thumb, wrist and part of the arm centers. It was as good a demonstration as I have ever seen, both with respect to the focus of irritation and its effect upon the arm, wrist and hand, and also with reference to the effect on the boy after the operation.

was completed. There was a history of slight traumatism and there was a small area of thickening of the cerebral cortex which was removed, involving the centers I have just mentioned. As the patient came out from under the anesthetic he struggled vigorously with all his muscles, with the exception of this member, and that remained perfectly helpless. If an exchange of paralysis for the focal epilepsy was fair, the boy was improved, but the remote results I have not heard. (Here Dr. Lydston passed around a photograph of the boy.)

In conclusion, I will state we have great reason to hope that the therapeutics of epilepsy will be greatly improved, but frankly, I do not believe there is much hope of improvement in the direction of operative measures for the relief of this disease. I am sorry to state this as my conviction, but I believe it is logical.

LARYNGOLOGIC RELATIONS OF EPILEPSY.

DR. EDWARD T. DICKERMAN—Not having any personal experience with this rare form of the disease, I depend entirely upon the literature of the subject. What rôle does the larynx play in epilepsy? This question must be answered under two heads: 1, the part the larynx takes in an attack of epilepsy; 2, the part it plays as an etiologic factor.

Under the first division I will say little, merely mentioning the tickling and burning in the larynx which is often experienced during the aura or prodromal symptoms. The characteristic cry or groan, caused by air being forced through the spasmodically contracted larynx, this spasm of the glottis often causing a sense of distress or choking. During the attack, when vomiting occurs, there is danger of foreign matter entering the larynx, while in an insensible state, choking the patient and sometimes causing death. Following an attack we may have loss of voice for a time, due to the general nervous discharge, inhibiting probably the higher centers of the brain.

Under the second head, What rôle does the larynx play as an etiologic factor, much has been said and little really known. In 1876 Charcot described a case with about the following symptoms: A man in good health is suddenly attacked with tickling and burning in the throat, accompanied by more or less coughing, some dizziness, and falls to the floor unconscious. This lasts from a few seconds to a minute, when consciousness returns without any mental or physical disturbance. This train of symptoms Charcot describes under the name of laryngeal vertigo, and advances the theory that it is analogous to Ménière's disease, and that the superior laryngeal is the centripetal nerve affected. How so clear and acute an observer as Charcot could distinguish a similarity to the distressing symptoms of aural vertigo, with its well-defined symptoms, is not known. Up to date, twenty-one cases have been reported, all but one being males, with an average age of 50 years. Gray reports a case, with a careful *résumé* of the subject, and finding in one of Charcot's cases as well as his own, muscular twitching or spasm, comes to the conclusion that the disease is epileptic in character, and describes it as laryngeal epilepsy.

McBride considers the disease, or at least the loss of consciousness due to a complete spasm of the glottis, causes an increased air pressure in the alveoli of the lungs, preventing the circulation, or interchange of blood in the capillaries, therefore less blood in the left side of the heart. The spasm in the neck and thorax, retarding the blood in the veins, causes a cerebral venous hyperemia, and an arterial ischemia, and thus produces unconsciousness by the disturbance of the blood supply to the higher centers of the brain. McBride cites the well-known experiments of Weber, who with contracted larynx and forced expiration, was able to produce decreased action of the heart, unconsciousness and slight muscular twitching. McBride's experiments were on the same line, with the exception that he used the sphygmograph and found that the ascending line of the tracing was much diminished. This theory, although plausible, does not explain why in tabetic crises and other forms of severe laryngeal spasms, we do not have the same result.

Cases have been reported by Gasquet, Krishaber, Loefferts, McBride, Russell, Masee, Knight, Gleihsman, Dauvan, Lennox Brown, Armstrong, Phillips and Adler, twenty-one in all. Of these, twenty were males, with an average age of 50 years.

Unfortunately, the histories of these cases have not been complete, especially in regard to the nervous history and condition of the patient. Two or three cases, I think, can be thrown out, being cases of syncope due to the violence of the cough, these cases never having another attack. In the majority of the cases, prodromata or tickling or burning in

the larynx were present. In ten cases cough was slight. In two cases cough was spasmodic. Three cases had severe attacks of coughing. In eleven cases no confusion after an attack; one case experienced slight confusion. In four cases congestion of head and face was noted. Spasm of the glottis is recorded in about half the cases. All cases are reported cured by some laryngeal or pharyngeal treatment, either operative or medical.

From the above cited symptoms what deduction can be made? We know that with the epileptic habit present we can have a laryngeal reflex epilepsy, as in the well-known case reported by Summerbrod, in which there was a pronounced epilepsy due to an intra-laryngeal tumor, the attacks ceasing on the removal of the tumor. But here the epileptic habit was established, he having had attacks before which ceased on the removal of a scar from his hand.

1. Given, therefore, the presence of the epileptic habit, we may have epilepsy due to laryngeal irritation.

2. The above cited cases present the cardinal symptoms of the petit mal from the epilepsy that is unconscious with or without muscular spasm.

3. Although the symptoms of epilepsy were cured, the subsequent history is necessary to learn whether the habit remains.

PEDIATRIC RELATIONS OF EPILEPSY.

DR. ROSA ENGELMANN—Epilepsy in its pediatric relations resolves itself into a question of responsibility. The pediatrician is the first consulted relative to eclampsia, one of the most frequent disorders of infancy, childhood and youth. It necessitates great diagnostic acumen to differentiate, and accept or reject, the etiologic factors of this symptom. Chronic organic and acute cerebral and spinal diseases first pass in review. Next comes the functional neuroses from reflex irritations. This category includes the hematogenous auto-intoxications and infections of the chronic and acute general diseases, such as rickets, tuberculosis, syphilis, malaria, scarlatina, diphtheria, pertussis, etc., as well as the ordinarily described excitants, such as colic, teething, worms etc. But even the elimination of these etiologic factors is not decisive, since any one or several of them may become the starting point of a subsequent epileptic cycle.

Youthful nervous tissue from its very immaturity and consequent instability conduces to this deplorable result. Hence the recurrence and the formation of a convulsive habit must be guarded against; for the border line between apparently harmless infantile convulsive attacks and early epileptic attacks is hardly demonstrable. Moreover, the danger of the one developing into the other is imminent. The importance of the early recognition of epilepsy is made evident by Gower's statistics. He states that 5.5 per cent. of epileptic cases develop in the first year, and 12.5 per cent. between the first and fourth years, and that one-fourth of the total number of attacks begin before the tenth year of life. Thus early life, endowed with a mobile and impressionable nervous organization, and subject to constant or repeated reflex irritations, inductive of habit formation is a determinative element in the production of epilepsy.

COLONY TREATMENT OF EPILEPSY.

DR. H. C. B. ALEXANDER—Every defective class has been specialized as to philanthropic treatment with one most unfortunate, most afflicted exception—the epileptic. As Dr. Ewart remarks, they alone have been left to work out their own salvation. Often outcasts from the family, thrust out from the schools, shunned by fellows, refused industrial employment, left to idleness and ignorance, friendless, and drifting at last most likely to the workhouse. They are "not so much born into this world as damned into it." What is to be done with them? The civilized world would cry out if it were proposed to place them in a lethal chamber, but after all would it not be more merciful to kill them thus, instead of allowing them to live from day to day a life of misery and despair? If we grasp the central truth that the child is father to the man, we are masters of the future. The impressions and surroundings of childhood mold character. The slums, the alleys, the evil example of parents, the surroundings of dirt, sloth, idleness and dissipation, the absence of restraint, the want of religious and educational influence are responsible for crime and criminals. Collectively and individually the responsibility rests upon man—he can not shelve it by throwing the blame on heredity. It is for the public to cast an ægis over childhood, and fully to accept the debt and responsibility due to epileptic children. As a good many of these unfortunates are as bright, intelligent, capable of being educated, as well adapted for industrial pursuits as ordinary human beings, the injustice to the

epileptic locked up with the insane becomes apparent. What they require is industrial training combined with medical supervision.

Movements for this much neglected class began with classification of patients in insane hospitals. As these grew in size and the cottage system was adopted, the possibility of separate colonies for epileptics became apparent.

Over forty years ago a clergyman, Mr. Bodt, established a colony at La Force near Lyons, France, which is still in a flourishing state and doing excellent work. A more extensive experiment was made in Germany about twenty-four years ago. Pastor von Bodelschwingle, a Lutheran clergyman, advocated a refuge where these sufferers might be cured, if curable; where they might have a comfortable home if recovery were impossible; where they could develop their mental faculties in the highest degree by acquiring trades or taking part in whatever occupations they might select, finally developing into a community of educated, industrious and contented citizens. He purchased a farm near Bielefeld (Westphalia), and with four epileptics established a colony which gradually expanded. In 1878 it contained 250 epileptics; in 1882, 565, and at the present time considerably over 1,100. During this period 2,407 have been received, and of these 156 recovered, and 450 improved. The colony with its gardens, farms, and cottages is scattered over 320 acres of beautiful woodland and meadows. The chief features in the management are the system of decentralization, the division of the patients, as much as is possible, into small families residing in cottages, the separation of the sexes and of the feeble-minded from those whose mental faculties are more or less normal. To secure a sufficient number of male and female nurses, training schools have been established. The authorities not only have a supply for their own use, but are enabled to send them to distant places.

Making and repairing wearing apparel, knitting fancy work, the laundry, etc., furnish employment for the women, who are also to be seen attending to the gardens. Men have a greater variety of occupation; the printing establishment, book-binding, illuminating picture cards, floriculture, agriculture and fruit raising. There are also a bakery, foundry, tailor and boot shops, dairy and brick-yard. In all, there are over thirty different callings which employ many hands. An orchestra is made up from their own ranks. There is everything to distract the minds of the patients. Every workshop has its mattress ready for use, and there are plenty of willing hands always about to help those who may happen to have a fit. The colony is a hospital for the use of epileptics, and a school for the education of epileptic children, an industrial institute for the adults, and an asylum for those who become insane. The Countess of Meath, speaking of a visit to these colonies, remarks: "Though the men do occasionally hurt themselves in falling, they do not seem to suffer more serious injuries in these workshops, where dangerous tools are about, than if they were employed in an occupation not necessitating their use. And what a blessing must employment be to these poor fellows, giving them the means of forgetting their afflictions and making them realize that they are able to take part in the work going on in the world."

Since the successful establishment of this colony, several similar institutions for epileptics have sprung into existence on the continent. Among these are Rotenburg in Hanover; Maria Hilb near Munster, and Olpe in Westphalia; Alexandra-Kloster at Aix-la-Chapelle, and Rath near Dusseldorf for the Rhenish Province; Neinsted-Thale for Saxony; Tabor near Stettin for Pomerania and Posen; Karlshof near Rastenburg for East and West Prussia; Potsdam for Brandenburg; Haarlem in Holland and Zurich in Switzerland. As might have been anticipated from the altruistic peculiarities of epileptics in insane hospitals, it has been found in these colonies that no harm is done by bringing epileptics into contact with each other. They feel on an equality with their fellows in such a place, losing that sense of isolation and singularity which they can not but observe in the ordinary world as separating them from the rest of mankind. They enjoy caring for each other and being kind and helpful to their fellow sufferers. It has been noted also that the number of seizures almost always diminishes upon entering the new, hopeful, encouraging life together by the busy community.

The movement for epileptic colonization began in the United States in Ohio. At Dr. Peterson's suggestion, Gallipolis was selected. The buildings unfortunately are grouped too closely to subserve best the purposes of an epileptic colony. In California, buildings for the epileptics have been

erected in the grounds of the Home for Feeble-Minded. A law was passed by the Legislature making the State Board of Charities, a commission, to select a site and prepare plans for an institution for epileptics. The law was authoritative in requiring the tract of land secured for the purpose to be 400 acres or more in extent. The whole scheme of building to be arranged on the colony or village plan. It will receive patients next spring.

In Massachusetts there was opened, in 1882, the Hospital Cottages for Children, at Baldwinville. The institution was first organized as a private charity, but is now governed by five trustees appointed by the Governor and fourteen appointed by the corporation. It has been liberally aided by the State. Children under 14 years of age are admitted who are suffering from epileptic or epileptiform seizures; children suffering from nervous disorders, not feeble-minded; children with deformities, diseases of the joints and infantile paralysis; also those needing surgical operations and fitting supports. Sept. 30, 1893, the hospital contained 103 children. The whole number treated during the fifteen previous months was 170, about two-thirds of whom were epileptics.

In Pennsylvania the Elwyn Training School for Feeble-Minded has two buildings for epileptic boys and girls. The Church of St. Clements, Philadelphia, has a small hospital for sane epileptics. The Michigan Legislature has passed a law for training epileptics in separate buildings on the cottage plan. The Minnesota Training School for Feeble-Minded has established an epileptic department with special supervisory care. The King's Daughters of Baltimore, Md., have purchased a small farm and are attempting to establish an epileptic colony. Next to Ohio, New York has manifested most interest in epileptics. New York City long had a special hospital for epileptics and paralytics, and the creation of a State hospital had been urged for nearly twenty years when, in 1891, a law passed for the purpose but was vetoed by the Governor in 1893.

The proportion of epileptics to the general population is about 1 to 650. These figures are, however, merely approximate, but they are under rather than over the mark. If, as justice to an afflicted class and to the community demands, provision be made for this class in Illinois, whose self-respect requires that it lag not behind Ohio and New York, then the estimates should be made on a basis of 2 in 1,000 as a beginning.

The main principles to be observed in the organization of such a colony are, as Drs. Peterson and Ewart have shown,—land, to consist of at least 500 acres, adapted to agriculture and horticulture. This land should be within easy access of a large city, giving a ready market for produce; three small buildings, to be arranged into separate divisions for the male and female patients, each of these divisions to make provision in separate cottages for the insane, the convalescents, the school children, the workers and private patients of the higher classes; every patient, without exception, should be under medical care and there should be a medical man for every 200 patients; an educational building for epileptic children; workshop for adult epileptics, farm buildings, dairy, etc., and a special laboratory for the study of epilepsy by a skilled pathologist.

(To be continued.)

Oleomargarine in the Navy.—In New York, the State Department of Agriculture has supervision of the sale of oleomargarine. A prosecution of a grocer of Brooklyn recently occurred under circumstances going to show that the sailors of the United States Navy regard oleomargarine with favor, as an article of diet. The statement was made in court that so long as this substance looks like butter and does not become rancid the sailors make no inquiry into its origin. He has found that it keeps better in torrid climes, and very few warships go out of port for any southward cruise without a large stock of the imitation butter. While any person may legally keep and sell this substance, if it is labeled and known to be oleomargarine, it is unlawful to sell it as butter. This is State law, and not Federal law. There is no United States law against this sale. Accordingly the defense was entered for the accused grocer that his sales were made in the navy-yard and not in the State of New York. It so happened that the particular sale, in which the grocer was detected by the agents of the State Department, was to fill an order for oleomargarine that he had received from the navy-yard.

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SATURDAY, NOVEMBER 10, 1894.

DIET OF THE PAUPER INSANE OF NEW YORK CITY.

DR. AUSTIN FLINT recently testified before an investigating commission in New York, regarding the relative dietaries of hospitals, asylums and correctional institutions. From 1867 he has been a real or nominal consultant as to the dietaries to the Commissioners of Charities. He testified that he was not called upon very frequently to give advice, and in fact could not name the year of, or occasion for, his last consultation in this capacity. He further testified that his advice was not always followed; for example, the diet tables prepared by him for the insane were not put in use, but the Commissioners, in their wisdom, saw fit to adopt for these demented the tables that had been intended for criminals and workhouse people. The tables, as framed by him, would have given the insane the same dietary as had been arranged for the sick in the hospitals. And he explained his principle of action in this regard in this manner: He felt that a discrimination should be made in favor of the lunatics and the sick, they having been guilty of no crime, so that they should be allowed more food, in these tables, to keep them in the best condition possible, while the criminals were entitled to only such diet as would keep them in a fair condition of physique.

DR. FLINT condemned the use of coffee mixed with chicory, and the boiling of tea for an hour or more could only spoil a good article. He condemned the use of molasses and found that the quantities of butter and fish—three-quarters of an ounce of the former at breakfast and supper, and eight ounces of the latter—were altogether too limited. The quantities of certain important articles, as eggs, butter, fish, were in the city institutions below those in the

tables supplied to the State hospitals for the insane. From this, and other testimony, the discriminations against the city insane have been brought into view. There has been, even, a favoritism displayed toward the criminal demented. The criminal insane of New York City, who are consigned to the State Asylum at Matteawan, have an allowance of \$3.75 per week; while the city charges, guilty of no crime, receive only \$2.73 per week, taking the average of five years. Under the State Commission, no such discrimination is made between the pauper and criminal lunatics, and this has been one of the fortunate results brought about by the legislation of the last three years. The insane of the State of New York have been benefited by the principle of "State care," and New York County may come in under its provisions so soon as the politicians can be induced, or compelled, to relax their hold on the throat of the pauper demented.

A NEW FIELD FOR THE COLLEGE.

The remarkably healthful season of 1894 has given the average doctor plenty of leisure in which to ponder many things. Among them none, probably, has received more attention than the fact that the struggle for medical existence is, year by year, growing sharper and more strenuous. Whether it be that people are becoming more healthy or that the supply of doctors is excessive, the fact remains; and, in either case or both, any new avenue to increased usefulness and consequent increased income must be welcome.

Such an avenue seems to offer in the present period of development of our public health services—National, State, municipal and rural. The amount of work these services already accomplish, even in their relatively inchoate condition, and their beneficial effect upon the public health, can not be over-estimated; indeed, it is not at all unlikely that to their efforts is due some considerable share of the lessening demand for the doctor's services. There is, too, the further consideration that the average practicing physician does, in the aggregate, a vast amount of volunteer sanitary work for which he not only receives no compensation but which, *pro tanto*, reduces his paying practice. To the extent that all this is true there would be a practical as well as poetic justice in securing for the physician a fair proportion of the amount the community saves by being kept well, through improved sanitary conditions and the efforts of preventive medicine, over and above the sum which would otherwise be paid for being treated when sick with preventable disease.

The present outlook offers no immediate remedy for this anomaly—an anomaly which is peculiar to the medical profession whose members after having qualified themselves by years of expensive study for

the treatment of disease, voluntarily and without pecuniary recompense exert themselves to limit and prevent disease. The logic of the situation, however, points to a near future in which the forces of preventive medicine, sanitary administration and public hygiene shall be organized so effectively as to compel recognition by the Nation, the State and the community, and so secure adequate compensation for services now but poorly paid for or wholly unrewarded. As a step to this consummation, the JOURNAL offers for the consideration of the Medical Colleges of the country, the suggestion that the degree of Doctor of Public Health, or its equivalent, be instituted and that provision be made by them for the necessary course of instruction.

Such a degree was first established by the University of Dublin in 1871, when the status of sanitary administration in Great Britain was little if any better than it is in the United States to-day; the example was followed by the Universities of Cambridge and Edinburgh in 1875, and the increasing number and influence of diplomates in Public Health finally led to the recognition of the diploma by an Act of Parliament, which provides that no person shall be appointed medical officer of health in any district unless he is legally qualified to practice medicine, surgery and midwifery; nor in any district of over 50,000 inhabitants unless he is also the holder of a diploma in sanitary science, public health or State medicine. The present effective sanitary administration of that country and the recognized status of its sanitarians, their rewards and honors, are largely due to this degree, voluntarily instituted by a medical college at the instance of the leaders of the medical profession.¹

There can be little question that similar action by our medical schools will produce similar results. Not less in the interest of the development of our sanitary administration than in the practical interests of the profession—in furnishing an assured vocation for a large number of its members—there should be some provision whereby the membership of State and local boards of health, and especially the executive positions of all health organizations, could be filled by men especially fitted and trained for the work, such qualification to be duly attested by the degree of D. P. H.

"IMPEACHING" A HEALTH COMMISSIONER.

The current chapter in the disgraceful history which the city of Milwaukee is making for itself, in connection with the smallpox epidemic, is the "im-

¹ Dr. Charles E. Paget, in a recent presidential address on "Some Imperfections of Public Health Administration," says: "I believe that the University of Dublin even held its first examinations [for the degree of D. P. H.] in 1871, before the passing of the Act which made the appointment of medical officers of health obligatory in England and Wales." He adds, in the same connection, "Let it, therefore, be clearly understood and remembered that this additional impost on medical education was made for the welfare of the country and to the honor of our profession—voluntarily and from high motive, not by legislative decree or in deference to popular demand."—*The Lancet*, Sept. 29, 1894.

peachment" by the City Council of the Commissioner of Health, DR. WALTER KEMPSTER. The JOURNAL has, from time to time, recorded the anti-vaccination and smallpox riots, the lawlessness and bloodshed, which have attended the efforts of the health officers of that city to enforce the public health laws of the State and the municipal sanitary ordinances. The courts have sustained the health authorities in their legal right and duty to enforce vaccination, to remove smallpox patients to isolation hospitals and to erect and maintain such hospitals. These authorities assert that they are powerless to enforce their rights and to discharge their duties because of the hostility of the City Council and have appealed to the State Board of Health for assistance. That body has made an investigation and in its report sustains the Health Department, indorses its action, and recommends to the Governor that military force be employed, if necessary, to enable the Department to cope with the epidemic. GOVERNOR PECK has refused to do this, on the ground that the city has not yet exercised its own authority nor exhausted its own resources. Meanwhile, the disease continues to spread. Less than half the known number of cases are in the isolation hospital, an unknown number are concealed, the deadlock between the City Council and the Department of Health gives no signs of being broken, and a well-informed correspondent of the JOURNAL writes: "The disease has such a start now that I do not look for its speedy termination under any circumstances, and fear that it will only cease to exist after it finds no more material to feed upon."

The attempt to impeach DR. KEMPSTER is based upon charges that undue force was used to remove patients to hospital; that officers of the Department spread contagion by riding in public vehicles; that patients not afflicted with smallpox were taken to the isolation hospital and convalescents discharged while still in a dangerous state; that quarantine was imperfectly maintained and the hospital shamefully mismanaged, etc. Many of the charges are trivial, some notoriously untrue and others susceptible of such explanation as to relieve DR. KEMPSTER of any responsibility for their existence. But even if it were admitted that all the charges were well-founded, that would constitute a sorry defense for the attitude of the City Council of Milwaukee in neglecting to secure first a vigorous enforcement of the existing sanitary ordinances which they are sworn to support, and a proper respect for law and order of which they are supposed to be the guardians.

The investigation of DR. KEMPSTER at the proper time may or may not be justifiable; of that the JOURNAL does not assume to judge. But it is not now the proper time, and never will be, so long as such investigation interferes with or delays the suppression of a loathsome disease whose unrestrained existence and spread menaces other communities and commonwealths.

SANITATION AT THE COMMUNION SERVICE.

The Bedford Avenue Church (Baptist) of Brooklyn, New York, has followed the example of a church in Rochester, in bringing into use individual cups for the communion service. This step has been under consideration for six months, under the lead of the pastor, DR. GUNNING, who is a graduate in medicine. The cups adopted in this instance have a capacity of one-half an ounce, and the wine that will be used will be an unfermented grape-juice. This new arrangement will for a time stand as the ultra-sanitary plan for this act of church ritual. The most weighty argument that has been used for the furtherance of the new plan has been that there seems to be no good and sufficient reason why cleanly people should drink from one common sacramental chalice, any more than the same people should have a repugnance to making use of one common teaspoon, or one common toothbrush.

It may not be easy to bring proof that any given case of disease has been communicated by means of the churchly chalice, but these two congregations, above referred to, are content to serve as pioneers and to give themselves the benefit of the doubt, as against the possible spread of diphtheria, and the like, by the common drinking vessel.

THE ASSOCIATION TREASURER'S NOTICE.

It is extremely gratifying to observe the unanimity and good business sense shown by many members of the ASSOCIATION in paying prompt attention to the notice of the Treasurer. There are, however, many members still in arrears for the annual subscription due last June.

The JOURNAL, grateful for the cordial and kindly responses already made to DOCTOR NEWMAN'S request, yet hopes that the next month may show all membership arrearages paid in full. To that end we earnestly urge those in arrears to make prompt remittance to the Treasurer, in order that the ASSOCIATION treasury may show a handsome balance on the right side of the ledger, and that the JOURNAL may commence the new year with that strength which always accompanies a solid bank account.

CORRESPONDENCE.

The Dispensary Question.

CLEVELAND, OHIO, NOV. 1, 1894.

To the Editor:—I have noticed that our JOURNAL has from time to time denounced the "dispensary abuse," but, on the other hand, I have noticed the apparent apathy of the profession in regard to this question. I would call your attention to the fact that here in Cleveland we have the profession at large agitated over the question of the dispensary abuse, partly brought about by a trial going on between two homeopathic physileans in regard to this dispensary question—the judges in the case being two trustees of their college.

In my own case the trial was before a jury in a justice

court. I sued the defendant for services rendered. The defendant came to the college dispensary looking for the surgeon who treated cripples. On being questioned he asserted a willingness to pay. He stated that he had a correspondence with Columbus, Ohio, parties who would correct the club-feet of his boy for \$500. He stated that \$500 was too much, but that he could pay a reasonable fee. I agreed to do it for a reasonable fee—less than \$500. For personal convenience I very commonly have private patients from in and out of town go to the college building, when a plaster-of-Paris dressing is required, but it is not applied in the presence of the class. This is done at the college instead of my office, on account of having plenty of help at the college, and also that it saves my office from being littered with plaster.

In this case I applied plaster to the child's feet several times at the college building. The operation was performed at University Hospital. The treatment was continued at the defendant's home and my office—lasting in all about four months.

The defendant re-assured me over and over that he would pay, and acknowledged indebtedness in the presence of others. Finally, when I tried to collect my fee he denied indebtedness, claiming that I treated his child as a clinical case before the class. My answer to this was that there was no session of the college and therefore there was no class. I sued for \$262.50. The defendant had paid on account \$5. The jury granted \$143 with interest for three years.

In discussing the "dispensary abuse" there is no chance for argument in regard to the deserving poor—they are never turned away from dispensaries to my knowledge. The question is, Is it right for a dispensary to treat the well-to-do? My argument on the subject is as follows:

I hold that the services of dispensaries are maintained solely for the poor. That, in return for the services rendered, the poor patient may be used for clinical teaching. That the wealthy make donations to the institutions on the representation that the money is to be used in this way. That to obtain donations in the aforesaid manner and then to use the funds so obtained partly for the benefit of the well-to-do, is usually called "*obtaining money under false pretenses*," and is punishable by fine and imprisonment.

But we all know that this abuse exists, and what is the cause? As I see it, the incentive is the inherent selfishness of man; it is largely brought about (especially in the great cities of the East) by the men at the top—those in authority. The professor says to himself: "The larger the clinic, and the more assistants I have, the more important is my position. Then, these middle-class patients do not come from my following—I lose no practice by it." It was from the same motive that one of the Vanderbilts was led to say: "The rights of the public be d—d." In this case it would read: "The rights of the profession be d—d."

The dispensary has no rights in the handling of patients, further than the treatment and clinical use of the poor. It has no moral right to enter into competition with the outside practitioner.

But what about the rights of the dispensary physician? He is in active outside practice and has educated himself for that purpose. He is in open competition with all other practitioners and has a moral right to increase his practice by any honorable means, *i. e.*, in this case to take what additional practice the dispensary may accidentally or incidentally bring him. What right has a dispensary to say that, we, as a dispensary acknowledge that we have no right to this well-to-do patient, but we shall not permit you (the dispensary physician) to treat him? What right has a dispensary to discriminate against their dispensary physicians? Certainly the dispensary would admit the right of some

other doctor (who might be physician to some other dispensary) to have the patient as a private case.

I am willing to abide by any reasonable rule of a dispensary as to the treatment of the poor, but will brook no dictation from any such organization as to whom I shall treat among the well-to-do.

Dr. Bishop, the defendant in the trial between the two homeopathic physicians, sent out a card to the physicians of the city, asking the opinion of the profession in regard to the dispensary abuse. He claims to have over one hundred answers, in which they all denounce the abuse, and agree that dispensaries are solely for the poor, with the privilege of using the patient for teaching purposes.

Respectfully, WM. E. WIRT, M.D.

Priority in Craniotomy and Microcephalus.

GRAND RAPIDS, MICH., NOV. 5, 1894.

To the Editor:—I desire to state through the JOURNAL, that craniotomy for microcephalus is as distinctly American as ovariectomy and several other operations instituted in this country for the benefit of humanity. I take issue with Prof. Carl Beck in his paper published in the JOURNAL October 27, and November 3, on two points: 1, in his statement that Lannelongue of Paris, is the pioneer, if I understand the meaning of this word aright to be the man who moves in first. This point, however, does not afflict me since in point of time the date of my operation obliged him to place me first upon the list of operators. I reported two cases in the same paper dated 1878, which was widely circulated in several countries and severely commented upon by both the medical and secular press. I have operated altogether five times for mental defects, with no deaths. A perusal of my paper will, I think, convince any one that I took care to make a careful diagnosis and that I was at the time conscious of the causes which produce mental imbecility, that my deductions were rational, and that I gave these cases the same careful attention that I give to any case in general practice, for which reason I demur against being set before the profession as an experimenter and human vivisectionist.

Between the years 1876-78, I read several papers upon affections of the brain before the Montreal Academy of Medicine, which were warmly discussed by such men as Dr. R. P. Howard, Dean of the Medical Faculty of McGill College; Dr. Henry Howard, Superintendent of the Long Point Asylum; Dr. Wm. Osler, of Johns Hopkins, Baltimore; Drs. Hingston, Bass, Boddick, Fenwick, and Dr. Casey Wood, now of Chicago; all eminent men in the profession and severe critics, in the presence of whom it is not reasonable to suppose that I would present a radical departure in any department of medicine, as surgery unsupported by an adequate rationale.

Furthermore, I lay claim to the originality of the introduction of veratrum virid and morphia in the treatment of convulsions and puerperal eclampsia, and of pointing out that these symptoms are caused by arterial spasm and anemia of the nerve centers. I tapped the ventricles of the brain at this time, and discovered that sometimes there was no fluid in cases in which I had expected to find an effusion, which led me to the discovery of a distinction between the coma of compression and the coma of irritation, which was published and, as far as I know, has not been noticed by the profession, though the importance of this distinction ought not to allow it to fall into neglect since the latter class of cases are amenable to treatment successfully by medicine, while the former are, for the most part, hopeless, unless we may expect something by surgical interference.

Yours very respectfully,

WILLIAM FULLER, M.D.

Doctor Diet, Doctor Quiet and Doctor Merryman.

CHICAGO, NOV. 2, 1894.

To the Editor:—One of the evening papers of this city, in quoting the well-known sentence at the head of this letter, attributes the saying to Jonathan Swift. Will you kindly state if this is correct, and oblige, yours very truly,

INQUIRER.

ANSWER:—The original is as follows:

*"Si tibi deficient medici, medici tibi fiant,
Hactria: Mens hilaris, requies, moderata dieta."*

This was in the famous "*Flos Medicinæ*" or *Regimen Sanitatis Salerni*, composed in the year 1099 by Johannes de Mediolanus (John of Milan) with the concurrence of the other professors of the celebrated School of Salerno. This book was first translated in English by Paynell in 1579, and later by Dr. Philemon Holland in 1634. Holland's translation of the sentence reads:

"When Physic needs, let these thy doctors bee,
Good dyet, quiet thoughts and heart mirthfull free."

"Mirth," says Burton, 1621 (*Anatomy of Melancholy*) "is one of the three Salernitan doctors, Dr. Merryman, Dr. Diet, Dr. Quiet, which cure all diseases."

Dean Swift was born in 1667 and died in 1745, and if he ever used the expression, was too profound a scholar not to have used it as a quotation.

A Good Word for the Eucalyptus.

CHICAGO, NOV. 5, 1894.

To the Editor:—There may be some foundation for the popular belief that the cultivation of the eucalyptus tree has a salutary influence in antidoting the poison of malaria, though in your editorial in the issue of the JOURNAL of October 27, you discredit it. Our knowledge of the origin and nature of malaria is very vague. I think, however, that rapidly growing vegetation in some way modifies the effects of the poison and renders it less harmful to the human system. I say the human system, for malaria is not observed to have any injurious effect on animals. Perhaps it is assimilated by vegetables in their growth and incorporated into their organized substance. It is likely that all growing vegetation has the same effect.

I lived for a time on the Sangamon "bottoms," when that part of Illinois was newly settled. This was a plain about two miles wide and extending twenty miles from the mouth of the river toward its source. Its elevation was not enough to prevent portions of it from being overflowed when the river was high. It had an alluvial soil of unsurpassed fertility and consequently it produced an enormous vegetable growth. This was then among the most malarious districts in the United States. Agues and other malarial fevers were annually endemic here, from September until the following April. They would then cease until autumn came again. They were not developed when vegetation was in active growth but would return when this process was at rest, yet before the mature vegetation of summer had begun to decay.

Many cases of ill health having an obscure origin and unknown pathology are attributed to malaria, but typical intermittent malarial disease is now but little known in Illinois. I do not think I have seen six cases of shaking ague in Chicago in a quarter of a century. I could find as many in one family at one time on the Sangamon "bottoms" fifty years ago. I am told by physicians practicing in that vicinity that it is not prevalent there now. The amount of vegetable product in Illinois has increased many-fold since its soil has been brought under cultivation. The native grasses would not produce more than one ton of hay to the acre. The cultivation of grasses and cereals has greatly increased this amount, and this may be the reason that malarial diseases are no longer common in Illinois. If this theory is true, the eucalyptus, being a tree of phenomenally rapid growth, should have some protective influence against this class of diseases.

EPHRAIM INGALS, M.D.

34 Throop Street.

ASSOCIATION NEWS.

Treasurer's Notice.—Members of the ASSOCIATION knowing themselves to be in arrears will please send the amount of their annual subscription to the Treasurer, HENRY P. NEWMAN, M.D., Venetian Building, Chicago, without delay.

The great expense on account of the establishment of the new JOURNAL office, makes it more than ever necessary that our members should be prompt in their response to this notice.

SOCIETY NEWS.

Chicago Gynecological Society.—At the sixteenth annual meeting of the Chicago Gynecological Society, held Oct. 19, 1894, the following officers were elected to serve the ensuing year: Dr. Franklin H. Martin, President; Dr. A. J. Foster, First Vice-President; Dr. J. C. Hoag, Second Vice-President; Dr. H. P. Newman, Secretary, and Dr. T. J. Watkins, editor. The retiring President, Dr. Fernand Henrotin, delivered an interesting annual address after which the Society adjourned for the annual banquet. Drs. J. B. Murphy, Health Commissioner Arthur Reynolds, Alex. H. Ferguson, John B. Hamilton and others were guests of the Society.

New York Medico-Legal Society.—*Psychologic Section.*—There will be a meeting of the Psychologic Section of the Medico-Legal Society at the residence of H. W. Mitchell, M.D., 747 Madison Avenue, at 8 o'clock p.m. sharp, on Monday evening, Nov. 12, 1894. The Chairman, Prof. Elliott Coues, of Smithsonian Institute, will preside.

The program is as follows: Opening Address by Prof. Elliott Coues. Subject: "Psychic Research in its Medico-Legal Aspects."

"Hospitals for the Insane and their Management." By Clark Bell, Esq., reviewing the address of S. Weir Mitchell, M.D., before the Medico-Psychologic Society.

Discussion, limited to five minutes each, by the Superintendent of Hospitals for the Insane; Experts; and Assistant Physicians; including Superintendents Page, Harrington, Quimby and Walter Channing, of Mass.; Rohé and C. K. Clarke, of Md.; C. H. Hughes and C. A. Woodson, of Mo.; Clark Gapen and Frank P. Norbury, of Ill.; Blackford, of Va.; F. C. Hoyt and Gershom H. Hill, of Iowa; A. F. Kilbourne, R. M. Phelps and C. K. Bartlett, of Minn.; John Curwen, G. R. Trowbridge, of Pa.; H. A. Buttolph, of N. J.; W. A. Gorton, of R. I.; J. H. McBride, of Wis.; W. B. Fletcher, of Ind.; A. B. Richardson, of Ohio; O. R. Long and C. B. Burr, of Mich.; Jas. T. Steeves, of N. B.; T. J. W. Burgess, of Montreal; E. S. Blanchard, of P. E. Island; R. L. Parsons and W. S. Fleming, of N. Y.; Michael Campbell, of Tenn.; C. P. Bancroft, of N. H.; D. R. Wallace, of Texas, and others.

"Popular Illusions." By J. H. Hyslop, Esq., of Columbia College, New York City.

"The Psychology of a Jury in a Long Trial." By T. D. Crothers, M.D., of Hartford, Conn., Vice-Chairman of Section. Discussion limited to five minutes. Opened by Judge A. S. Dailey.

Report of Committee, by H. W. Mitchell, M.D., Chairman, on Test Experiments in Telepathy and Mind Reading by Miss Maud Lancaster, before the Section.

"Psychologic Experiments and how the Spirits do their Work." By Prof. J. Louis Kellogg, Esq.

Professor Sundeen has been invited to make some experiments.

Report of Executive Committee on new members and other business. Each member of the Section is entitled to bring one guest. Members and others wishing extra admissions will apply to Dr. H. W. Mitchell or the Secretary. Members will please be prompt. Every member of the Society is eligible to membership in this Section on payment of \$1.50 annual dues, which entitles the member to the Bulletin free.

ELLIOTT COUES, Chairman.

CLARK BELL, Vice-Chairman and Secretary.

The Southern Surgical and Gynecological Association.—The seventh annual meeting of the Southern Surgical and Gynecological Association will be held in Charleston, S. C., Nov.

13, 14 and 15, 1894. Members of the medical profession are cordially invited to attend.

The program is as follows: Memorial Address on Dr. Warren Stone. By A. B. Miles, New Orleans, La.; Operation for Complete Perineal Laceration. By Jos. Price, Philadelphia, Pa.; Gonorrhoea in Women. By J. B. S. Holmes, Atlanta, Ga.; Some Cases of Intestinal Obstruction, with Deductions Therefrom. By A. M. Cartledge, Louisville, Ky.; Hernia of the Diaphragm, with Report of a Case. By Floyd W. McRae, Atlanta, Ga.; The Treatment of Sinuses Following Celiotomy. By W. H. Wathen, Louisville, Ky.; The Diagnosis and Treatment of Congenital Cystic Hygroma. By J. A. Goggans, Alexander City, Ala.; Some Complicated Cases of Abdominal Surgery. By J. G. Earnest, Atlanta, Ga.; Early Operation in Appendicitis, with a Case. By J. McF. Gaston, Atlanta, Ga.; Appendicitis. By W. B. Rogers, Memphis, Tenn.; Attention to Women Before and After Labor. By W. G. Bogart, Chattanooga, Tenn.; Plastic Operations for Carcinoma of the Breast. By J. T. Wilson, Sherman, Texas; Gunshot Wound of Spleen, Hemostasis by Deep Suture, Recovery. By L. McLane Tiffany, Baltimore, Md.; Technique of Vesical Drainage. By G. Frank Lydston, Chicago, Ill.; Successful Treatment of a Case of Nævus by Electricity, with Remarks. By William Perrin Nicolson, Atlanta, Ga.; The Use of Electricity in Late Syphilis. By Lewis Wheat, Richmond, Va.; Observations on the Action of Chloroform on the Functions of the Human Brain and Spinal Cord as Witnessed in Extensive Injuries of the Cranium and Brain. By Bedford Brown, Alexandria, Va.; Treatment of Abscess of the Liver. By J. D. S. Davis, Birmingham, Ala.; Puerperal Peritonitis. By V. O. Hardon, Atlanta, Ga.; Treatment of Peritonitis. By Richard Douglas, Nashville, Tenn.; Movable Kidney. By Geo. Ben. Johnston, Richmond, Va.; History of Vaginal Excitiation of the Uterus. By Geo. J. Engelmann, St. Louis, Mo.; The Present Status of Gall-Bladder Surgery. By A. Vander Veer, Albany, N. Y.; Gynecological Surgery away from the Large Cities and Educational Centers. By W. L. Robinson, Danville, Va.; Reminiscences of Dr. J. Marion Sims in Paris. By Edmond Souchon, New Orleans, La.

President's Address. By C. Kollock, Cheraw, S. C.; Transfusion in the Treatment of Acute Hemorrhage. By T. J. Crofford, Memphis, Tenn.; A Case of Vaginal Hysterectomy for Carcinoma of the Uterus, three days after Parturition. By Geo. H. Noble, Atlanta, Ga.; The Simultaneous Appearance of Cancer in the Breast and Uterus. By James Evans, Florence, S. C.; Something about the Final Condition of the Mouths in Gastro-enterostomies with Specimens. By H. Tuholske, St. Louis, Mo.; Puzzling Point in Labor. By Geo. R. Dean, Spartansburg, S. C.; Supra-pubic Cystotomy compared with Perineal Operations. By C. H. Mastin, Mobile, Ala.; Tracheotomy for Foreign Bodies in the Air Passages. By W. F. Westmoreland, Atlanta, Ga.; Ligation in Continuity with Report of Case 1. Ligation of the External and Internal Carotid Arteries and Internal Jugular Vein. Case 2. Ligation of the External Carotid Artery. By Jno. A. Wyeth, New York; The Placenta—When and How Delivered. By J. B. Murfree, Murfreesboro, Tenn.; Report of Cases of Varicocele Treated by the Open Method and Shortening of the Scrotum. By W. E. Parker, New Orleans, La.; Treatment of Cystitis in the Female. By Hunter McGuire, Richmond, Va.; Hydro-pyonephrosis—Successful Removal of a Forty-pound Tumor of the Kidney. By Jos. Taber Johnson, Washington, D. C.; The Value of Plastic work in intraperitoneal Operations. By J. W. Long, Richmond, Va.; Fibroid Tumor of the Uterus, with Suppurating Ovary Discharging per Rectum. By Rufus B. Hall, Cincinnati, Ohio; Technique of Operations on the Pregnant Uterus. By W. D. Haggard, Nashville, Tenn.; The Relation of Uterine and Ovarian Disease to Insanity. By L. S. McMurtry, Louisville, Ky.; Surgery of the Ureters. By Howard A. Kelly, Baltimore, Md.; Ideal Operation for Varicocele. By G. Frank Lydston, Chicago, Ill.; The Value of Coccygeal and Sacral Resection in the Treatment of Congenital Occlusion of the Rectum. By Rudolph Matas, New Orleans, La.; The Surgical Treatment of Spina Bifida, with an Illustrative Case. By H. O. Marcy, Boston, Mass.; Ligation of the Uterine Arteries in the Treatment of Chronic Metritis. By W. E. B. Davis, Birmingham, Ala.

The officers for the ensuing year are as follows: President, Cornelius Kollock, Cheraw; Vice-President, J. B. S. Holmes, Atlanta; Secretary, William Elias B. Davis, Birmingham; Treasurer, Hardin P. Cochrane, Franklin. Council: Lewis S. McMurtry, Louisville; George J. Engelmann, St. Louis; Hunter McGuire, Richmond; Wm. David Haggard, Nashville; Bedford Brown, Alexandria.

PUBLIC HEALTH.

Epidemic Contagious Diseases.—Both typhoid fever and diphtheria have increased in the number of cases and of localities infected in the States enumerated in last week's issue of the JOURNAL. The smallpox situation remains substantially unchanged—the only feature of note being another introduction of the disease in the ill-fated town of Walkerton, Ind. A cable dispatch of the 3d inst., reports Asiatic cholera alarmingly prevalent at Broussa in Asia Minor, causing considerable apprehension in Constantinople, where the disease has also reappeared in the Scutari barracks.

Bovine Tuberculosis.—Considerable activity is being manifested by the public health authorities in some of the Eastern States in renewed attempts to exterminate tuberculosis in cattle. In New York, recently, thirty tuberculous cows belonging to a choice herd were killed at Elmira, but criticism is made that the Commissioners take such action only upon the request of owners—usually of costly cattle for the protection of the remainder—and that no systematic inspection is made of the common dairy herds, which furnish the milk supply and which are generally kept under conditions that favor the development of the disease. In Massachusetts such a systematic inspection has been begun, with the avowed purpose of examining every cow, bull and calf, beginning at Cape Cod and extending westward until the whole State has been covered; the tuberculin test is employed and every animal that shows the characteristic reaction is to be slaughtered forthwith. On the recommendation of its Sanitary Committee the Philadelphia City Board of Health has also adopted the tuberculin test and, after sixty days' notice, any milk producer supplying the city who fails to furnish a clean bill of health for his dairy—based upon the results of this test—will be liable to have his milk supply rejected as suspicious and its sale prohibited.

Purification of Water.—A great deal has been lately written and published concerning permanganate of potash as a sterilizer of water. MM. Chicandard and Schipiloff assert that its use is simple, rapid, inexpensive and efficient. According to these authors all that is necessary is to add enough of the salt to color the water violet, and then get rid of the excess of potash by adding any harmless organic matter, such as powdered oak-bark, cinchona, kola nut, coffee or licorice. By this method they claim an absolutely innocuous water is obtained, much superior to that furnished by boiling or filtering. M. Coreil, Director of the Toulon laboratory, has completed a long series of experiments to determine the correctness of these assertions, and he claims (*Annales d'Hygiène Publique*), that, so far from confirming these optimistic views, in his opinion this method is open to very grave objections, and reliance upon it may lead to serious consequences during epidemics of typhoid fever or Asiatic cholera. Coreil asserts that the permanganate, in the quantity indicated, does not cause a disappearance of the bacteria in polluted water—only a diminution in their number. He insists that the method shall not be substituted for boiling or sterilization by heat during the prevalence of an epidemic.

Catarrh Remedies said to Contain Cocain.—Dr. R. G. Eccles, of Brooklyn, has contributed to the *Druggists' Circular* some observations as to the dangers arising from the nostrums advertised for the cure of catarrh, due to their contained cocain. He remarks that "the sober second thought has been commended by wise people through all time. When the Birney Catarrhal Powder Company took their second thought they deemed it wise to let their patrons know that they were using cocain every time they blew the Catarrhal Powder into their noses, and began to state this fact on their labels. They certainly could not have done a more discreet thing for themselves nor better for their patrons. This writer has certainly no desire to oppose those who with open eyes walk into a medical danger, but he deems it a duty to the public to point out such danger and then allow each

person to act as he desires." As to the danger, Dr. Eccles writes: "Persistent use will most likely establish a habit as bad or worse than drunkenness; to become a slave to cocain is something terrible. The writer has seen several such wrecks and they are truly objects of pity."

The Lesson of the Plague.—The *Medical Press and Circular* holds that the dangers from the plague can not be considered as having passed by. The disease is still endemic and fatal in Yun-nan and other parts of southern China, and the free inter-communication that exists throughout the Empire makes it important that China shall bestir herself to apply modern scientific methods, both preventive and curative, to the deadly disease. The Hong Kong outbreak has slain its thousands of Chinamen and a few Europeans. It has enforced itself upon the latter who survive, that the Chinese quarters of the treaty port cities are, under their present conditions a source of constant danger. The communism of disease holds sway, and it must be borne in mind that the sanitation of the native sections can not be neglected any more than the best of the town. The habits of the lower orders of the city-dwelling Chinese are filthy in the extreme, and as a consequence they are constantly keeping alive the germs of the filth-diseases, such as cholera, typhoid fever, dysentery, and the plague. This constitutes a standing menace to the Europeans and Americans who must needs reside in China that may well make the future sanitation of all parts of the treaty ports a subject for international discussion.

Cremation Among the Ancient Greeks.—One of the most interesting communications read at the recent Congress of Orientalists at Geneva was, according to *Le Progrès Médical*, that of M. Georges Perrot on "Incineration and Inhumation during the Homeric Epoch." In spite of Schliemann's opinion it is evident that inhumation was the sole mode of sepulture during the Mycenaean period, and it is evident, moreover, that it was never abandoned in Greece, at least among the poorer classes. Cremation could not have been of foreign origin, for it was unknown among the peoples who exerted any influence on Greece. It could only arise from a change in the conception of death. We know that during the primitive epoch, survival in the tomb after death was believed in. Hence the custom of placing familiar objects, such as weapons, vases, etc., along with the body, and of offering sacrifices to nourish the departed. These primitive ideas were modified little by little as experience attested the destruction of the body. Thence arose the idea of Hades, where was sent all that remained of man after death—his image, eidolon, shade. As the destruction of the body was necessary for the entrance of the shade into Hades the rite of incineration was established, not as a substitute for the old custom but as an addition. This is why in the Homeric age the tomb, no longer the perpetual dwelling-place of the dead, was a hillock surmounted by a stela—the last vestige of the former rites. The cult of the dead and the custom of sacrifices on the tombs survived elsewhere. In Continental Greece the usages of the Mycenaean period mostly prevailed, as is shown by the latest excavations at Dipylon near Athens. In this cemetery, where inhumation was long practiced, a characteristic feature is the presence of vases surmounting the tomb, sometimes reaching five feet in height. These recall the drains in the Mycenaean tombs for conducting the libations of blood, wine and milk, provided by the piety of the survivors for the dead.

Hospital vs. Home Mortality of Smallpox.—One of the principal charges upon which the attempted impeachment of the Health Commissioner of Milwaukee is based, is that of maladministration of the isolation hospital. It is admitted by Dr. Kempster that the hospital is and has been greatly overcrowded—upward of seventy patients at times being thrust into quarters intended for only fifty. In fact, it was the attempt to establish another temporary smallpox hospital, to relieve this overcrowding, which led to much of the existing friction. But the effects of the alleged mal-adminis-

tration are not obvious in the records of the epidemic, and from which the following figures are taken:

| | | |
|---|-----|-----|
| Total number cases of smallpox in Milwaukee, January 1 to October 20, inclusive | | 517 |
| Number treated at hospital | 341 | |
| Number treated at home | 176 | 517 |
| Recovered at hospital | 202 | |
| Died at hospital | 78 | |
| Remaining October 20 | 61 | |
| | 341 | |
| Recovered at home | 55 | |
| Died at home | 59 | |
| Remaining October 20 | 62 | |
| | 176 | 517 |

These figures show a mortality of 27.8 per cent. among those removed to and treated in hospital, as against a mortality of 51.7 per cent. among those who resisted removal to hospital and were treated at home. The "mal-administration" which resulted in only 78 deaths instead of 144—which would have been the number under the home mortality rate—can not have been very serious.

NECROLOGY.

HENRY VAN BUREN, M.D., of Chicago, October 28, aged 59.—G. E. Garrett, M.D., of Peoria, Ill., October 29.—William P. Overton, M.D., of Cold Spring Harbor, L. I., October 24, aged 74. He was President of the Queens County Medical Society.—John Jackson, M.D., of Whitewater, Wis., October 20, aged 80.—John Wiggins, M.D., of St. Louis, October 28.—J. C. Jones, M.D., of Wymore, Neb., October 30.—E. J. Hutchinson, M.D., formerly of Bloomington, Ill., died at Lakota, S. D., November 2, aged 50.—James M. Justice, M.D., of Logansport, Ind., November 2, aged 77.

MISCELLANY.

Physicians Living in Chicago.—It is estimated that there are about 3,400 physicians within the corporate city limits of Chicago, embracing a territory of 186½ square miles, and a population in round numbers of 1,625,000 inhabitants.

The German Hospital of Brooklyn.—On October 22, the corner-stone of a future great hospital was laid in Brooklyn, New York. The property covers an entire block and the structure is planned to expend a quarter of a million of dollars. The Mayor of the city presided and a vast concourse of devoted Teutonic friends were present and sang chorals and paraded the streets of the German section.

An Eye to Business.—The medical student of the period is quite up to date. Noting the field for surgical practice opened up by the collision of opposing leagues he, too, is organizing himself for the football fray, *pour encourager les autres*. The Columbia College (N. Y.) Medical Department Football Association has arranged for a game with the team of the Long Island College Hospital, has challenged the Bellevue Hospital College men and is trying to arrange games with the Yale freshmen and the Brooklyn Polytechnic. The Rush Medical College (Chicago) eleven recently trounced their opponents by a score of 36 to 4; and the returns from the medical schools are not all in yet.

Episcopal Hospital of Philadelphia.—A bequest of \$15,000 will soon be paid this hospital, under the will of the late W. V. Lippincott. The same hospital is also residuary legatee. Numerous other institutions receive sums of five thousand dollars or over. Among these are the Memorial Hospital at Roxborough, Home for Crippled Children, Home for Incurables, St. Christopher's Hospital for Children, Kensington Hospital for Women, School for Feeble-Minded Children, Institution for the Deaf and Dumb, besides two or three other asylums for children. If the estate, when divided, reaches a total larger than these primary bequests, the Pennsylvania Hospital for the Sick and Injured and the Pennsylvania Hospital for the Insane will receive each a gift of \$5,000.

Women-Doctors in Turkey.—A late number of the *Revue Bleue* contains an article by C. Chryssafides, in which he argues that the recent imperial irade by which women are allowed to practice medicine in Turkey has political importance of the highest degree. The writer thinks that this concession will meet "a long felt want." We know that Mussulmans are unwilling to allow male physicians to enter the harem; consequently, Moslem women, either through timidity or by order, are forced to resort to female quacks, and only consult skilful practitioners in cases of exceptional gravity. The Sultan's irade will probably change this state of things and assure women-physicians an influential standing in Turkish families—all the more so since Orientals profess great veneration for doctors. Chryssafides has no trouble in proving that at the Ottoman court the doctors of the palace always have been and are at present very influential personages. It follows that not only will doctresses be secure in their practice in Turkey, but they will exercise a great deal of indirect political influence for their respective countries. We may be sure, says the author, that the English and German governments will not neglect this double opportunity very long; and it is not likely, he adds, that the Bible societies will remain inactive either. Russia would seem to have been more astute in this matter; as heretofore noted in the *JOURNAL*, the government has authorized the foundation of a woman's medical college in St. Petersburg, and the reason now given for this action is that women who desire to enter the profession may not have to go to France or Switzerland, "where they are likely to become imbued with nihilistic principles."

A New Mission Hospital Opened in India.—A new institution largely supported by American means has been built at Miraj, about two hundred miles southeast of Bombay. The opening took place last Fourth of July. The walls were hung with the "Stars and Stripes" side by side with banners of the native State and with the British colors, and the presentation ceremony was participated in by Bala Sahib, the Chief of State. The municipal secretary and numerous other visitors of rank were present, some of whom made addresses. One of these was made by an ex-Kharbhari, or Secretary of the State, Mr. Rao Bahadur Sitaram Chitray, a man greatly beloved by his own people and a constant friend of the new undertaking. Some of his expressions are very quaint. He began his remarks by referring to the successful treatment of his own case by the medical missionary. He proceeded as follows: "The surgeon in chief of this hospital is a kind-hearted physician and surgeon, and being a missionary, treats rich and poor alike. His skilful treatment of my case is only an example of the kind and careful treatment given to all who come to him. Since the introduction of the good British rule, great and many are the improvements in this land, but none of these are more useful than the charitable medical hospitals established by Government. It is true that we had a number of good native physicians, but they were available only to the rich, and their knowledge of anatomy and physiology was not to be compared with that of a doctor of the present day. The science of surgery was not known to them. At the present time, therefore, the charitable dispensaries and hospitals in India may be called the greatest boon to the people of all ranks everywhere. This hospital is an example of this, as it will give medical aid to thousands in Miraj and the southern Mahratta country. The climate of Miraj being excellent, the sick will always consider this place a sanatorium, as Dr. Unless understood when he chose this site.

"I have been thanked by the President of the Mission for my interest in its work, but although I have a great personal interest in it, I do not deserve such thanks. These are due only to Bala Sahib, the Chief of Miraj, who is, as we all know, an enlightened prince who takes deep interest in the welfare of his subjects, and has therefore given faithful and kind support to the Mission."

Lay Appreciation of the Doctor's Hard Lot.—In an editorial notice of the addresses delivered at the commencement of the academic year at the various metropolitan medical schools the *Morning Post*, London, October 2, gives some pleasant words appreciative of the hard lot and unremunera-

tive work of the general practitioner which are as applicable in the United States as in the island of Great Britain: "It is a somewhat melancholy thought that men of high ability, of indomitable energy, and of laudable ambition are too often compelled to spend their lives in a constant round of hard work which brings them almost as little pecuniary profit as professional distinction. Such cases are by no means rare, and they do not deserve less sympathy because they are one of the inevitable consequences of the struggle for life under modern conditions. For such men, however, there should be, and doubtless there often is, a very real compensation in the consciousness that the work of the ill-paid general practitioner is neither less honorable nor less useful than that of the most fashionable specialist of the day. It is, indeed, infinitely creditable to the rank and file of the medical profession that they do their work with an amount of zeal and of patience which are matter of common knowledge and universal recognition."

And even the hard lot of the medical student of to-day meets with public appreciation and sympathy: "There are plenty of men yet in practice who can recall the time when the student had, at least before he arrived at the stage of practical work in the wards of the Hospital, very little to do except to study anatomy. Physiology, as a separate branch of study, scarcely existed at all; while the whole enormous modern development of microscope work was absolutely unknown. Naturally the student's life in those days was considerably easier than it is at present, and he was comparatively untroubled by the fear of failure in examinations. We have changed all that now, and, in consequence, the rollicking medical student of tradition has ceased to be a type and figure of the class which he once represented with sufficient accuracy. Is it not, indeed, significant that at one hospital the students should have been warned recently not against idleness, but against excessive study? Mr. Robert Sawyer and Mr. Benjamin Allen might well rub their eyes in profound astonishment if they could hear that—to them—supremely unnecessary admonition."

Abandonment of Fort Supply, Oklahoma.—The post hospital of this military station was closed October 15, last, in accordance with recent orders requiring the abandonment of the post. Camp Supply was established in 1868 as a base of supplies against the hostile Cheyennes and Arapahoes in the Indian Territory. The site selected was a sandy bottom between two creeks, Wolf and Beaver, which by their junction a short distance below, form the north fork of the Canadian River. This, at the time and for several years afterwards, was regarded as a most injudicious selection on account of the malarious surroundings. The country in this vicinity consists of high rolling prairie land with occasional ranges of hills broken by deep ravines in which is a scanty growth of red cedar. Many streams cross the prairie in an eastward course, the bottom lands usually broad sandy tracts whitened with an alkaline efflorescence. The climate was found to be very variable with hot and dry summers and inclement winters, sand storms in the one season and biting northerners in the other. Vegetables were scarce, and all attempts to cultivate them proved unsuccessful on account of the poverty of the sandy soil. Game, however, was plentiful until of late years when it became comparatively scarce. At first the officers of the command were quartered in tents and the men in dugouts, about four feet deep, lined with cottonwood logs which rose three feet above the surface and supported a roof of logs, straw and earth. The next year stockaded quarters were built, but as they were roofed and floored with mud they were as leaky, damp, uncomfortable and almost as unhealthy as the dugouts.

In 1873 new buildings were erected, stockaded walls as before, but with shingle roofs, ridge ventilation and pine flooring. The walls and ceilings of the officers' quarters were lined with canvas which, in the language of an official report, "was nicely whitewashed." The partitions between the rooms were lined with canvas which had the very superior advantage of being altered to suit the taste or convenience of the occupants. The official report already cited spoke of the guard house as holding out but few inducements for men to become inmates of it. The hospital was the best

building at the post. In the course of years, however, the post became much improved in comfort and sanitary condition. Seven sets of company barracks were erected, each 100 by 22 feet, with wings 68 by 22, and a wide veranda along the front. Bathrooms and lavatories in the wings were supplied with hot and cold water. Officers' quarters were two-story frame buildings with many conveniences. A handsome brick guard house was erected recently. At first the water supply was taken from Wolf Creek, the delivery being by barrels in the water wagon; but afterwards spring water was piped into the post from a ravine two miles distant. A dam was built to collect the water and a wire fence put up to exclude cattle. The receiving reservoir had a capacity of 80,000 gallons and the distributing reservoir held 100,000 gallons. The sewers of the post received none of the surface drainage. The level of the subsoil water fluctuated with that of the creeks. The sewerage system consisted of 4 and 8 inch pipes, with automatic ventilating and flushing tanks, the outfall being into Beaver Creek half a mile distant. With the introduction of the spring water the prevalence of malarial diseases has been much lessened, and of late years there has been but little endemic disease. Measles was at one time introduced by recruits from Columbus Barracks, Ohio; but this was the only epidemic disease recorded in the history of the post.

Abandonment of Fort Bowie, Arizona.—Fort Bowie was reported as abandoned, October 22, last, in accordance with existing orders which were cited in the *JOURNAL* of October 6. It is doubtful whether any of the officers or men who formed its garrison during the past thirty-five years will have a single regret that it has passed out of existence. It was situated in a wild rocky gorge through which a road or trail of disintegrated granite led east and west through the Chiricahua Mountains to connect Messilla with Tucson. North and south were the high peaks of the range, Dos Cabezas, Castle Dome, Helen's Dome and Bowie's Peak. In the gorge which is known as Apache Pass, 4,780 feet above the sea-level, are the only springs or water supply for many miles along the trail to the east or west; and in the early days of Arizona Territory these springs were the regular camping ground of war parties of the Apaches from the northern mountains in their frequent descents on the farms and mining settlements of Sonora. The withdrawal of the regular troops from Arizona at the outbreak of the Civil War led these Indians to believe that this was due to the steady hostilities which they had kept up against the United States military posts.

When General Carleton marched his column in 1862 from California to join the Union forces in the East and protect the overland route, his troops had to advance across southern Arizona in detachments of two or three companies, each several days behind the other to be sure of having supplies of water in the various springs and holes known to frontiersmen to lie on the line of march. The Apaches considered this warlike demonstration as directed against themselves and concentrated their forces to defend the pass and force the column back on the Arizona Desert by holding the springs. They succeeded in keeping the troops from the water for two days and might have held their position much longer but for the fact that some pieces of a light battery were brought up and opened on them with shell. This demoralized them and they withdrew into the security of the mountains. Artillery fire was a new and alarming experience to them. Our troops suffered much from want of water during the attack; and Dr. Vittridge, an acting assistant surgeon was wounded. Company G, Fifth California Volunteers, was left as a guard to the springs at this important and dangerous part of the road, and its camp on the summit of a knoll overlooking the water supply became afterwards Fort Bowie. Up to 1868 it was merely a camp of shelter tents and dugouts on the slope of the hill, but the building of a permanent fort was then begun and for several years thereafter the quarters were much superior to those of most of the Arizona posts. All the buildings were of adobe or sun-dried bricks; one-storied, with accommodation for one company of infantry and two troops of cavalry. The water was pumped into reservoirs and distributed by gravity; and the waste water and sewage were carried away by a well laid sewerage system.

All the conditions were healthful at this post; but for many years there was danger in leaving its immediate vicinity, the broken granite rocks and precipitous ravines af-

forded so many lurking places for the hostile Indians. A promising young captain of the Thirty-second Infantry was killed a short distance from his quarters. Even the bears sometimes took part in the war against the intrusive white race. An acting assistant surgeon, *en route* along the gorge to join the post, strayed from his escort a few yards up a side path and came unexpectedly on a bear. The doctor escaped with his life, through the coolness and marksmanship of a soldier of the escort, but he received many bruises and two or three ugly gashes in his thighs. No; there are few persons in the military service of the United States who will heave a sigh on account of the abandonment of Fort Bowie.

Urinary Phosphates in Malaria.—Mm. Picci and Bernasconi have published the results of their examination into the "Elimination of Phosphates in the Urine of Malarial Patients." In the first twenty-four hours of infection, phosphoric acid is more considerable than in normal urine.—*L'Union Medicale*, Oct. 23, 1894.

Small Caliber Rifles.—The Military Information Division of the War Department has issued an interesting pamphlet entitled, "Notes on Organization, Armaments and Military Progress in American and European Armies," in which are given an epitome of the more important foreign military organizations, and a somewhat detailed description of the small arms and side arms in use at home and abroad. Full descriptions are given only in the case of the newer or little known arms, although occasionally the older small arms are also described for purposes of comparison. These have an interest for the military medical man in view of the change that will be produced in the character of war wounds and the alterations that will be necessary in field hospital management.

During the past year there has been continued activity in testing, changing, adopting and manufacturing small caliber rifles. The United States Navy has the smallest of these small calibers, 6 millimeters or .236 inch. Holland and Roumania have the Mannlicher rifle with a caliber of 6.5 millimeters or .256 inch. This is the size, also, of the Krag-Jørgensen rifle of Norway, the Parravecino-Carcano of Italy and the Mondragon of Mexico. The modified Krag-Jørgensen rifle now being issued to the troops of the United States has a caliber of 7.62 millimeters or .30 inch, the same as the Mouzin rifle of Russia. The Lee-Netford adopted last year by England is 7.7 millimeters, or .303 inch; the rifle of the German Experimental Committee 7.9 millimeters, or .311 inch; the French Lebel, the Austrian Mannlicher and the Japanese Murata 8 millimeters or .315 inch. Our naval officers are convinced that their caliber, the smallest of any adopted, is superior to anything larger; and they stopped at that fraction only because of the anticipation that a smaller one would involve too many difficulties in the manufacture of barrels. They say that an approach to a practical point blank, man firing standing, of 725 yards will result from the adoption of their new barrel and its ammunition. The Mondragon rifle, called after its inventor, a major of Mexican artillery, is now being made in Switzerland until the National Army Factory at Molino del Rey is equipped for its manufacture. It is regarded as one of the best of the new rifles. It is capable of three kinds of fire: low fire of from 15 to 20 shots per minute; repeating fire of 40 shots per minute and rapid fire which is said to deliver as many as 80 shot per minute. In addition it claims advantages in simplicity of mechanism and facility in working. Since the war in Chile, the greatest energy has been manifested by the South American republics in arming their troops with the small caliber rifles. The Congressionalists won their decisive battles over Bulmaeceda by the help of the Austrian Mannlicher. A supply of this rifle had been obtained by the presidential government and when the fleet revolted, the revolutionists who went on board took the rifles and issued them to the land forces. These quick firing and wide carrying Mannlichers spread a panic in the ranks of the presidential troops although the latter were better trained soldiers. The Lee-Netford rifle is now in the hands of all British infantry. The Secretary of State, Mr. War, reported in March last in answer to a parliamen-

tary inquiry: "In India there are Lee-Netford rifles for the European troops and in reserve; in the colonies the infantry is armed with them and at home there is an ample supply of arms for the regulars and the militia, and a large reserve in addition."

The effect of the latest small bore projectiles is a matter for the future to decide. Recent experiments (1894) by the medical staff of the German Army, as to the wounds inflicted by the small bore bullet have furnished further proof that, notwithstanding its diminutive size, its effects are highly destructive, owing to its enormous speed of rotation which causes the tissues struck to be torn within a radius of four inches. Up to 660 yards, a bullet striking the head, neck or abdomen means death. From 660 to 1600 yards most serious, and in many cases fatal wounds are certain to be inflicted. Beyond 1,600 yards the injuries caused resemble those inflicted by the round bullets which were in use before 1860.

The United States Ordnance Department is carrying on a series of careful experiments with the Kruka-Hebler tubular bullets, the results of which have not yet been made known. The two causes which influence detrimentally the velocity of bullets are the condensation of the air strata immediately in front and the formation of a vacuum immediately behind the projectile. To obviate these, the tubular bullet was invented which, when made of steel, is said to have an immense range, a flat trajectory and great penetration.

Louisville Notes.

THE CHILDREN'S FREE HOSPITAL.—The first annual report of this most worthy institution was issued in January, 1893. It shows that on Oct. 16, 1890, thirteen public-spirited men and women of this city incorporated themselves as a charitable and benevolent society, under the corporate name of the Children's Free Hospital. Stock was issued, and as soon as \$10,000 was subscribed a very suitable building was purchased and refitted, and the first patient admitted for treatment on Jan. 23, 1892. Many times defeat stared the tireless workers in the face, but they kept on, and now have a most admirably conducted hospital, which is doing a grand work, as a result of their labors. The original cost of the completed building was \$12,547, and the cost of the running expenses averages about \$5,000. The hospital has no regular medical staff; every physician is invited to use the hospital as his assistant in any case, when he requires facilities for the care of the sick, which he can not get in the homes of the patients. The relation of the patient and physician is not altered by the admission to the hospital. Here, as at home, the physician asks whatever assistance he needs. During the year there were treated 155 cases of all kinds. The report for the year 1893 was most encouraging; there were 111 cases treated; of these 88 were discharged, 4 died, and on Jan. 23, 1894, 23 patients remained. The hospital is furnished and paid for, and at present there are ten beds supported by annual subscription. At present, no patients are being received on account of an outbreak of measles which was brought in by one of the children admitted recently. Thus far there have been eleven cases. None of them have been severe and all are convalescing. The hospital has as an adjunct, a splendidly equipped isolating ward in the rear of the place. No contagious diseases are admitted as such, but this ward enables them to handle all cases which may arise.

MORTALITY REPORT.—The mortality report of the city for the week ending November 2, shows a total of thirty-four deaths. Of these, fourteen were male, twenty-six white, twelve married, eleven natives of Louisville, and twenty-three native-born Americans. Pneumonia leads the list with five fatalities. For the month ending November 2 the Health Officer reports a total of 286 deaths, the number of male and female being the same; 218 were white, 78 married, 156 natives of Louisville. Consumption heads the list with forty, old age next with twenty-three, and diphtheria and inanition next with twenty each. There were two homicides and two suicides. This is an unusually heavy death-rate from diphtheria and the end is not yet, as the daily report for Novem-

ber 1 showed two children who died from this trouble. The importance of having a contagious disease act is becoming more and more apparent, and it is earnestly to be hoped that those in charge of it will not let it drop, for it is a question of vital importance to many.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.—Louisville will send quite a delegation to the annual meeting of the Mississippi Valley Medical Association this month at Hot Springs. The meeting bids fair to be one of the most successful that has ever been held.

ACADEMY OF MEDICINE.—The question of an Academy of Medicine for the city is being agitated again upon a somewhat different basis than the one spoken of during the spring, and much is expected of the committee which has charge of the preliminaries. Such an organization is much desired in Louisville. As it is at present there exist several private societies which meet bi-weekly and monthly, and at which the social feature is one of the chief objects, a quite elaborate collation being served at the beginning or completion of the meeting. These societies are limited as to membership and the profession at large are without any society. The Academy will enable all to take part in the discussions, and it is earnestly hoped that this attempt to perfect an organization will prove successful.

Washington Notes.

MEDICAL SOCIETY OF THE DISTRICT.—The Committee on Legislation was directed to take steps to present to Congress a plan for filtration of the Potomac water, used in the District of Columbia. A committee was also appointed to investigate and report the facts connected with the present outbreak of smallpox.

THE WASHINGTON OBSTETRIC AND GYNECOLOGIC SOCIETY.—The two hundred and sixteenth meeting of the Society was held November 2. Dr. W. P. Carr read a paper entitled "Oophorectomy for Fibroid Tumors of the Uterus," and reported several cases so treated. Dr. H. D. Fry presented a specimen of sarcoma of uterus, which he had removed, and also gave the history of a case of ectopic gestation in which his diagnosis was confirmed by a successful operation. The interesting specimens, left tube after rupture, were presented. The fetus was lost in the clots removed from the peritoneal cavity. Dr. H. L. E. Johnson gave the history of a case of multiple fibroma of the uterus, complicated by a large unilocular cyst of the right ovary, and presented the specimen. The vermiform appendix and left ovary and tube were also removed. The patient, aged 52, had flooded for thirty-eight years.

The death of Dr. Goodell, of Philadelphia, an honorary member of the Society, was announced and suitable action taken.

THE WOMAN'S CLINIC.—The annual meeting of the Board of Directors of the Woman's Clinic will be held on the 6th inst., for the election of officers.

SMALLPOX.—One death from smallpox. There were seven cases in this city at the closing of this report. All isolated at the smallpox hospital and due to imported infection.

THE SIBLEY MEMORIAL HOSPITAL.—The Attending and Consulting Staff of the hospital will be announced by the Board of Management on the 5th inst. The physicians connected with the institution vaccinated 2,200 patients during the past week. This was in the nature of emergency work for the Health Department of the city.

THE PUBLIC SERVICES.

Regulations Regarding Consular Bills of Health from Certain Ports in Canada and Mexico.

The Treasury Department has issued the following circular:

TREASURY DEPARTMENT, OFFICE OF THE SECRETARY,

WASHINGTON, D. C., Oct. 17, 1894.

To the Officers of the Treasury Department, Consular Officers, and Others concerned:

The following Act passed both Houses of Congress during the last session, and was approved by the President August 18, 1894:

An Act to amend section two of the Act approved February fifteenth,

eighteen hundred and ninety-three, entitled "An Act granting additional quarantine powers and imposing additional duties upon the Marine Hospital Service."

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That Section two of the Act approved February fifteenth, eighteen hundred and ninety-three, entitled "An Act granting additional quarantine powers and imposing additional duties upon the Marine Hospital Service," is hereby amended by adding to the end of said section the following:

"The provisions of this section shall not apply to vessels plying between foreign ports on or near the frontiers of the United States and parts of the United States adjacent thereto; but the Secretary of the Treasury is hereby authorized, when, in his discretion, it is expedient for the preservation of the public health, to establish regulations governing such vessels."

Under the above Act, vessels plying between Canadian ports on the St. Croix River, the St. Lawrence River, the Niagara River, the Detroit River, Lake St. Clair and St. Clair River and the St. Mary's River, and adjacent ports in the United States on the same waters; also Mexican ports on the Rio Grande River and adjacent ports in the United States, are exempt from the provisions of section 2 of the Act granting additional quarantine powers and imposing additional duties upon the Marine Hospital Service, approved February 15, 1893, which requires vessels clearing from a foreign port for a port in the United States to obtain from the consular officer a bill of health.

During the prevalence of any of the quarantinable diseases at the foreign port of departure, vessels above referred to are hereby required to obtain from the consular officer of the United States, or from the medical officer of the United States, when such officer has been detailed by the President for this purpose, a bill of health, in duplicate, in the form prescribed by the Secretary of the Treasury, Quarantine Regulations of the United States, 1894. J. G. CARLISLE, Secretary.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Oct. 27, 1894, to Nov. 3, 1894.

Major JOHN V. LAUDEBDALE, Surgeon U. S. A., is granted leave of absence for four months, to take effect upon the final abandonment of Ft. Ontario, N. Y.

Major WILLIAM H. GARDNER, Surgeon, so much of the order as assigns him to Ft. Custer, Mont., is revoked.

Capt. ALFRED E. BRADLEY, Asst. Surgeon, so much of the order directing him to report for duty at Ft. Keogh, Mont., is amended as to direct him, upon the abandonment of Ft. Sully, S. D., to report for duty at Ft. Custer, Mont.

Capt. OGDEN RAFFERTY, Asst. Surgeon, so much of the special order as directs him to report to the commanding officer, Presidio of San Francisco, Cal., for duty, is revoked.

Major CLARENCE EWEN, Surgeon, is granted leave of absence for six months, on surgeon's certificate of disability.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Nov. 3, 1894.

Asst. Surgeon A. W. DUNBAR, ordered to Naval Laboratory and Department of Instruction.

Asst. Surgeon ARNOLD FARENHOLT, detached from Naval Laboratory and Department of Instruction, and ordered to U. S. R. S. "Vermont."

Asst. Surgeon L. W. STONE, detached from U. S. R. S. "Vermont," and placed on waiting orders.

Asst. Surgeon J. S. HOPE, detached from Naval Hospital, Mare Island, Cal., and ordered home.

Surgeon DWIGHT DICKINSON, detached from the U. S. S. "Miantonomoh," and ordered to the U. S. S. "Richmond."

LETTERS RECEIVED.

Anheuser-Busch Brewing Association, St. Louis, Mo.; Antikamul Chemical Company, St. Louis, Mo.; Axtell, E. R., Denver, Colo.; Allen C. W., Centerville, Cal.

Broome, Geo. W., St. Louis, Mo.; Bridges, W. O., Omaha, Neb.

Chaille, S. E., New Orleans, La.; Carter, Geo. W., Marshalltown, Iowa

Christopher, H., St. Joseph, Mo.

Dibrell, J. A., Little Rock, Ark.

Elliott, Llewellyn, Washington, D. C.; Ellis, H. B., Los Angeles, Cal.

Gillette, W. J., Toledo, Ohio.

Hummel, A. L., Philadelphia, Pa.; Holland, James H., Philadelphia, Pa.;

Hoover, Thos. C., Columbus, Ohio; Holmes, H. R., Portland, Ore.

Holmes, C. R., Cincinnati, Ohio.

Ingals, Ephraim, Chicago; Ingals, E. Flecher, Chicago.

Jacobson, N., Syracuse, N. Y.; Jonea, H. P., New Orleans, La.

Kennedy, T. C., Shelbyville, Ind.

King, Jas E., Centerville, Ind.

Laplace, E., Philadelphia; Lehn & Flnk, New York City; Lam

Washington, D. C.; Lanphear, Emory, St. Louis, Mo.

Martin, W. A., San Francisco, Cal.; Moore, J. T., Minneapolis, Minn.

Macree, Donald, Council Bluffs, Iowa; Moore, C. C., Philadelphia, Pa.

Mattison, J. B., Brooklyn, N. Y.; Mercer Chemical Company, Omaha, Neb.;

Meshaue, J. T., Indianapolis, Ind.

Penfield, R. C., Philadelphia, Pa.; Phelps, A. M., New York City

Percy, J. F., Galesburg, Ill.

Reed, R. Harvey, Columbus, Ohio; Rice, C. C., New York City

Ryder, C. C., San Francisco, Cal.; Ristine, C. E., Knoxville, Tenn.

Sander, Enno, St. Louis, Mo.; Steele, A. J., St. Louis, Mo.; Smith,

Cincinnati, Austin, Texas; Scott, X. C., Cleveland, Ohio.

Tucker, Willia G., Albany, N. Y.; Totman, D. M., Syracuse, N. Y.

Thornton, Wm. M., Charlottesville, Va.; Thayer, Charles P., Boston,

Mass.; Taylor, L. H., Wilkes Barre, Pa.; Tuttle, George M., New York

City.; Taylor, Lewis H., Wilkesbarre, Pa.

Vanhook, V. C., Ann Arbor, Mich.

Westerman & Co., New York City; William Wood & Co., New York

City; Wyckoff, R. M., Brooklyn, N. Y.; Wright, C. H., Iowa City, Iowa

Würdemann, H. V., Milwaukee, Wis.; Wathen, Wm. H., Louisville, Ky.

White, J. A., Richmond, Va.; Whitford, Wm., Chicago.

Blank Applications for membership in the ASSOCIATION at the JOURNAL office.

The Journal of the American Medical Association

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CHICAGO, NOVEMBER 17, 1894.

No. 20.

ORIGINAL ARTICLES.

REST IN THE TREATMENT OF DISEASES OF THE HEART.

Read at the Meeting of the Tri-State Medical Society at Jacksonville
Ill., Oct. 2-3, 1894.

BY ROBERT H. BABCOCK, A.M., M.D.

PROFESSOR OF CLINICAL MEDICINE AND DISEASES OF THE CHEST, COLLEGE
OF PHYSICIANS AND SURGEONS, CHICAGO, ILL.

For years it has been my custom, both in practice and in teaching, to insist upon absolute rest in bed in cases of heart disease with destroyed compensation. My opinion was based upon the consideration that the only period of rest enjoyed by the heart was during diastole, and since the heart beats more slowly in a recumbent than in an erect position or during exercise, the diseased heart should be encouraged to beat slowly. Moreover, I was supported in my belief by the statements of such weighty authorities in medicine as Balfour and Liebermeister. The latter has reported an instructive case of a business man who had a serious valvular lesion, and who every now and then overstrained his heart to the point of threatened loss of compensation. He would enter the hospital and after three or four days of treatment and upon relief of his most urgent symptoms would again take to his business, in spite of all Liebermeister could say to the contrary. One day this patient suffered a fracture of the femur, which necessitated rest in bed for six weeks; and Liebermeister stated that this prolonged rest did more for the patient's heart than anything else could have done.

A few years ago a German physician reported a series of cases of valvular disease in which the only treatment employed was rest in bed and the milk diet. The results were highly satisfactory. I am sure that in my own experience I have seen great benefit follow prolonged physical repose. Imagine, then, my surprise recently upon perusing Fraentzel's valuable work on heart disease to run across a very positive statement that he considered absolute physical rest injurious and had seen unmistakable harm result therefrom. This, according to him, is particularly the case in "idiopathic enlargement of the heart," although he denounces absolute rest even in valvular disease. He cites in support of his position the fact that striped muscle degenerates when deprived of the stimulus of exercise, and since the heart muscle is striated, like voluntary muscle fibers, the cardiac muscle will degenerate under prolonged rest. In cases of enlarged hearts, secondary to arterio-sclerosis, the injury has been rapid and unmistakable while there was an evident increase of the atheroma.

Naturally this set me to thinking, and I recalled at least two cases of Fraentzel's "idiopathic enlargement of the heart" both in corpulent men, with large

chests, in which the absolute rest in bed insisted upon was not followed by relief of symptoms. In fact, in both cases, cardiac failure was progressive and more rapid than was expected; death ensuing within three weeks. Having witnessed unmistakable improvement in other cases, and not having attributed the rapid increase of symptoms in the two cases just mentioned to the effect of entire rest, I have been led to question if the positions taken by Liebermeister and Fraentzel may not both be correct. In other words; may not rest be beneficial to some—disastrous to others? Furthermore, is the reason given by Fraentzel the correct one? It seems to me not. The heart muscle, although composed of striated fibers, is not like voluntary muscle, inasmuch as the cardiac muscle can never during life be subjected to absolute inaction. Its contractions are intermittent and unceasing, and therefore in its period of diastole, time is not given for degeneration as in prolonged inaction of a voluntary muscle. It seems to me the injury to the heart results from other causes which lie in the circulation outside of the heart itself. The chief factor in the maintenance of the circulation is the difference between pressures in the aorta and in the two venæ cavæ, that within these great venous trunks being negative. When the left ventricle becomes weakened and dilated, less blood is thrown with each contraction into the aorta, and blood pressure falls; the normal difference between arterial and venous pressure diminishes and the circulation suffers in consequence. If now the patient be put to bed, venous flow is still further retarded in consequence of the cessation of muscular movements on the one hand, and on the other of decreased aspiration of the blood out of the great veins into the thorax, consequent upon more quiet and shallow respiration. Consequently, the work of maintaining the circulation is thrown mainly upon the already weakened heart. It would not be strange under these conditions if the weakened, nay perhaps degenerated cardiac muscle should suffer still more in its integrity. Having, unaided, to pump the blood onward, the heart walls stretch still more, and the condition called by the French, *asystole*, grows more and more apparent.

Furthermore, in cases of arterio-sclerosis, under lessened physical exercise, there is diminished oxidation, together with an increase of these conditions within the venous system, thought by Fraenkel and others to favor the development of atheroma, and hence the marked increase of this vascular change observed by Fraentzel might very well be the case. These conditions appear to me to explain in great part at least the injurious effect of absolute rest in cases of cardiac dilatation without valvular disease, or of general fatty degeneration.

Unquestionably, moderate physical exercise, as quiet walking on level ground, serves as a beneficial

stimulus to the heart muscle, even when diseased. But since this beneficial effect may so easily be counteracted by the increased dilatation, produced by muscular effort, I am of the opinion that a judicious combination of both exercise and rest is indicated in these cases.

Let us now consider the various valvular lesions coming under daily observation, and whether or not there are any conditions rendering Fraentzel's position untenable in these cases. By valvular disease is meant either stenosis of the orifice or insufficiency of the valves. Pathologically these two conditions are probably always united but in varying proportions. Therefore we recognize clinically the preponderating condition and I shall here consider, separately, stenosis and regurgitation. In mitral stenosis there is practically a dam built across the blood stream at the point of the left auriculo-ventricular opening. The blood can not escape from the auricle as rapidly as it is sent into it from the right ventricle. There is permanent congestion back of this pathological obstruction; increased work is thrown upon the left auricle and the right ventricle, which consequently undergo compensatory hypertrophy. So long as the chambers are adequate to increased work the cardiac contractions are slow and the lengthened diastole allows adequate filling of the left ventricle. Moderate muscular effort is unattended by urgent symptoms. So soon as compensation is lost, that is, dilatation preponderates over hypertrophy, cardiac action becomes more rapid, mainly at the expense of diastole, and the weakened right ventricle and left auricle are unable during the shortened diastole to drive sufficient blood through the constricted orifice to adequately fill the left ventricle. This chamber in turn throws a smaller volume of blood into the aorta and arterial pressure falls correspondingly with consequent retardation of the circulation. If, now, rest be prescribed the resulting fall in the rate of cardiac contractions allows more time for the filling of the left ventricle, while at the same time venous blood is forwarded to the heart less rapidly. As a result of these conditions the left ventricle, unimpaired in its contractility, receives and discharges a larger amount of blood into the arterial system. Something like the normal difference between arterial and venous pressure is restored and the circulation correspondingly improved. Thus relieved of strain, opportunity is afforded the heart to respond to proper medication and to regain its lost compensation.

In mitral regurgitation the obstacle to the circulation through the heart is intermittent. With each ventricular systole a portion of the blood intended for the aorta is thrown back into the auricle. This chamber, thus receiving the blood from two directions at once, becomes momentarily surcharged, but the next instant discharges its contents into the ventricle and its distension is relieved. In the stage of destroyed compensation it is important that blood be not forwarded to the heart and lungs with undue rapidity, lest the left auricle be over-distended and its ability to withstand the regurgitant stream be still further impaired. The mitral valves, being incompetent, their place has to be taken by the walls of the left auricle and the mass of blood this chamber contains. If compensation be lost, not only is the regurgitation the greater, but the contractility of the left ventricle is lessened and a proportionally smaller volume of blood is thrown into the aorta. A

fall in arterial pressure and a slowing of the circulation result. If the integrity of the left ventricle be not too greatly impaired, and the rest be not too prolonged the employment of this therapeutic agent, together with cardiac tonics will unload the distended left auricle, augment its power of resisting the regurgitant stream and enable the better filled ventricle to discharge a larger proportion of its contents into the aorta. Moreover, the cessation of muscular movements lessens intra-cardiac blood pressure, which is raised by the constriction of the arterioles lying within the area of the contracted muscles. Peripheral resistance to the outflow from the ventricle is diminished and the degree of regurgitation thereby relatively lessened. For a time, then, absolute rest is beneficial, but if too long maintained again may prove hurtful, through the added work put upon the left ventricle and the consequent increase of the regurgitation.

Consequently, in this form of mitral disease, rest should be employed with more caution than in stenosis. There are conflicting indications for and against rest. It should not be continued beyond relief of the first urgent symptoms. Moderate exercise about the room should then be permitted, at first for a few moments at a time, subsequently for increasing periods. In aortic disease there are still other facts to be considered; loss of compensation does not so much mean retardation of the venous flow and over-distension of the heart, as the danger of sudden diastolic arrest, particularly in aortic regurgitation. The enormously enlarged ventricle throws an abnormally great volume of blood with each systole into the arterial system. If arterial tension be increased, the reflux into the dilated ventricle is correspondingly increased. Muscular effort, however slight, augments blood pressure within the arterial system. Therefore, that our efforts to reestablish compensatory hypertrophy upon the part of the left ventricle may be successful, physical rest should be enjoined in the hope of thereby lessening those conditions that favor regurgitation into and distension of the left ventricle.

Moreover, as Balfour so forcibly states, the distending force of the regurgitant stream is increased in the upright position in accordance with Pascal's law, that the distending force "is equivalent to the weight of a column of blood of the height of the cranium above the heart and of the diameter of the ventricular lumen."

When compensation is destroyed, dilatation is greater, that is, the lumen of the left ventricle is increased and the weight of the distending column corresponds to its enlarged diameter. This consideration alone furnishes sufficient reason for insisting upon the supine position, when the left ventricle has lost its compensation.

I well remember the case of a woman, suffering from general edema from relative insufficiency of the mitral valves, secondary to loss of compensation of a long standing aortic regurgitation, in whom a two weeks' rest in bed, and proper medicinal treatment effected an entire removal of the symptoms. Although repeatedly warned against rising and making sudden effort, she one day left her chair to which she had been allowed cautiously to resort, and stepped forward to open the door in answer to a knock. The next instant she fell dead.

In stenosis of the aortic orifice, compensation fails

when dilatation of the left ventricle surpasses hypertrophy, and the ventricle is no longer able to force its contents past the obstruction. In such an event rest seems to me indicated for two reasons: 1, that the action of the heart may be slowed, thereby time given for the slowly contracting ventricle to discharge more blood into and raise the pressure within the arterial system; and 2, that the stream of blood be not forwarded to the heart under the influence of exercise more rapidly than it can be disposed of by the weakened ventricle.

Such are the considerations which lead me to take exception to the injunction laid down by Fraentzel, against the employment of rest in valvular lesions of the heart. Moreover, they are in accordance with the results of my own experience.

There are still other forms of cardiac disease in which the employment of rest becomes a vital question; of these, fatty degeneration, whether acute or chronic, and parenchymatous degeneration in the course of diphtheria and other infectious diseases are important. If symptoms of cardiac failure are urgent, it seems to me that absolute physical rest can not but be at least temporarily beneficial, although when too prolonged the heart might suffer from the very want of these accessory forces in the circulation furnished by carefully regulated exercise.

Bradycardia, on the other hand, would seem to indicate exercise rather than rest, because of the stimulus to the heart's contractions arising therefrom. Tachycardia of a functional or paroxysmal nature ought theoretically to be favorably affected by the removal of muscular effort, as well as of those emotional disturbances which serve to stimulate cardiac contractions. Heart rest seems imperatively called for, and how can this be accomplished except through a lengthening of the diastole or period of heart repose; and with the slowing down of the heart usually accomplished by bodily quiet, a relative increase in the diastolic period results. Moreover, with the slowing down of the heart, blood pressure within the aorta, which sinks in consequence of the rapid and ineffectual systoles is again raised with corresponding improvement in the circulation. Should the rate of the pulse remain unaffected by absolute physical rest there can be no object in its continuance. In acute affections of the heart, such as simple endocarditis, it seems to me there can be no question as to the beneficial influence of rest in bed.

As Fothergill points out, concerning the use of digitalis, the increased action produced by exercise causes more forcible closure of the valves and thereby subjects them to greater strain; the violence of the inflammatory process is certainly increased and the growth of connective tissue favored. Furthermore, simple endocarditis is observed most frequently with inflammatory rheumatism, and Sibson has shown that, if entire rest be employed during a rheumatic attack, the liability to endocarditis becomes very much less. These considerations are so patent as to make superfluous further remarks upon the beneficial effects of this therapeutic agent.

Although this paper concerns the therapeutic uses of rest in heart disease, a few words may not be amiss upon the kind of exercise to be allowed. This should be moderate, as a rule, in all forms of cardiac disease, however complete the compensation. Although patients with aortic insufficiency are sometimes capable of great muscular effort this is always

dangerous. When compensation has failed or is threatened, exercise for the most part should be limited to short walks upon the level ground. They should never be extended to the production of decided fatigue, and stair climbing should be absolutely interdicted. We have heard much of the Oertel method; but experience has clearly demonstrated that mountain climbing is only admissible before compensation has been lost. Likewise Swedish movements, so highly praised by Fraentzel in some cases, and the light gymnastics forming a part of the Schott method are to be chiefly employed in those cases where compensation is still maintained. Nevertheless, in some instances, Schott's exercises as well as Swedish movements seem to be of positive value in restoring compensation. But if cardiac failure be marked, quiet walking and driving must be absolutely the only exercise permitted, and this should be followed by a short period of bodily rest. Fraentzel never allows his cardiac patients to walk in less than four hours after a meal; a most useful injunction.

Conclusions—1. The position taken by Fraentzel, that rest is injurious in the treatment of all forms of heart disease is untenable, and the reasons he assigns are incorrect.

2. Prolonged rest is detrimental, undoubtedly, in cases of enlargement of the heart without valvular disease, particularly if secondary to arterio-sclerosis, and in cases of fatty or other degeneration of the cardiac muscle.

3. The cause, however, lies in the circulation outside of the heart and not, as stated by Fraentzel, in the liability of cardiac, like striped voluntary muscle, to degenerate as a result of prolonged inaction, since the heart muscle can not during life be subjected to complete repose.

4. When compensation has become destroyed in valvular lesions of the heart, particularly mitral stenosis and aortic incompetence, rest is indicated theoretically and is beneficial in practice.

5. Bradycardia would theoretically contra-indicate prolonged rest.

6. On the other hand, it is called for in paroxysmal tachycardia, but should not be maintained, after having shown its powerlessness to affect the heart rate.

7. Acute inflammatory or degenerative affections of the heart indicate rigid rest in the recumbent position.

Venetian Building.

THE RELATION OF THE STUDY OF PATHOLOGY TO THE HIGHER MEDICAL EDUCATION.

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In speaking upon this purely scientific subject, I shall try to avoid as far as possible, technical terms and expressions so as to make my remarks intelligible and I hope interesting to our youngest undergraduates, although naturally such a topic appeals more strongly to graduates and advanced students.

Our subject is a most important one and worthy of the most careful consideration, both on account of its intrinsic importance and also on account of the rapid change in medical opinion as to its place in the college curriculum.

To illustrate this latter phase of the subject, let us compare the changes in the teaching of our best colleges since 1880.

Take, for instance, the College of Physicians and Surgeons of New York, a college which then enjoyed and has since maintained a foremost place among our medical colleges by virtue of its high standards and progressive methods. At that time the course in pathology necessary to the degree of M.D. at this college would at the present time seem ridiculous, but it then fairly represented the demands of the most advanced medical educators of that time.

The didactic instruction in pathology was given by the chair of Practice of Medicine, and covered the pathology of those diseases lectured on in the annual course, illustrated at times by the demonstration of fresh and preserved specimens. There were no especial lectures upon pathology, and general pathology was only taught as it came up in relation to other subjects in the course on medicine. There was no obligatory instruction in laboratory work or *post-mortems*.

The passing of the examination in practice of medicine was the only requisite for the degree of M.D. as far as pathology was concerned. However, even at this time the studious undergraduate could secure thorough instruction in pathology at this institution, as first class courses in pathologic histology were given by Dr. T. M. Prudden in the laboratory of the Alumni Association, and frequent *post-mortems* were available at the New York and Bellevue Hospital. How greatly all this has changed can be seen by glancing over the present schedule of the same college.

In the recently established four years' course, there is demanded in addition to attendance upon lectures and *post-mortems* about one hundred hours of laboratory work in pathology; fifty hours in bacteriology and thirty-two hours in clinical microscopy, besides optional courses in pathology, bacteriology and original research. This calls for about eighty hours didactic work and one hundred and eighty hours in the laboratory, which can be supplemented to any extent by any student desiring especial instruction in these subjects.

These changes are still more noticeable in the schedules of some of the other schools, which apparently wish to atone for past laxness by present severity in their demands.

Instances might be multiplied, showing approximately the same changes of schedule in other colleges during the past ten years as those mentioned, but I think this unnecessary as the facts are well known.

In regard to the intrinsic importance of the study of pathology to those who wish anything that can be fitly called a medical education, it is only necessary to consider the importance of the subjects included under this term, pathology.

During the first two years of the medical student's course, his time and attention are largely taken up by those fundamental branches, anatomy and physiology with the related laboratory work in normal histology and embryology, and medical education without a thorough comprehension of these subjects would be indeed a farce. Now what anatomy and physiology are to the foundations of a medical education, so is pathology to the complicated superstructure which modern ideas demand, to complete and adorn the modern physician's education.

The term, pathology, is very comprehensive, combining the morbid counterparts of anatomy, physiology and normal histology with the complicated subject of bacteriology woven in—that is to say, the department of pathology includes morbid anatomy, the gross anatomic changes caused by disease; morbid or pathologic histology, the microscopic changes in the tissues due to injury or disease, including the constitution of neoplasms; morbid physiology, a most important part of the subject and one much neglected, which treats of the alterations of function caused by disease, with their origin and results.

Bacteriology while it may be classed under the general department of hygiene is, I think, more practically and profitably taught in connection with pathology. This subject has become such an important factor in the etiology, prognosis and treatment of disease that its thorough study has become an immense undertaking, and there seems to be a tendency in some quarters to over-rank its importance in the college curriculum, making what is really only a part of pathology greater than the whole, and compelling students to spend much more time on this branch than is really justifiable when its true position is considered.

In addition to these distinct divisions of the general subject, there should be included in this department the subject of clinical or microscopic diagnosis, which covers a grouping together for diagnostic purposes, of the facts and technical methods of pathologic histology, bacteriology and to a certain extent those of chemistry. This work is the connecting link between the laboratory and the clinic, applying the most exact instruments and laboratory methods to the living patient, not infringing on but supplementing the work of the physical diagnostician. After this exposition of the scope of pathology, and remembering the constant progress that is being made by hosts of earnest workers, you can better appreciate its importance as a basis of the higher medical education.

Students, I find, are apt to consider this study as a purely scientific ornament in their college course, as contrasted with the more practical branches dealing directly with the practice of medicine and surgery, and are apt to begrudge the time and hard study needed to master its difficulties.

This is a great mistake which will be fully realized only after graduation, for an intelligent understanding of the etiology, symptoms, prognosis and treatment of most diseases, can only be obtained by thoroughly informing one's self of their pathology.

To be in close touch with the medical spirit of the times, a thorough and exact knowledge of the facts of pathology is absolutely necessary, for one can not read intelligently any number of one of our better medical journals without depending upon his knowledge of both the theory and laboratory methods of this science. To illustrate, let me cite a few cases familiar to many of you, showing the relation of recent pathologic discoveries to practical points in medicine.

First as to etiology: What can be more important than the flood of light shed upon tuberculosis, and the now obsolete scrofula by Koch's discovery of the tubercle bacillus? Our present familiarity with the results of this discovery lead us to forget that thirteen years ago the cause of tuberculosis was unknown. Now we have a sure means of diagnosis in the mi-

croscopic examination of sputum, tissues, etc., and perhaps nearly as reliable a one in subjecting the suspected case to the injection of tuberculin. The use of this product of the growth of the tubercle bacillus as a curative agent in human tuberculosis is at present under a cloud, partly I think, owing to the great lack of good judgment on the part of the general medical public who rushed into its use headlong on all sorts of unsuitable cases, and then rushed into the press to condemn the remedy but not their own folly.

I have not the slightest doubt that tuberculin has proved of the greatest value in many properly selected cases, and believe that in the near future this substance will be so modified and its use so perfected as to furnish us with a most valuable remedy. Tuberculin is now proving to be of great value to the common health by its use as a diagnostic agent in the detection of tuberculosis in cattle. It is used extensively by veterinarians and health officers in the condemnation of tuberculous animals and the results are no longer questioned.

The debt of preventive medicine to Robert Koch can scarcely be over-estimated. The placing of tuberculosis among the infectious diseases, and thus among the preventable, was a tremendous stride forward in the interests of health, although we can not as yet read the full benefit of this discovery because of the lax medical education of the past. Neither the medical nor the general public are as yet thoroughly educated on this subject, and until they are, the more thorough preventive measures can not be put in force.

The problem of the proper sanitary handling of a case of chronic infectious disease often lasting for years, during the greater part of which the victim is able to be about, attend to business, travel in public conveyances and attend places of amusement is truly a difficult one; but with a general knowledge of the facts in the case public sentiment will demand and receive protection.

Every medical man of the present day should be a public educator on all matters pertaining to hygiene, and especially on this subject of the transmission of tuberculosis, and by united action the time will soon come when every consumptive in the land will understand the facts and believe that he is a menace to his friends and the general public through his sputum and excreta, and then at least it is fair to presume that some decided progress will be made in the prevention of tuberculosis.

Another striking instance of the value of pathologic research is seen in the elucidation of the causes of tetanus and lockjaw. The discovery of a bacillus only flourishing when deprived of oxygen and existing in our street dirt and garden soil, explained many facts which had long puzzled the clinicians, and showed clearly how the rusty nail and toy pistol cap could initiate so deadly a disease. The study of this germ and its life habits have again contributed to the prevention of disease by teaching that the open treatment of suspected wounds makes the least favorable conditions for the growth of this germ, which laboratory research has shown can only flourish in the absence of oxygen. Here, again, germ products are of avail in therapy, as Brieger has elaborated a substance for injection which is said to cure tetanus. In general, it may be said that there is a fair prospect of an entirely new therapy coming into

use based wholly on laboratory study of the various pathogenic bacteria, each disease being combated by the use of substances elaborated by the growth of its causative germ, either in the laboratory pure culture or in a suitable animal. To illustrate: Pneumonia has been treated by a substance obtained from the blood of an animal which has just recovered from the disease, the theory being that the injurious effect of the growth of the germ in the body is finally combated by a so-called antitoxin elaborated by the living body, which first checks the growth of the germ, then kills it and so brings the disease to an end. By taking the blood serum from such an animal just convalescent, and injecting it into another suffering with the same disease, the morbid process is quickly brought to an end.

These blood serum and antitoxin methods bid fair to enrich our therapeutic resources greatly, but if their use should ever become general the cause of the higher medical education would be greatly advanced, because as many of these substances are most virulent poisons a false diagnosis might cause very disastrous results, and the general public would have to be a little more careful than they are at present in choosing their medical advisers.

Another important and interesting discovery not in the line of bacteriology is that of the amœba coli with its etiologic relations to hepatic abscess and dysentery. In all medical text-books for years the clinical fact has been stated that abscess in the liver followed certain cases of dysentery, but it was only a few years ago that the laboratory of the Johns Hopkins Hospital furnished the proof that a small animal parasite was the cause of both conditions.

The recent study of the plasmodium malarie has furnished an invaluable means of diagnosis, by the examination of the blood, between typhoid and malarial fevers, and incidentally has made the classic treatment of malaria by quinin, scientific instead of empirical, by showing that very weak solutions of this drug are fatal to the plasmodia.

Illustrations of the debt owed by clinical medicine to pathology are so numerous that a mere enumeration of the non-striking ones would consume all the allotted time; hence I will speak of but two more: 1, as to the terrible disease, diphtheria—you doubtless all know something of this most treacherous disease, and the more experienced have noted the strange variability in its virulence. Laboratory workers have shown much in explanation of these variations. They have demonstrated, first that true diphtheria is due to the Klebs-Löffler bacillus, but that a similar disease clinically indistinguishable may be caused by other bacteria. In general they have shown that the disease caused by the Klebs-Löffler bacillus is more serious than the pseudo-diphtherias and hence to be carefully differentiated from a sanitary standpoint.

As this may be clinically very difficult, and at times impossible, they have carefully elaborated a method of diagnosis by culture which is now in use by the Board of Health of the city of New York. Physicians are furnished with sterilized test-tubes containing swabs, with which they touch the exudate in their patients' throats; replace in the stoppered test tube and return to the Health Department where cultures are rapidly made by bacteriologists and the result reported within twenty-four hours.

This is a very important advance in the interests

of public health, for when properly carried out it insures a two days' quarantine of all suspicious cases, which practically means all sore throats with any form of exudate, as the bacteriologist has proved that true diphtheria may so closely resemble a mild lacunar tonsillitis as to be indistinguishable by the best clinician, although you will still find some of the older if not wiser men at our medical societies who insist "that *they* can always diagnose diphtheria without fail, although they can not teach others how to do it."

Any precautions leading to the early diagnosis, and thus to a limitation of the spread of so fatal a disease are of the greatest value, and it is to be hoped that the near future may see the extension of these methods into our own city.

Another instance, this time in the line of bacterial therapy, but on a different principle from those already mentioned, is the use of the germ and toxins of erysipelas as a curative agent.

The remarkable effect upon various chronic disorders of an attack of accidental erysipelas has been noted for a good many years, and since so much attention has been paid to bacteriology much experimentation has been done in this line, in using the pure culture as a means of mitigating the disease. Local tuberculosis, syphilitic lesions and diphtheria are reported to have been thus cured.

Within the last few years Dr. Coley, of New York, has determined by experiments that an attack of erysipelas has a certain inhibitory or even curative power over malignant tumors, and some of his reported results are truly remarkable. Both carcinomata and sarcomata have shown some favorable results, but, on the whole, the latter seem to be the more favorable subjects for this treatment, which consists of the induction of an artificial erysipelas in the subject of an inoperable malignant tumor, or more recently in the systematic injection of erysipelas toxins, and in favorable cases the growth of the tumor has been checked, or it has become smaller or even disappeared. Scarcely enough time has elapsed since these apparently successful experiments, to prove their permanent value, and the treatment in some cases has been very severe, but remembering the utter helplessness of the surgeon in the case of these inoperable sarcomata, any prospect of help is to be welcomed.

The foregoing illustrations are enough to show you the dependence of all branches of medicine upon the researches of the pathologist, and judging from the past it is probable that each year will materially increase this debt, until some time in the happy future medicine will no longer deserve the reproach of not being an exact science.

As medicine becomes more scientific and more exact, the practitioner will need all the more preparatory study to fit him for its use, and of this study pathology will, I think, necessarily form an ever increasing part.

I have been asked to express my views as to the following practical points:

1. The amount of time necessarily or advisably allotted to pathology in the four years' course.

This, I would answer by the following schedule and comments:

SCHEDULE.

First Year: Lectures, *i. e.*, recitations, demonstrations, etc. Pathology including bacteriology, two hours weekly,

for thirty weeks, sixty hours. Laboratory, pathology and bacteriology, three hours weekly, thirty weeks, ninety hours.

Second Year: Lectures, pathology and bacteriology, one hour weekly, thirty weeks, thirty hours. Laboratory, elective special pathology and bacteriology, three hours weekly, ninety hours. *Post-mortems* two hours weekly throughout the second and third years, 120 hours.

Fourth Year: Lectures, clinical diagnosis, one hour weekly, thirty weeks, thirty hours. Laboratory, elective clinical diagnosis, two hours weekly, twenty weeks, forty hours. Elective special pathology, ninety hours.

Total: Didactic work obligatory, 120 hours.

Laboratory work obligatory, 90 hours.

Laboratory work elective, 220 hours.

Post-mortem work obligatory, 120 hours (estimated).

In this connection, I should like to call your attention to the recommendations of the committee on formulation of a curriculum for the Association of Medical Colleges.

This is that the least amount of instruction that will be accepted as sufficient in colleges of the Association when the four years' course shall have been established shall be twenty-five hours didactic and one hundred and fifty hours laboratory work in bacteriology; fifty hours didactic and one hundred hours laboratory work in pathology.

I think this is giving entirely too much importance to bacteriology in comparison with the remainder of the department of pathology, and too little time to didactic pathology which, however treated is a very comprehensive subject. Very few medical students can afford to devote enough time to bacteriology to become competent practical bacteriologists and those who expect to thoroughly master the subject will need much more than one hundred and fifty hours, while the remainder of the class who merely wish an appreciation of the principles and methods of the science, with the technical skill to avail themselves of its practical diagnostic points, will find a good part of this allotted time really wasted.

I am in favor of giving the most ample time and fullest facilities to the few who really study laboratory bacteriology and pathology, without compelling the rank and file whose ambition is merely to become intelligent and able practitioners to really waste their time in acquiring technical skill of which they will never make use.

In accordance with these views, the schedule just read gives one hundred and twenty hours didactic and ninety hours laboratory work as obligatory, but provides two hundred and twenty hours additional elective laboratory work on the two subjects including clinical diagnosis.

2. To what extent should pathology be taught in the regular course by the instructors in practice and surgery?

This question admits of a good deal of diversity of opinion, but I think it is better to err by sins of commission rather than by those of omission; that is, I think the subject should be gone fully into in connection with both chairs, even at the risk of repetition. I think, however, that instructors in both practice and surgery should confine themselves as closely as possible to gross pathology and pathologic physiology and omit entirely histologic details. Take the subject of tumors, for instance; the lecturer on surgery can, I think, well avoid anything more than a superficial discussion of the theories of tumor formation, and omit entirely all details of their microscopic structure, and yet teach a great deal of their pathology in explaining their clinical and life histories, what malignancy is, the gross peculiarities of

benign and malignant tumors, what cachexia is and how caused by tumor growth; in general, everything relating to the tumor as seen in the patient with the changes caused by its presence. The teacher of pathology can be well restricted in this part of the subject to morbid anatomy and histology; that is the study of the tumor after its removal from the patient supplemented by a careful study of that most important subject, etiology.

The immense amount of work now being done in this department indicates that our ideas on tumor causation may soon undergo revision, and here certainly the pathologist should have first place in teaching the results of microscopic research.

The bacteriology of suppuration should, I think, be taught by the surgeon in the greatest detail, although it will necessarily have to be again gone over in the systematic course. The practical importance of this subject to the surgeon makes it imperative that he devote much time, both to the bacteriologic facts and to their practical application, and it will be a further advantage to the student to view these facts from the standpoints of the chairs of practice and pathology.

The instructor in practice must teach pathology in order to make his subject clear, but as I have already said, I think he can profitably avoid entirely histologic changes and many of the details of the morbid anatomy, concentrating his teaching on what I have included under morbid physiology. One part of this subject seems to be greatly neglected, and that is the connection between the pathologic lesions of a disease and the individual symptoms. Students are apt to memorize a set of lesions and a set of symptoms and not have a very clear idea of the relation between the two.

It is difficult to draw a line between the teachings of the chairs of practice and pathology, so much so that in some of our best schools the entire didactic work of the two subjects is combined. This avoids repetition, but throws an immense amount of work on the chair.

3. To what extent should pathology be taught by the instructors in the special branches?

Here there will not be so much difference of opinion. I think each specialist should teach his students all the necessary pathology of his branch, especially that part of it whose great importance I have emphasized in regard to the teaching of practice, *i. e.*, the relation of the pathologic process to the symptoms.

The work of the various specialists will vary in this respect, as those dealing with the eye and ear and skin treat of subjects seldom taken up in a systematic course in pathology, while the specialist in genito-urinary disease will find renal diseases, at least, very thoroughly gone over both in practice and pathology, while in regard to urethral and prostatic pathology he will have an undivided field.

In closing, I wish to clearly define my position in recommending the making elective of so large a part of the laboratory work. I consider that the whole amount laid out for the four years' course would be of the greatest value to every student, and I should advise all who can possibly do so to take all the elective courses, so shaping them as to best subserve the special aim of each; but my experience in teaching pathology has taught me that all students can not be made into skilful laboratory men; and that

the restriction of the obligatory practical work to the projected ninety hours in the second year will sift out the incapable and idle, and leave the field clear for better work on the part of those who really want it and can take advantage of the increased room and opportunities thus afforded.

One of the advantages claimed for a four years' course, is the greater adaptability to the needs of the individual in allowing more elective work; and I think that in all departments there should be allowed the student the greatest liberty of choice compatible with the requirements of a liberal medical education. The student can not expect to learn everything necessary to the practice of medicine in any medical college, be the course three or four years, but he has a right to demand that the education given him in his college course shall be such as to give him the broadest and most complete foundation for his studies in after life.

STIGMATA OF DEGENERACY IN THE ARISTOCRACY AND REGICIDES.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY EUGENE S. TALBOT, M.D., D.D.S.

FELLOW OF THE CHICAGO ACADEMY OF MEDICINE.

(Concluded from page 716).

Figure 20.—Charles Edward Nobiling. Born at Kolino (Posen), April 10, 1848. Died in the hospital at Berlin, Sept. 10, 1878. Typical (political mystic).

Assault on Emperor William June 2, 1878. Son of a suicide—attempted suicide after his act. Anarchist.

Well developed head and forehead. Small, sunken eyes. Long, slender ears. Arrest of bones of face and of jaw. Well developed nose.



Figure 20.

Figure 21.

Figure 21.—Nicholas Alphonse Aubertin. Inventor. Born July 26, 1835, at Bombas, (Moselle). Sent to the Bicêtre 1888. Attempted to assassinate Jules Ferry, December, 1887.

Persecutory, reasoning paranoiac, without hallucinations, complained of various persons who mixed up in his affairs, to whom he gave his hatred and insults. "But gradually, by a psychologic process, not at all surprising in exalted cases like this, he came to consider himself as personifying France, and making his political enemies those of the state, and conceiving the idea of punishing them. From this on, he was double insane, a persecuted persecutor on his own account, and a mystic fanatic on that of the state. In this state of mind he made a list of sixteen enemies; thirteen private and three public, and having condemned them to penalties to fit their crimes and referring them, as he called it, "to the lottery of summary justice," he drew their names from his hat in order to see with which he should begin. It was the name of Jules Ferry, condemned to death for *lese patrie*, that came first from this strange urn, and Aubertin, as a faithful minister of justice, took it upon himself to carry

out the sentence." The two following were personal enemies condemned "to have their two legs broken at the knees." Each was to have his turn.

Well developed head and forehead. Eyes small and sunken. Nose apparently normal. Upper jaw arrested.

Figure 22.—Jean Passanante; cook. Born at Salvia (Pozzuoli) in 1849. Imprisoned at Porto Ferraja in 1879. Typical regicide (political mystic). Attempted to kill King Humbert Nov. 17, 1879. (From a likeness given by Lombrosa).

"Elder sister had an imbecile son, an albino, a subject of tremor, and of extraordinary ascetic fanaticism; his younger sister had an odd habit of, every evening after finishing her work as a domestic, shutting herself closely up in her chamber and saying her beads and praying aloud; his elder brother, Joseph, was sent to the asylum at Aversa in March, 1887, suffering from systematized religious delu-



Figure 22.

sions. 'Possessed with the idea of elaborating the principle of faith and reforming religion, he become an ascetic lunatic, preacher and prophet.' We see the analogy between the criminal and the lunatic; they are brothers in mysticism. As Dr. Virgilia well says: 'The one in the religious sphere; the other in the political, exhibit the same phenomena.'" Regis, l. c. p. 29.



Figure 23.

There seems to have been a very prominent self feeling, desire of notoriety, etc., in Passanante, and possibly also a touch of religious fanaticism. The Bible was one of his favorite books. Socialist.

According to Virgilia he has become totally demented in prison, has lost all ideas, and lives a purely animal existence or worse; coprophagous.

High, broad forehead. Eyes irregular set. Left smaller than right; left higher than right. Left cheek bone more

prominent and higher than right. Ears long, handle-shaped. Apparent arrest of lower jaw.

Figure 23—Charles J. Guiteau shot President Garfield for the openly avowed reason that he was about to wreck the Republican party, and because the conception leading to the homicide was an inspiration of the Deity. From the evidence presented at the trial, the results of the autopsy and of the microscopic examination, alienists the world over, agree both as to his insanity and its type. Dr. W. W. Ireland is of opinion not only that he was insane but was a primary paranoiac (*primare verrückt*). His ancestry was defective on both sides. The mother suffered from an acute brain disease prior to and at the time of his birth and was for years "a nervous invalid." The father was regarded as a lunatic by clergymen, lawyers and others with whom he came in contact and by the eminent Illinois alienist, Dr. Andrew McFarland. A brother of the father died insane in Bloom-



Figure 24.



Figure 25.

ingdale Insane Hospital. The transcript of his hospital history shows that there was hereditary insanity in the family for generations prior. The homicide's brother showed strange peculiarities; the sister is an hysterico-epileptic and was once adjudged insane in Illinois.

With such a family history, hereditary stigmata are to be expected and defective as is the record these are found. Drs. McLane, Hamilton (called by the State), Spitzka and Kiernan¹ (called by the defense), agree that the skull exhibited decided asymmetry. This, as Kiernan remarks, extending to the face produced what Spitzka called a "lop-sided smile," and also involved the eyes.

Spitzka² lays great stress on the asymmetry of the convo-



Figure 26.

lution in either hemisphere, especially those of the island of Reil. He found in the right side, five fissures and six straight gyri; on the left seven fissures and eight gyri. The right hemisphere was less developed than the left. Dr. Spitzka also states that "aberrations in development of the kind discovered in Guiteau's brain has not yet been found in others than persons of unsound mind," and that "the only finding in the brain of constitutional lunatics of monomaniacal tendencies which promises to establish a relation between the insane and the state of the brain, consists in such architectural anomalies."³

¹ Chicago Medical Review, Dec. 15, 1881.

² American Journal of Neurology and Psychiatry, August, 1882.

³ Ireland, commenting ("Through the Ivory Gate") remarks: "These statements, if they could be proved, would settle the question, but I

The principal lesions found in Guiteau's brain were adhesions of the dura mater to the inner table of the skull along the longitudinal sinus, and adhesion of the dura to the pia mater and to the brain at a spot on the vertex. Other defects were also observed in the brain. Marked asymmetry was also observed in the head and face. Head and forehead fairly well developed; eyes set close together; right apparently higher than left; ears excessively developed; arrest of development at alae of nose; jaws normal. Microscopic examination revealed, in the opinion of Dr. E. O. Shakespeare, an unbiased observer, who made it, such marked evidence of disease and defect as to warrant the opinion that Guiteau was mentally abnormal.



Figure 27.

Figure 24.—Balthasar Gerard. Soldier. Villefranche (Franche Comte) in 1558. Executed July 14, 1584. Typical (religious mystic). Assassin of William of Nassau, July 10, 1584. (Portrait p. Bibl. Nat. Coll. des Estampes).

Premeditated his crime for six years. Probably had accomplices enough. Was rather of the type of Booth with religious fanaticism added. Regis does not say much in regard to him. Was made almost a saint by the Spaniards at the time. From the anesthesia of paranoia suffered torture courageously and was believed by the Dutch to have been aided by the devil.



Figure 28.

Excessively developed head. Small, sunken eyes. Arrest of bones of face and nose. Arrest of upper jaw.

Figure 25.—Aimee Cecile Renault. Born in Paris, 1774. Executed June 17, 1794. Typical (political mystic). Design of assassinating Robespierre. Likeness after Bonneville (Bibl. Nat. Coll. des Estampes).

Believed she ought to give her life for the return of the King.

Excessively developed occipital region. Exceedingly low forehead. Long, narrow ear. Arrest of bones of the nose. Well developed lower jaw.

doubt whether they can be proven." In reply to this remark I should say that there is scarcely a tissue of the body, more especially about the head and neck, but what will show stigmata of degeneracy as a result of arrest of development of the cells of the brain before birth.

Figure 26.—Karl Ludwig Sand. Student. Born at Wonsiedel in 1795; executed May 10, 1820. Typical (political and religious mystic. Assassin of Kotzebue, March 23, 1819. (Bibl. Nat. Coll. des Estampes.)

Meditated his act a long time. Wrote in his journal in 1818: "Lord, strengthen me in the idea I have conceived for the deliverance of humanity by the holy sacrifice of thy son. Make me a Christ for Germany, and make me, like Jesus, brave and patient in suffering." Attempted suicide after his act.

Low forehead. Small, ill-shaped eyes. Well developed nose. Prominent cheek bones. Arrest of development of the upper jaw. Excessive development of lower jaw.

Figure 27.—Jean Louis Verger. Priest. Born at Neuilly-sur-Seine, Aug. 20, 1826. Executed Jan. 20, 1857. Mixed type. (Reasoning mania of persecution, and religious mystic. Assassin of Mgr. Sibour, Jan. 3, 1857. From photograph by favor of M. Lacassagne.)



Figure 29.



Figure 30.

Son of a suicide. Had hereditary insanity. Considered all those he lived with, his *confrères* in particular, as his enemies, accused them of various crimes, and on this account was deprived of his priestly functions. Became clamorous for his rights and persecuted his superiors with his demands. Went into the Church of the Madeleine, with a placard on his breast inscribed: "I was naked, and ye clothed me not; hungry, and ye gave me no meat." Up to this time he was a simple case of persecutory insanity, but now the dogma of the Immaculate Conception was about to be proclaimed by the Pope, and he had a double cause to champion; his own, and that of the Deity. He wrote and spoke violently against the new dogma, and while he anathematized his own enemies he avenged the outraged religion by killing the



Figure 31.

Archbishop of Paris in church, with the significant cry: "No goddesses! no goddesses!" and regretting, he said, only one thing, that he could not go to Rome to strike another and a more illustrious victim. Notwithstanding the ample evidences of his insanity which would be evident to any modern alienist, he was condemned and executed, without any voice but that of his advocate raised in his behalf. Medical science was then nearly forty years behind its present status. Even Lacassagne, who later described his form of insanity so well, had only the year before declared him sane.

Rather low forehead. Small, deep-set eyes. Normal cheek bone. Long, handle-shaped ears. Nose arrested in its development. Arrest of upper jaw. Well developed lower jaw.

Figure 28.—Cotilla Galeote; priest. Born in Spain; condemned to death, but later interred in an asylum. Mixed type (reasoning insanity of persecution—religious mysticism.) Assassin of the Bishop of Madrid, April 18, 1886. (From photograph. Favor of De Lacassagne).

He had been interdicted from office for his eccentricities. Almost an exact repetition of Verger's acts and delusions. His insanity became so manifest after his condemnation that a second medical commission was called to examine him who reported him a lunatic, and he was interred in an asylum.

Full, low forehead. Small eyes. Deep set, and close together. Ear excessively developed. Long slender nose. Arrest of development of bones of face and upper jaw. I was informed, when in Madrid, by a physician that the deformed palate and V-shaped arch had much to do in the sending him to the insane asylum.



Figure 29.

Figure 29.—Louis Pierre Louvel; saddler. Born at Versailles, 1783. Executed June 7, 1820. (Political mystic paranoiac). Assassin of the Duc de Berry, Feb. 13, 1820. Drawn from life, at the Conciergerie).

Had the idea of killing all the Bourbons and chose the Duc de Berry as his first victim. Regis does not give a full account of him.

Low forehead. Eyes long; set far apart. Right lower than left. Long slender nose. Arrest of bones of face and upper jaw. Small lower jaw.



Figure 30.

Figure 30.—Louis Allibraud; clerk. Born at Nimes, May 20, 1810. Executed July 12, 1836. Typical regicide (political mystic). Attempted to kill Louis Phillippe, June 5, 1836.

Impr. Thierry Freres (Bibl. Nat. Coll. des Estampes).

Had had the idea a long time to revenge the death of citizens killed at Lyons. Compared himself to Brutus—his favorite works were those of St. Justin.

Excessively developed occipital region. Low, narrow forehead. Eyes set close together. Long, handle-shaped ears. Long slender nose. Arrest of bones of face and upper jaw. Arrest of development of lower jaw.

Figure 31.—De Paris l'Aine. Guard of the King. Born at Paris, November, 1753. Suicide Jan. 27, 1793. Typical regi-

cide (political mystic). Killed Lepelletier Saint Fargeau, Jan. 20, 1793. Engraved by Brion. (Bibl. Natl. Coll. des Estampes).

Antecedents very little known; all that is known of the immediate reasons for his suicide is what he himself wrote on the back of his commission as Royal Guard, found on his breast after death. My "brevet d'hominem; let no one be disturbed. No one was my accomplice in the fortunate death of the scoundrel, Saint Fargeau. Had he not been at hand I would have done a still better act; I would have freed France of the regicide, the parricide d'Orleans. Let no one worry. All the French are cowards and I say to them:

"Peuple, dont les forfaits gettent partout l'effroi
Avec ealine et plaisir j'abandonne la vie;
Ce n'est que par le mort q'on peut fuir l'enfamill
Q'Impriime sur nos fronts le sang de notre roi.
(“People, whose crimes dismay everywhere bring,
With cajoling and pleasure I quit In life's race;
Since tis only by death we can flee the disgrace
That is stamped on our foreheads in the blood of our king.”)



Figure 32.

Broad, low forehead; eyes small, set close together. Nose excessively developed. Slender cheek bone, well developed. Bones of the four upper and lower jaws arrested.

Figure 32.—Joseph Fieschi. Soldier, spy, draper, conspirator. Born at Murato (Corsica) July 13, 1790; executed Feb. 19, 1836. Exceptional. (Accomplices. Political mystic). Attempted assassination of Louis Phillippe by infernal machine. (From Nature).



Figure 33.

The stigmata of this subject is very noticeable. Head and forehead larger. Depression over each eye. Eyes small. Left lower than right. Nose long and slender. Cheek bones excessively developed. Bones of the face and upper jaw arrested. Receding chin.

Figure 33.—Charlotte Corday (Marie Anne Charlotte Corday). Born July 27 at Legueries (Orne). Executed July 18, 1793. Type, political mystic. Killed Marat, July 13, 1793. On leaving for Paris she gave away whatever she had, retaining only "Plutarch's Lives," in which she could converse to the end with her hero, Brutus. Killed Marat to save the republic. Refused priestly consolation; was "a republican before the revolution."

Low forehead. Eyes small and round. Left eye higher than right. Long, slender nose. Cheek bones round. Arrest of upper jaw. Small, undeveloped chin.

Figure 34.—Cesare Giovanni Santo, an Italian, stabbed President Marie Francois Sadi Carnot, June 24, 1894, at Lyons, to avenge the death of anarchists previously executed by the courts.

Santo was 22 years of age and was born in a province of Milan, Italy. He was sentenced to death August 4, and was beheaded soon after. The assassin was the youngest of six children and the only one of the family who was not well respected, the remainder being hardworking men and women. He left home at the age of 11, and even at that time showed anarchistic principles. His mother was temporarily insane over her son's crime. It is said that the father had epilepsy, which disease was brought on by threats of death by the Austrians while their prisoner in 1848. It is difficult at this period to give any of the facts in regard to family history, or the mental and physical condition of the assassin, since they were not brought out in the trial and no authentic report has been published by physicians. From his photograph he presents the following stigmata:

Head small; forehead low; eyes small, abnormally shaped; ears abnormally developed, long, handle-shaped; nose small at bridge, broad and flat at alae; face, cheeks and superior maxillary undeveloped; lips large; lower jaw apparently normal. From such an ill-looking individual, stigmata of degeneracy of nearly all of the tissues of the body must result.

Figure 35.—Patrick Eugene Joseph Prendergast, 25 years of age, shot and killed Mayor Carter Harrison, of Chicago, Oct. 28, 1893, at his residence, claiming that the Mayor had not given him a certain office which had been promised him. Very little was obtained at his trial in regard to the family history, except that his grandfather was insane. There can be no doubt but that Prendergast was insane, since five experts who were employed by the State to examine him found him, after spending considerable time in making a thorough examination, to be a paranoiac and therefore could not and did not appear for the State, but did appear, without reward for the prisoner.

Prendergast was born in Ireland and came to this country at the age of 5 years. On the witness stand I gave the following testimony: Height five feet, seven inches. Weight 132 pounds; hair red, coarse and stiff; very little upon face. Nose fairly normal, thin at bridge, broad at alae. Ears large and projecting; lobes short and broad; tragus both well developed; helix broad, with typical tubercles at the upper and outer border of the ear. Lips, upper, small and thin; lower excessively developed, more prominent because of undeveloped upper jaw. Face, arrest of development of the bones of the face, especially at the alae of the nose. Zygomatic arches, normal, but appear prominent owing to the arrest of the bones of the face. Lower jaw normal. Forehead receding. Head sunken at the bregma; occipital portion excessively developed; circumference 22.2 inches (57 millimeters); antero-posterior, 7.75 inches (20 millimeters); lateral 6.36 inches (16½ millimeters); lateral index .82; therefore extreme brachycephalic. Feet large; hands normal; fingers long and skinny. Width outside first permanent molar 2.25 inches; width outside second bicuspid, 2 inches; width of vault, 1.25; height of vault .75; antero-posterior, 2.

ARTIFICIAL SELECTION.

Read before the Milwaukee Medical Society, Oct. 9, 1894.

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It is by natural selection that those most fitted to succeed in the struggle for existence survive and propagate their kind. The familiar example may be cited of the deer which, being the equal of all the other members of the herd in other respects, is less swift of foot, and hence lagging behind his fellows falls a victim to his feline enemy the panther. His untimely death has eliminated him from the problem and made it impossible for him to become the progenitor of a slow-footed race of deer.

The dominant races of men have been evolved by

reason of the operation of the law of natural selection. While we may not at this time care to repeat or emulate the violent acts of our forefathers, by which they over-ran the territories of their less ferocious neighbors, appropriating the land, and in many instances slaughtering entire populations, we must nevertheless recognize the fact that it was by such deeds as these that a superior race of the *genus homo* became possible. With advancing civilization, and with our developing ideas of justice, equity and the brotherhood of man, natural selection has come to play a comparatively subordinate part in the solution of the various problems confronting mankind. In point of fact, as we advance in civilization, we are on every side adopting methods and means of rendering entirely inoperative this great natural law.

The law of nature, as well as the decree of Jehovah seems to be, "in the sweat of thy face shalt thou eat bread," and the law of natural selection if allowed to operate would with promptness eliminate from the problem those who refused to work. The so-called dependent classes, found principally in alms-houses and other charitable institutions, in the large cities begging from door to door, and in the country on the tramp, are representatives of the class who eat bread without having fulfilled the other part of the decree. Starvation is the legitimate end of these people and thus would natural selection solve the problem of the care of the dependent classes. But with the evolution of a superior race of men, we have acquired humanitarian tendencies and an increase in moral and sympathetic feeling, and these qualities in us will not allow us to stand idly by and witness the death of these elements of society by the operation of natural laws. We accordingly establish and maintain institutions for their care at the expense of those other members of society who are better fitted for survival, and in the meantime they are permitted to continue the work of reproduction thus continually replenishing the earth with offspring similarly unfit for survival. Society would probably suffer a greater evil by reason of the outrage to its finer feelings if natural laws were permitted full sway in the solution of this problem, than it now suffers in encouraging the growth of this dependent class. We see, then, in our poor laws and in our charitable institutions agencies which interpose to prevent the full operation of the law of natural selection.

If the trade union enables an incompetent and inferior craftsman to obtain work at current wages, by just so much does it interfere with the operation of the law of natural selection, which would condemn this man to idleness and starvation, or the adoption of a new means of earning a subsistence in some avocation in which he might excel. The natural law being thus rendered to a certain degree inoperative, the average efficiency of the whole class, trade, profession or occupation into which this individual has been foisted and maintained is correspondingly reduced and the tendency is toward deterioration rather than the reverse.

There is probably no agency in operation to-day which is opposing the operation of the law of natural selection more effectively, or I might say as effectively, as the medical profession. In the evolution of medical science we see this influence at work in every direction. I may here advert to the agency of certain disease germs in the work of natural selec-

tion. These germs are in many instances unable to maintain an existence and cause disease except in the tissues of the comparatively unhealthy, and in those certainly they are able to flourish in the greatest exuberance and most often ultimate in death. Were it not the fact that the healthy man is able to successfully resist the invasion of his body by microorganisms, disease would be the rule rather than the contrary. We live at the bottom of an atmosphere which fairly teems with microorganisms of innumerable varieties, many of them being pathogenic. These microorganisms are therefore constantly invading the bodies of men, the healthy among whom react against them so successfully that disease does not always result, while on the other hand the unhealthy are constantly falling victims to their pathogenic influence. In this way it transpires that disease germs, in general, are friends of the human race rather than enemies, rendering efficient aid in eliminating the physically unfit from the problem in the struggle of life. I say, in general, disease germs are friends of the human race, because there are germs that appear to attack with equal facility the vigorous and healthy, as for example those of measles, syphilis and smallpox.

The advances in medical science both preventive and curative which have, within the last thirty or forty years, lessened the prevalence and the mortality of the germ diseases, have enabled those to survive and procreate who under other circumstances would have perished without issue. As a consequence of these advances in medical science, it has resulted that while the mortality per million of population has markedly decreased in the group of diseases caused by microorganisms, it has correspondingly increased in the group of constitutional diseases. In this latter group hereditary predisposition plays an important part, and a survey of vital statistics indicates that there has been an increase in their prevalence and mortality. An increase in diseases of the respiratory organs, of the circulatory organs, also an increased tendency to diseases of the nervous system, suicide and intemperance. Increased mortality from cancer, diabetes, rheumatism, anemia and renal diseases.

In 1850 there were (Holmes, *Medical News*, July 7, 1894) 422 blind persons per million of population, while in 1890 there were 807. In the State of Maine (Haycraft, *British Medical Journal*, Vol. i, p. 404, 1894) there were in 1850, 75 insane persons per million of population, while in 1890 there were 685 per million. In 1838-1840 there were 155 deaths among infants under 1 year old per 1,000 born, whereas in 1890 the proportion had sunk to 142 per 1,000. In the period 1851-1860 the deaths from phthisis in children under 5 years old were in the proportion of 13.05 per 1,000 living, and from hydrocephalus 25.39 per 1,000 living, whereas in the period 1871-1880 the deaths from phthisis had fallen to 7.67 per 1,000 and from hydrocephalus to 19.00 per 1,000 living.

In the meantime, deaths from tuberculous affections other than of the lungs had risen from 19.20 per 1,000 living of the same age to 25.50 per 1,000. (*Journal of the Royal Statistical Society*, March, 1894.)

These few comparisons of mortality rates are sufficient for the purpose, but might readily be added to if time were taken to study the mortality returns of any city or country where trustworthy records are kept. But the physical and moral well being of

society and the advance of civilization is retarded in another conspicuous direction. There was a time in the history of mankind when ability to kill and to successfully rob one's neighbor was necessary to the continued existence of the human race, and it hence resulted that for thousands of years the most daring robbers and homicides were the ones best calculated to survive and leave offspring, but we happily live in a time when mankind has evolved out of this state, and these qualities render the subject out of joint with the times and less able to survive in the struggle of life.

The law of natural selection does come into exercise to a certain degree in the class we are now considering; that is the criminal class. There is a certain economy in vice; that is, vice, like the bacillus in the process of its growth calls into operation agencies which tend to its own extinction. The criminal class is constantly recruited from the non-criminal; the average duration of life among the members of this class is much less than the general average; and they less often leave progeny. Nevertheless, there are numberless instances on record where crime has appeared among large numbers of the descendants of criminal ancestors. Now these descendants as certainly inherited their impulse to vice and crime as the child of phthisical parents inherits its tendency to tuberculous affections and is no more to be blamed in the one case than in the other, and yet society can not be called upon to supinely suffer from the depredations of this class.

Our penal laws are enacted with a view not to the punishment of the criminal, but to the protection of society against his further acts of criminality, and he is accordingly temporarily withdrawn from his accustomed haunts of vice and boarded at the expense of normal man in State institutions. Having served out the term of his sentence here, he returns to society to again engage in criminal enterprises and incidentally in the work of procreation, producing progeny that will in turn prey upon society and require to be imprisoned at society's expense. While it is a fact as already stated that natural selection is coming into play to a certain extent in the elimination of this class of society, it is nevertheless undeniable that it is increasing in numbers to an alarming extent as is shown by prison statistics. (President Brinkerhoff's address at St. Paul Prison Congress, 1894.) Thus in 1850 there was in the United States of America 1 prisoner to every 3,442 of the population, whereas in 1890 the proportion had risen to the enormous ratio of 1 to every 757 of population. These considerations would seem to warrant us in the conclusion that interference with the operation of the law of natural selection, as above indicated, has enabled a physically and morally inferior class of individuals to survive into middle life and become the progenitors of still further degenerate offspring. Thoughtful men are already able to foresee that if this retrogression is not to continue, something will have to be done in the way of artificial selection.

Malthus recognized vice and misery as the most powerful agents in natural selection, and in his famous "Essay on Population," first published in 1798, pointed out a means of greatly reducing the prevalence of vice and misery as a means of natural selection. His plan was to insist strenuously upon the obligation of every man to maintain himself

and his offspring, prohibiting marriage on the part of any man not able to support an average family; that is, himself, wife and five children. I am not aware that the suggestion of Malthus has ever been put into operation anywhere, the argument of his opponents, among whom the clergy have always occupied a prominent place, being, practically, that inasmuch as man is endowed with procreative instincts and capacities he should therefore exercise them, let the consequences be what they may in the direction of bringing into being a race of paupers, criminals, imbeciles or other types of abnormal man.

As the medical profession deals with the physical disorders of the human body and strives to limit their prevalence by the discovery and application of prophylactic measures, the State, that is organized society, dealing with social disorders should equally strive to discover and put into operation efficient measures having in view the prevention of these disorders. Society then, that is the State, should seriously consider the question of supplementing what is still operative in the way of natural selection by artificial selection, and this can be carried out by submitting the members of the classes known as defective, delinquent and dependent, with due discrimination, to the operation of castration. By this operation the individual is at once and forever eliminated from the problem as a possible ancestor of future abnormal men. We are not here interested or concerned as to the future careers of these emasculated elements of society. We are not particularly interested in this respect to know whether the criminal thus treated becomes more docile, law abiding and therefore respectable, or on the other hand becomes more violent, vicious and murderous. This does not appear to me to be pertinent to the issue; if he does thus become more vicious he can be effectually dealt with by sequestration or execution; the question is entirely one of prophylaxis, and there can be no possible question raised as to the effectiveness of the measure in the individual case.

Every individual born into this world has a *right* to *demand* a normal and healthy, mental, moral and physical constitution, and therefore this application of artificial selection in the treatment of not only the delinquent, but also the defective and dependent elements of society will not only protect society, advance civilization and lighten the burden of normal man, but will also prevent suffering, misery and the cruel treatment of unborn millions of abnormal men. It is a measure that is not only merciful to society now but is merciful to future prospective victims, as well as to unborn criminals themselves, and as for the individuals to be operated on, their crimes or defects should be regarded as sufficient justification for the treatment.

It is the rankest kind of folly, not to use a more vigorous term, to suppose that because a man is born with procreative apparatus and instinct that therefore he is to exercise it without regard to the consequences to himself, his offspring or to society at large. This, however, appears to be the philosophy of those who have in the past opposed the theory of Malthus, or rather perhaps, what in their imagination they are pleased to regard as the Malthusian theory. The sooner the folly of this proposition is generally recognized by mankind, and by legislators in particular, the better it will be for the interests of civilization, and I believe that within the lifetime of

many here present, emasculation will be the penalty of certain crimes, if not the recognized treatment of all chronic criminals, and that, with wise discrimination, it will be advantageously applied in the management of the other classes of abnormal man already adverted to; that is, defectives and paupers.

803 Grand Avenue.

THE ANTRUM OF HIGHMORE IN ITS RELATION TO VOCAL RESONANCE.

Read by title in the Section on Oral and Dental Surgery, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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Any deviation from certain well-known points of design in the construction of a musical instrument is liable to result in failure. Maker and musician have long vied with each other in their efforts to suggest modifications and improvements without materially altering the original form, which consists of a vibrating body re-inforced by sounding-boards or resonant cavities in endless variety. They are all, however, poor copies of the original instrument, the human harmonium. While musical literature abounds with accurate scientific descriptions of musical instruments in general, next to nothing can be found regarding the science and art of voice melody and oratory, and still less treating of the design of the organs themselves.

The pianist, as he skilfully runs over the keyboard of an instrument, quickly perceives its good or bad points and indicates them with a degree of precision that clearly shows a knowledge of its construction. The expert organist will learnedly discuss the different makes of organs, as he dreamily draws out one step after another until, growing enthusiastic over some special combination of reeds and diapason, he bursts forth into a perfect flood of melody that fairly entrances his listeners and stamps him, not only as a master of technique, but shows his acquaintance with design and construction as well. No one not familiar with the anatomy of an instrument can combine its good points so as to get the best results. The virtuoso as she gracefully fondles a Cremona will expatiate upon the beauty of this or that particular form or make, and many times reveal an acquaintance with the literature upon the subject that is truly refreshing. The knowledge of the value of correct design and construction of musical instruments is not alone confined to professionals, but pervades to a greater or less degree the general public.

The would-be musician, before he commences his musical education, secures the advice of an expert in the selection of an instrument and thus begins his career in an intelligent manner. How marked the contrast in the selection of a "human harmonium" and the education of its possessor. Some one hears a child sing and remarks that it "has a good voice." An instructor is secured and the "cut and try" method of its education begins. No scientific examination of its vocal organs is made to determine their character or condition. Many times a brilliant career is suddenly checked through vicious methods of training by persons ignorant of the physiologic conditions existing in the production of harmony. Oftener

yet no effort is made to ascertain the cause of failure.

If an organ or piano should get out of tune an expert would be sent for at once to set it right, and yet the human vocal organs are as truly musical instruments as they, and as readily amenable to scientific investigation and treatment when out of repair. By aid of a laryngoscope fitted with a small incandescent electric lamp, the posterior nares and vocal cords may be thoroughly examined and all pathologic conditions detected. Not only this, but by using the same light the antrum may be illuminated from within the mouth and its outlines clearly defined, so that any deficiency or abnormal condition may readily be determined.

The vocalist of the future need not remain in ignorance of the condition of his vocal organs. Physical examinations will be made in the beginning, and from time to time, to determine how the cords and membranes are standing the strain of training. The hygiene of the parts will be closely observed and a more rational system of instruction, based upon purely scientific methods, will be adopted. Art has truly been the precursor of science in the education of vocalists, and too much attention has been given to results and too little to the scientific investigation of the causes of success or failure. Experimental methods have prevailed to too great an extent in the past and many pupils have found after years of training that they have mistaken "appreciation for genius" and that, by reason of some physical inadaptability, which might have been known in the beginning of their career, had an expert been consulted, they can never become successful vocalists or orators. No amount of instruction, no matter how competent, can account for physical incapacity in the vocal organs of the pupil, whether due to a congenital deformity or acquired pathologic condition of the cords, or the resonant cavities that make and control harmony.

Study of the anatomy of vocal organs has demonstrated the existence of a definite type, the possession of which is essential to success for soprano and bass singers and orators. If more attention was devoted to the study of the anatomy and physiology of the vocal organs, a better understanding of their functions would prevail and fewer failures would be recorded among vocalists, either in their early training or subsequent career. The widespread ignorance of the subject is deplorable, and in marked contrast with the knowledge that prevails regarding the value of quality and form in musical instruments in general.

Considerable attention has been devoted to phonetics by Alexander Bell and others, but their investigations have been confined largely to speaking rather than to singing and oratory. While it is true that the human voice is capable of wonderful improvement by patient training and that now and then a genius overcomes apparently insurmountable defects and attains unquestioned success, on the other hand it is equally true that another person may have perfect vocal organs and yet make a dismal failure.

The possession of correctly formed vocal organs does not necessarily insure that the possessor will become a successful vocalist under training, any more than that the ownership of the best manufactured musical instrument guarantees the development of artistic technical ability; nevertheless, the possession of a perfect instrument is the first step in attaining perfection either in instrumentation or vocalization although not the *sine qua non* of success.

There are many things other than perfect vocal organs that are essential for a successful vocalist; in passing we may mention artistic temperament, musical ear, pliable muscular system, patient perseverance and good health. These conditions have, however, all been noted more or less frequently in the past, and do not properly come within the scope of this article which is intended to deal with resonant cavities only, and to point out the rôle they play in the production of harmony.

Vocal sounds are generally complex in character and are produced by the passage of the breath over the vocal cords. On the other hand, non-possession of any or all of these militates against successful results under training.

Then, again, the development of pathologic conditions even after a considerable degree of perfection has been acquired is a quite common occurrence. Hypertrophy of the mucous membrane covering the cords, lining the fauces, or oral and nasal cavities, or the accessory resonant cavities themselves may result as the sequelæ of overstrain. Some individuals have what is known as "a catarrhal dyscrasia" and are especially obnoxious to catarrhal inflammations.

Local edema of the pharynx and cords is not uncommon in connection with a weak heart. The lungs may suffer and consumption, asthma, emphysema or pleurisy develop, any one of which would lessen their bellows power. Nasal polypi or hypertrophy of the nasal mucous membrane may occur and lessen, if not entirely shut off, vocal resonance in chronic conditions, and lastly singing in public halls, many times ill ventilated and filled with dust from the incoming audience, tends to irritate the vocal organs and develop a catarrhal condition. The use of alcoholic stimulants so common among certain classes of concert singers, is also ruinous to the voice.

The purest sounds are the vowels repeated in the key of "C" natural, with as little obstruction to the exit of the sound waves as possible. When the key is varied then the modifying influence of the resonant cavities is obstructed. In speaking in an ordinary tone of voice, the sound produced is largely "cordal," but if a special declamatory effort is made, the accessory cavities are called into play and assume an important part, the same as in singing.

The basis of audible vocal sound is found in sound waves set in motion by vibrating vocal cords. The pitch varies in an inverse ratio to the amplitude of the vibrations of the cords, the texture of which has much to do with the quality of the tones produced. Variations in tone are largely under the control of the will of the individual, through which changes in the tension of the vocal cords or alteration in the shape of the soft parts, is accomplished by muscular action. The direction of the sound waves is also altered in a similar manner so as to bring into play the various resonant cavities.

The range of tones produced by the human voice varies greatly in different individuals and even in the same person at different times. It is also susceptible of great cultivation and as high as sixteen harmonies have been noted in the trained voices of some bass singers. Training alone, however, will not account for this high degree of perfection; all the physical conditions must be perfect and the resonant cavities ample and so situated as to be under perfect control.

In rendering ordinary organ music, only a few

pipes and stops are needed, but when it is desired to execute the fugues of Bach or Mendelssohn's sonatas, a largely increased number is required. So also in that degree that the resonant cavities of the human voice are harmoniously developed will it be possible to produce musical tones in variety and perfection. Then, again, even as any variation in the form of the reeds or sounding-board of an instrument will modify the tone produced, so will any change in the form or physical condition of the resonant cavities of the human voice influence its range and quality. Size also seems to have a more or less marked influence, and so far as the writer's observation has gone there appears to be, everything else being equal, a correspondence between the range and perfection of the human voice in speaking and singing, and the capacity of the resonant cavities. Who ever saw a great vocalist or orator with a narrow, pinched face? Are not the distinguishing features of the successful vocalist the possession of a more or less oval and comparatively broad face with a projecting forehead, a strong nose and firm and pointed jaws—all points indicative of large resonant cavities? The breadth of the face gives space for the maxillary sinuses that are located in the superior maxillæ, and a wide nasal cavity also. The prominent forehead permits of a full development of the frontal sinuses. Physical examination of a large number of individuals permits me to say with a considerable degree of positiveness, that there is a correspondence between the breadth of the face and the size of the resonant cavities and that, from a study of the physiognomy alone, a very accurate idea of the possibilities of any given individual as a vocalist may be formed, provided no internal pathologic condition exists, which latter also may be accurately determined by laryngoscopic examination. There is no question in my mind but that there is a type for vocalists and orators, which is indicated by more or less pronounced features. How seldom do we find an accredited successful vocalist with what may be termed a pretty face. It is true that many such persons possess sweet voices, but they invariably lack power.

It is only necessary to call to mind the faces of a few noted vocalists and orators in order to establish the fact that there is a type of physiognomy to which they, in the main, conform. Let me cite a few, taken from "Practical Physiognomy," by Mary Olmstead Stanton:

Annie Louise Cary.—Large mouth, full red lips; full cheeks and short, thick, muscular nose. These points given by Mrs. Stanton for Miss Cary, indicate breadth of forehead with considerable development of the maxillary sinuses. Etelka Gerster.—Dramatic jaw; firm and rounding chin; nose broad and strong; forehead prominent, also cheek bones. Litta (Marie von Elsner).—Full broad face; broad nose and prominent forehead; and so on through the list, which comprises Christine Nilsson, Materna, Scalchi, Thursby, Albani, Patti, Madam Sainton-Dolby, Campanini, Gatty, Huntly and many others. Then for orators we might mention Henry Clay, Henry Ward Beecher, Theodore Tilton, Robert Ingersoll, Daniel Dougherty, Wendell Phillips, John Gough and so on without a single exception, all more or less square-shouldered, broad faced, prominent-featured men with large sinuses.

Then again, certain races also are noted for their melodious voices, whether trained or untrained—their prominent among these may be mentioned the negro

race. The plantation songs are known the world over, not so much for their artistic merit as for their melody. Now, if the physiognomy of the negro is called to mind it will be remembered that it is marked by the very points cited as essential for good vocalists, and they undoubtedly possess large resonant cavities.

The Celtic race, which can be distinguished wherever met by its rich, broad tones, has produced many noted vocalists. Some of our most prominent orators are of Scotch-Irish descent. The "banks and braes" of bonnie Scotland teem with a people noted for their melodious voices. No one can correctly sing "Annie Laurie" or "Auld Lang Syne" who has not Scotch blood in his veins or the Scotch physiognomy. The Norse race also, has many of the points above indicated. Choral associations are quite common among them and the Swedish Nightingale is a marked example of the type.

There are also races and peoples that are marked by a deficiency in their powers of vocalization. The Japanese and Chinese races speak and sing in a monotone with little or no range of the voice. That this is not entirely from choice may be proven by studying their physiognomy. Their faces are narrow and short, their features smooth, their eyes small and their foreheads receding—all points indicating small resonant cavities.

The Indian races of America have comparatively long, narrow faces, more or less depressed in the region of the maxillary sinuses, which gives prominence to the malar or cheek bones and limits the size of the antra. The Indian seldom or never sings, and his war-whoop has little music in it, although sometimes possessing considerable volume.

Brother Jonathan is too young to have acquired a national type, but the people who boast the bluest blood are noted for their pinched physiognomies and high pitched voices.

A study of the face of the Goddess of Liberty, that graces our American dollar, and which may be taken as representing the American type, as far as there is one, reveals the cause of this, as it shows a narrow face, with high arch and a tendency to suppression of the lateral incisors which indicates small or deficient antra.

Then again, temperamental distinctions may be made bearing upon this point. The nervous and bilious temperaments seldom if ever produce noted vocalists or orators. The basal temperament of this class is generally sanguine, although sometimes a sanguo-bilious or nervo-sanguine temperament may be found. These temperaments are to be remarked by broad oval faces, firmly set jaws and a more or less square articulation of the teeth; all points indicating harmonious and full development of the maxillary sinuses. Having considered the resonant cavities of the head in their general relation to the human voice, let us turn our attention for a few moments to them more in detail. Prominent among the accessory nasal cavities is the antrum of Highmore or maxillary sinus. Very little is known of its place in the evolutionary history of man and still less regarding its function.

A considerable experience, personal and clinical, in treating diseased conditions of this cavity has led me to look upon it as an important adjunct to vocalization, adding materially to the quality of the voice and perhaps also to its range.

The antrum of Highmore is situated in the superior maxillary bones on either side of the face, and in some instances penetrates the malar bone, forming an irregular elongated cavity. Its situation in general, may be said to be beneath the orbit and on the outer sides of the nasal fossæ. Its floor rests upon the alveolar process of the superior maxilla, in which latter body are embedded the roots of the superior teeth. Its anterior wall is formed by the facial and its posterior, by the zygomatic process of the superior maxilla. Its roof is formed by the floor of the orbit. Its contour, although varying somewhat in different individuals, is generally pyramidal with its base toward the nasal cavity and its apex pointing toward the malar bone.

The floor is often very uneven on account of the close proximity of the apices of the roots of the teeth, which often show in the cavity as slight elevations covered only by thin layer of bone. In quite a number of skulls examined, the roots of the molar teeth which often show in the cavity as slight elevations covered only by a thin layer of bone. In quite a number of skulls examined, the roots of the molar teeth projected a considerable distance into the cavity, forming hillocks, while in other instances thin bony partitions were observed that divided the cavity more or less completely into compartments. I am not fully satisfied in my own mind as to whether the latter are secondary growth or simply remains of the original bone that was not removed in the hollowing out process which took place in the formation of the cavity.

At birth there is no indication of the antrum, and so far as I know there is no literature treating upon the process of its formation. A few words, therefore, based upon original studies in this direction may not be amiss in treating of this cavity.

In the process of the development of the face at an early stage, only a very thin layer of bone separates the orbital cavity from the nasal fossa. Later, the turbinated bones seem to arise from the inner side of the orbital plate. Soon after this a slight depression appears between the middle and inferior turbinated bones which marks the location of the maxillary sinus. Shortly after birth this depression begins to deepen and advances with the growth of the superior maxillary bones, its final size and contour depending, to a great extent, on the conformation of the superior maxilla, the process of the growth of which is by internal absorption and external deposition of osseous material. The lining membrane of the antrum is analogous and continuous with that of the nasal fossa. The cavity which, at first, is simply a lateral nasal fossa comes finally to be shut off from the main cavity by the turbinated bones and a thin membranous partition through which one and sometimes two openings, the *ostium maxillare*, are found. The secretions from the mucous membrane lining, this sinus are normally discharged through these openings into the nasal cavity. The only other openings through the osseous walls of the antrum, other than those above described are the posterior dental canals, but as these do not penetrate but pass underneath the mucous membrane lining the cavity, they can not properly be said to be openings into the antrum.

The other cavities opening into the nasal fossa are the frontal, sphenoidal and ethmoidal sinuses. The frontal sinuses are situated between the two tables of the frontal bones and open into the nasal fossa

through the infundibulum. They are absent at birth and develop as the individual matures, like the antrum. The sphenoidal sinuses vary considerably in different persons, sometimes reaching considerable magnitude, at other times being absent altogether. When present they show as rounded cavities in the body of the sphenoid bone and have an opening into the superior meatus. The ethmoidal sinuses or cells consist of a series of compartments hollowed out in the ethmoid bone. They are divided into anterior and posterior cells, the anterior of which communicate with each other and open into nasal fossa in the region of the hiatus semilunaris by means of the *ostia ethmoidalia*. Vicarious openings are sometimes found into the frontal sinus and the orbit.

In describing the action of the resonant cavities let us for a moment consider the influence exerted by the nasal cavity in vocalization. "The most prominent function of the nasal fossæ in phonation, is as a resonant cavity to the voice in the production of articulate sounds; a nasal element is present in the utterance of all sounds, whether oral or nasal, and is even more conspicuous by its absence." Bosworth says that: "In cases where the posterior nares are occluded so as to preclude the action of the nasal cavities as resonators the voice is materially modified, and articulation becomes more or less fatiguing." Regarding the influence of the frontal sinuses, Mary Olmstead Stanton, a prominent writer on physiognomy, points out "fullness of forehead," among other facial signs of musical and oratorical capacity, "where is located the frontal sinuses. The fullness at this point shows that the cavities of the sinuses are large and hollow and this peculiarity of formation assists resonance of tone acting on the principle of the drum." She also speaks of "full rounded cheeks" as indicating "bellows power," and although she mentions "prominent malar bones" she fails to connect them with the antrum, but cites them as indicative of "great muscular development" . . . which, she says, is essential to good vocalization."

These two quotations seem to cover the gist of the literature upon the subject of vocal resonance, and although I have made diligent search I have nowhere found any reference to the maxillary sinuses as accessory resonant cavities. It may not be uninteresting in this connection to indicate how I came to attribute to the antrum an important rôle in vocalization.

In treating cases of suppuration of the maxillary sinuses, it has been my practice to trephine the outer plate in the region of the canine fossa. The bone thus removed is never replaced, but the opening is closed by extension of the mucous membrane which forms a membranous covering that remains more or less sensitive for a considerable length of time. This latter special feature enables the patient to detect the least vibration of the air inclosed in the cavity.

The human vocal organs belong to the class of instruments known as "reeds," and the maxillary and frontal sinuses serve to reinforce the tones produced by the vocal cords, even as the sounding-board of the violin and the guitar modify the notes produced by the strings, adding immeasurably to the richness and fullness of the tones produced. No mechanical instrument has ever been invented that can equal the human voice in quality of tone and richness of expression, and it is just these points that the antrum and the other resonant cavities add to it.

It is not necessary for me to enter into the consideration of the laws of acoustics governing the relation of the maxillary sinuses to vocalization; suffice it to say that the direct connection of a sounding-board to an instrument is essential to the re-inforcing of the tones produced. It is not essential that the sounding-board be an open tube. The air within a hollow closed space may be set in vibration by sympathy and serve the same purpose as if it were open at one end. Knudt's experiments have conclusively demonstrated the truth of the above statement.

In the case of the human voice, all the bones of the head vibrate in unison with the vocal cords, and the vibration is carried to all the closed cavities of the head, giving one kind of resonance. The antrum in addition, and by reason of its semi-membranous covering on the nasal side, which has a lower tension than the osseous walls, produces a yet more mellowed tone which is under the control of the will of the individual, who, by changing the direction of the sound waves, can send them over the surface of this membrane, thus securing its modifying effect.

Variations in the quality and register of the human voice are largely the result of physical changes. These are to be remarked in the changes of the voice from infancy to youth and again at full maturity and in old age. The voice varies according to the health of the individual, being stronger in good health and impaired during illness.

Pathologic growths, such as polypi, at times occlude the post-nasal space; hypertrophic rhinitis also acts in the same way to shut off the sound waves from the accessory nasal sinuses giving the voice the so-called nasal twang, which contrary to common understanding, is not a nasal sound but is due to the absence of the nasal influence.

In conclusion, permit me to present the following summary, viz:

That the maxillary sinuses are developed with the growth of the individual after birth.

That in some instances one or both are absent or but slightly developed.

That they have no definite form and vary greatly as to size in different individuals.

That there is a correspondence between the breadth of the face and the size of the antra.

That in some instances they are divided into compartments by osseous walls, which effect resonance.

That they are cavities intimately connected with the nasal fossæ, being separated therefrom, in part at least, by a thin membranous partition.

That the air contained in these cavities vibrates in harmony with the tones produced by the vocal cords.

That this vibration is most appreciable when the tones produced are full of melody, as in certain kinds of church music and negro melodies.

That it is more prominent in singing than in speaking, unless a special declamatory effort is attempted.

That there is a type of individual to which the successful vocalist and orator belongs and which is indicated, among other things, by a considerable but harmonious development of the maxillary sinuses.

That variation in the size and shape of the resonant cavities when present, undoubtedly affects their value as resonators; and

Finally, that certain races, noted for their melodious voices, are distinguished for the conformity of

their physiognomy to the type above given for vocalists.

DISCUSSION.

Dr. TALBOT—I regret Dr. Sudduth's absence, because I like when I attack the position taken by a writer, to have him present to talk back. I take decided issue with the arguments made. Dr. Sudduth has mentioned a number of singers, most of them exceptionally fine artists, who he says all had large features. It is a well-known fact that certain forms of disease are the result of neurologic conditions. Great singers—and this is especially true of those mentioned in the paper—are all geniuses in their way, and genius is now laid down in medicine as a particular form of insanity. A man who is an expert in invention, in art, is suffering from a form of insanity. All his ability runs in one direction. We shall find, if we study the lives of great geniuses, that almost always they are of no account in any other direction than that in which their preëminent genius is acknowledged, this particular faculty having been developed abnormally at the expense of the other parts of the brain, which are accordingly weak. Inherited tendencies have much to do with the result. If the brain develops in only one direction the osseous system has to suffer, and accordingly we find arrested development of different parts of the osseous system. If a large nasal cavity, large antra, and large jaws are due to the fact that the individual began to sing early and in that way developed them, just so we can develop the maxillary system. What effect the antrum has upon the vocal sounds produced I can not see, and I think that if we examine the skulls of noted singers after death the antra will be found much like the antra of others—some one way, some another. Gray says the opening from the antrum into the nares is of the size of a crow's quill. I have seen these openings so large that one could pass in a finger. It is asserted by the laity that individuals with high vaults make the best singers. I doubt it. There is a seeming difficulty in the way because of the contracted jaws found with this type. Dr. Sudduth speaks of roots of teeth extending into the antra. This is very rare, though it is occasionally seen.

Dr. G. S. DEAN—I am not prepared to discuss the paper, but I must say a word. The paper is of great value and touches upon a subject which we, as dentists, ought to know something about. If it is true that the antrum and the cranial sinuses are concerned in voice production generally, we ought to know about it particularly, as we may, in time, learn how to develop the antrum. Dr. Ottolengui tells how he moved the teeth of a public singer and the voice improved. Dr. Sudduth has treated of the voice as a string instrument; I think it is more of the character of an organ pipe. The first principle of sound re-inforced by a column of air is familiar to all. Take a string which by itself can be heard only three feet away; with a sounding board to re-inforce it, its tones will fill the room. The organ pipe is another illustration. Among birds, the owl has large cranial sinuses, but he is not much of a song-bird. So in the animals, the elephant has the largest cranial sinuses of all, yet he has not a very good voice. Dr. Sudduth makes the point that when the nasal passages are closed, as by catarrh, the voice becomes what is called nasal, although it is in reality absence of the nasal quality. As a general principle, the greater the volume of air set in motion by the sound the greater is its volume. The point brought out by Dr. Sudduth, that we as dentists ought to familiarize ourselves with the mechanism of sound is important. For myself, I propose to study the subject presented.

Dr. VAN ORDEN—If the antrum is not for the benefit of the voice, what is it for? It seems to be of little value unless it should be for this, or for helping the nose in blowing. It would seem well worth while our looking into the anatomy of the subject farther than the text-books take us.

On Transmissibility of Cancer from Man to Animals.—M. Boinet, after a long series of experiments on the transmissibility of carcinoma from man to animals, states that after having made repeated inoculations on the rat, the rabbit and the guinea-pig, he concludes that histologic examination of the lesions which resulted does not authorize him to pronounce in favor of such transmission.—*Semaine Medicale*, November 3.

PROGRESSIVE HYPERMETROPIC ASTIGMATISM.

Read before the Chicago Ophthalmological and Otological Society,
Oct. 16, 1894.

BY WM. T. MONTGOMERY, M.D.
CHICAGO.

In his classical work upon accommodation and refraction of the eye, Professor Donders says: "Astigmatism is either congenital or acquired. If it be acquired it is to be looked upon clinically as another form of disease," etc. I think this is the opinion that almost universally prevails with oculists up to the present time, so far as hypermetropic astigmatism is concerned. It is a congenital defect and does not progress or change without traumatism, or the presence of some other disease. Until recently I have accepted this idea without question. It had been my custom in prescribing glasses for the correction of hypermetropic astigmatism, either simple or compound, to assure the patients that they would not have to change their glasses. Within the past few years, a number of cases have come under my observation which have caused me to modify the above statement, and to question whether or not this defect is always congenital and unchangeable. The majority of these cases have been my own, which have returned after periods varying from one to five years, complaining of a recurrence of the symptoms that induced them to seek my advice in the first place. A number have come wearing glasses adjusted by other oculists whose skill I do not question. Of these I have not always been able to learn whether a mydriatic had been used or not. My own patients who have returned for examination, had been fitted under a mydriatic, and usually atrop. sulph. gr. iv to 3i instilled into the eyes twice daily for ten days. I do not claim special skill in adjusting lenses, but do claim to have used ordinary care in this work. My practice has been to examine first with ophthalmoscope, then with test glasses use the mydriatic until the patient could answer promptly as to improvement by a change of .25 in strength, or a turn of 5 degrees in axis of cylinder. If anything has been written upon this subject it has not come under my observation. My object in presenting this short paper is to get an expression from members of this Society upon the question, Does hypermetropic astigmatism increase? My recent experience inclines me strongly to the belief that it does under certain conditions. I shall only present brief notes of three cases, the most striking I have so far observed:

Case 1.—Jerry H., age 17, Irish-American; bookkeeper, residence Chicago, was first examined by me March 18, 1882. Patient states that his sight has always been poor. He has worn glasses for a number of years, but is unable to read or do close work comfortably with any glasses he has tried. Eyes very irritable. V. = 20-80 either eye, and not materially improved by glasses. Atrop. used, but my notes do not show how long. Patient thinks his eyes were under the effect of the medicine about two weeks. Under the mydriatic, R. eye accepts + 3.50 C + 3. cyl. ax. 75°. L. eye + 4. C + 2.50 cyl. ax. 90°. Either eye, V. = 20-60. These lenses enabled the patient to pursue his work as bookkeeper comfortably until April 2, 1886. Eyes have become irritable again, so that he can not do his work. We can not improve upon the old lenses without the use of a mydriatic; a 2 per cent. solution of homatropin is instilled into the eyes at intervals of a few moments until about twelve instillations are made. Waiting forty minutes the eyes accept, R. eye + 3.50 C + 4. cyl. ax. 75°. L. eye + 4 C + 3.50 c. 90°. V. = 20-60.

These lenses were ordered, and served the patient well until April 13, 1891. Now complains that he can not see as

clearly as he could when he began to use the last glasses. Testing his vision, I find it is only 20-80. The lenses are scratched in the center, and I infer that his lowered vision is due to this. As the patient needs new lenses, I decide to make another test, this time without any mydriatic. To my surprise, the patient now accepts R. eye + 3.5 C + 4.50 c. 75. L. eye + 4. C + 4.50 c. 90. V. = 20-4 either eye. These were ordered and are satisfactory. The patient, who is above the average in intelligence, is very much exercised about his eyes, but is reassured by the statement that the defect does not increase in adults, and by the fact that his vision is better now than it has ever been before.

Case 2.—Addie B., age 14, school girl; American; residence, Chicago. Was first seen by me Oct. 5, 1886. Father states that the daughter's eyes have never been strong, but she has been able to get along comfortably with her studies until recently. A few weeks ago, her sight became so blurred and she began to have such severe headache that she was obliged to give up using her eyes for any kind of close work. On examination, eyes free from external inflammation, but very irritable. Ophthalmoscope shows a high degree of hypermetropia, but no attempt is made to measure it on account of the irritable condition of the eyes. The right eye has a circular coloboma of the macula. The center of the coloboma about corresponds to the macula lutea and is about twice the diameter of the optic disc. The edges of the coloboma are clean cut, presenting the appearance as if choroid and retina had been cut out with a circular punch to the sclerotic. A solution of atrop. sulph. gr. iv to 3i was ordered to be instilled into the eyes twice daily. October 15, right eye accepts + 3.50, V. = 20-200; fixation peripheral. Left eye accepts + 5.50 C + 1.25 cyl. ax. 125°. V. = 20-40. The above lenses were ordered to be worn constantly.

Oct. 27, 1888. Patient returned complaining of symptoms similar to those complained of on first visit. She states that the glasses gave complete relief and enable her to go on with her studies until a few weeks ago. Left eye now accepts + 5.50 C + 2.50 cyl. ax. 125°. V. = 20-40. Lens was ordered. Oct. 29, 1889. Patient returned complaining of headache, and irritable eyes again. She states that the glasses ordered one year ago afforded relief until short time ago. Left eye now accepts + 5.50 C + 3.50 cyl. ax. 125°. V. = 20-40. This combination was substituted for the second lens, and I have not seen the patient since. Urged her to call as soon as her eyes began to trouble her again, and I have recently made an effort to find her, so to examine her eyes again, but was unable to do so.

Case 3.—Eddie H.; age 10; pupil; residence, Mendota, Ill. Was first seen by me Oct. 2, 1890. The patient is a robust boy, large for his age. The father stated that the boy has been having headache and trouble with his sight since he first started to school. The headache has become so severe that he was obliged to leave school. An examination of the patient's eyes shows the following manifest defect: R. eye = + 4. C + 1. cyl. ax. 70°. L. eye = + 4. C + 1. cyl. ax. 100-80 either eye. Under homatropin each eye accepts + C + 1. cyl. ax. 90° V. = 20-60. As the ophthalmoscope shows about the same defect, the above lenses were ordered for constant use. April 25, 1892, eighteen months later, the patient returned. The father stated that the glasses gave the boy complete relief for more than a year, but that a few months ago the headaches began to trouble him again and were now as bad as ever. The patient now accepts + 4.50 + 2. cyl. ax. 90° each eye. V. = 20-60. These were ordered and the patient returned home. Sept. 25, 1893, seventeen months later, the patient came back again complaining of return of the headache. As before, the father says that the new glasses gave complete relief for more than a year. The patient at this time accepts + 4.50 C + 2.50 cyl. ax. 90°, each eye. V. = 20-60. These were ordered and worn until Oct. 1894, when the patient returns. The patient now accepts R. eye + 5. C + 2.75 cyl. ax. 90°. L. eye + 5. C + 3. cyl. ax. 90° V. = 20-60. The ophthalmoscope and ophthalmometer shows the same, except the latter instrument shows the axis of astigmatism, R. eye 80° and L. eye 100°, but the patient will not accept the lenses in this position. Indeed, he readily detects a turn of 5 degrees either way from 90 degrees with either eye.

In this case a mydriatic was only used at first examination—homatropin 2 per cent. solution. I do not believe that this drug will completely relax the accommodation in all cases, but when the defect,

shown by the test lenses under it, agrees, as in this case, with the measurements made with the ophthalmoscope, I do not hesitate to prescribe. In four years the astigmatism increased from 1 D. to 2.75 and 3 D., or was it all there in the beginning and has it become manifest on the installment plan? This patient was not especially studious and did not use his eyes more than the average boy at his age.

Case 2, the young girl, was a pupil in the Chicago High School when I first examined her. She was then 14 years old, but small for her age. I did not notice at this time that her eyes were unusually small. At the last examination she was 17 years old and about as large as the average girl at 14. Her eyes are abnormally small in proportion to her size. She was bright intellectually. Said she had been studying hard and hoped to finish at high school that year. In the three years between the first and last examinations, there was an apparent increase of the astigmatism from 1.25 to 3.50 D. I say apparent, though I believe it was a real increase.

In the young man's case the time intervening between the first and last examination was a little over nine years. The apparent increase of the astigmatism was right eye from 3. to 4.50 D. Left eye 2.50 to 4.50 D. The first examination in each of the Cases 1 and 2, was at the age of most rapid development—at the age when the boy and girl are changing into the man and woman. Both had very imperfect eyes, and both were engaged in work requiring long hours at close work. These are the conditions most favorable, it seems to me, for bringing about the change the clinical histories of these patients seem to indicate.

Among several important questions these cases suggest, the most important to my mind is, What effect, if any, had the wearing of glasses upon the increase of the trouble? It has been claimed or suggested by some one that correcting high degrees of hypermetropia in children or young persons may arrest the growth or development of the eyes. If there is any truth in this suggestion, is it not a mistake to adjust lenses to such imperfect eyes? Would it not be better to proscribe books and close work and advise an active out-of-door pursuit?

REPORT ON CAR SANITATION.

BY GRANVILLE P. CONN, M.D.

CONCORD, N. H.

Presented to the American Public Health Association by the Committee on Car Sanitation, at the Twenty-second Annual Meeting, held at Montreal, Canada, Sept. 25-28, 1894.

A report upon this subject must include several topics; for in order to bring before the public a full realization of its importance, we must consider the construction, the heating, lighting and ventilation of coaches, as well as the methods of car cleaning now in use by the management of most roads.

This last is most essential, as it is the first principle of sanitation, without which nothing like a healthy standard can be assumed.

The problem of car sanitation is one of complex character and involves so many mechanical questions, that one can hardly be expected to bring out the whole of the subject in a single paper. I have endeavored to get the opinions on this subject from other members of the committee, but have not succeeded in doing so, as for various reasons the dif-

ferent members have begged to be excused, therefore I have selected from the opinions of sanitarians and practical mechanics, such quotations as seemed to have a concise, practical and unbiased bearing upon the conditions necessary to secure the sanitation of passenger coaches.

In the design of a car for the transportation of people it is important that it be constructed with a view to stability, safety and endurance. It must be constructed with a strength equal to the strain which is expected of it, in order that it may be safe to passenger and employe. This is important, for without strength and capacity for endurance it would be a veritable trap to every one having anything to do with it. It is virtually and for the time being a house on wheels, in which the varying number of people are expected to make their homes for a longer or a shorter period, according to the distance which they may be expected to travel. Therefore, like a house, it should be constructed upon sanitary principles, in which ventilation, heating and such conditions as will allow it to be kept clean are paramount factors in every case. Unless these sanitary principles can be carried out, and made permanent, then this house on wheels becomes unwholesome and unhealthy, and the conditions become favorable to disease, or of disseminating it, should a contagious or infectious malady find a place within its walls. Theoretically speaking, a room or a car into which a large number of people are to assemble should have left out of its construction everything that is calculated to foster or develop disease germs, therefore, the plainer it can be made, the less upholstery, carpets and curtains that are placed within, would seem to be the best calculated for health. Practically, however, the public demand something more than plain walls and plain seats, and forget the conditions necessary for sanitation in their desire for luxury. This is an unfortunate circumstance, but it is necessary to deal with the problem as it exists. Probably cars could be constructed with much less expense on leaving out much of the draperies, etc., that are now considered necessary; but as the public demand the luxurious apartments which we find in all well-appointed cars to-day, we shall be obliged to consider the different classes of coaches just as they now exist on most of our long lines of travel.

Referring to ventilation, it is now twenty years since the State Board of Health of Massachusetts instituted an investigation into the condition of passenger coaches. They found that the atmosphere of the ordinary coach contained from one to six times as much carbonic acid gas as other public assembly rooms, such as churches, theaters and public halls. The same year, 1874, at a meeting of the Master Mechanics' Association, the Master Mechanic of the Boston & Albany and also of the Old Colony Railroad, made a report on that subject. It was taken up by the Association, and considerable discussion followed. Some improvements came from this action, but since that period the progress of ventilation in cars has not been rapid, in fact it can scarcely be said that any improvements have been made. Recently, State legislation has placed the obligation upon the management to use steam heat, therefore, the necessity of further improvements in ventilation has become apparent to every one. In ordinary weather during the winter the problem of how to heat the car with steam and not have it too warm, is far

more difficult in solution than it is to prevent it from becoming too cold. These difficulties are largely due to the fact that the men who have charge of this work are incompetent to carry out the designs of the inventor of steam heat. They have little or no conception of what constitutes good atmosphere in a coach, and they care but little about their work except that the time goes on and they draw their pay. They have no instructor beyond the mechanic who simply shows them how to turn the valves which admit the heat and to shut it off, and the whole problem, as far as they are concerned, is how to keep heat enough in the car to keep it warm. The changing of the atmosphere of the car is of but little moment to them; they are constantly going in and out of the car at every station, and perhaps may be pardoned for not noting the atmospheric condition that obtains throughout the train.

Another fact in car sanitation, and to me, perhaps, the principal one, as it involves every principle of sanitation, is absolute cleanliness. This may be impossible in coaches, yet a near approach to it need not be considered impracticable.

Cleanliness is the first principle in sanitation, whether it be of cars or houses, and seems like a very simple matter. But when we consider that it involves in its principles, cleanliness of atmosphere as well as material, then the problem becomes greater, for in keeping the atmosphere of the car clean, as well as its floor and ceilings, you have arrived at what may be called true sanitation. The problem of keeping a car clean is greatly enhanced by the fact that very many good people allow themselves and their children when riding upon the trains, to become slovenly in their actions, throwing things upon the floor of the car that never would be permitted in an ordinary dwelling house. Why is it that people are so forgetful of good sense and good manners when riding upon trains is past comprehension; yet, we see it every day, and the coaches become excessively filthy from that cause alone. It may not be easy to break up such habits, yet, if the trainmen formed habits of cleanliness in regard to the coaches which are under their care, it would have a very beneficial effect on the passengers. In the Pullman and Wagner coaches, where porters are employed to wait upon passengers and keep the car clean, when the occupants so far forget themselves as to cover the floor or carpet with the refuse of orange, banana or apples, nut shells and other things which render a car unwholesome or unclean, and the porter goes around with his dust-pan and brush cleaning it up; it does not take a great many miles of travel for such people to see the error of their ways and to discontinue them. The same might be true of the ordinary coaches if the brakeman or person in charge should perform the same acts, for people naturally would become ashamed of throwing things upon the floor for another person to clean up in order to render the apartment comfortable.

Little need be said in regard to heating of cars, as that has become a question of legal importance. The accidents by fire became so numerous that the different State Legislatures took it in hand, passed laws doing away with the ordinary stove, and substituting steam heat. Unfortunately, there was no concert of action with different roads in the use of steam heat, as each road experimented for itself, the consequence being there are many different methods

of transmitting steam through the cars. Which of these is the best I am not able to state, but it is to be hoped that some uniform method will be adopted by which all roads will be able to effect interchange of cars, and that the instructions which should be received upon that particular subject, shall be so uniform that there will be no difficulty experienced in keeping cars properly warm and ventilated.

To digress a moment, I would add that it has been found necessary to open schools of instruction in the use of the air-brake, and I am told that old and experienced trainmen after attending these schools have been surprised to find how little they knew of the practical application of what was supposed to be merely an automatic machine. Now this instruction is secured by fitting up a car with all the mechanism of the automatic brake, and having a thorough mechanic for a teacher, and why not combine with that the teaching of car sanitation, to the extent that the trainmen may fully understand how to use such devices as are now found on most passenger coaches?

In regard to the different systems of ventilation, several experimenters and inventors have gotten up systems of their own, had them patented and endeavored to put them on the market. Some of them are very complex and all of them require some knowledge of the subject, else they can not be made useful. All of them involve extra expense in the construction of a car.

The question of how to ventilate a car is one which the mechanic and sanitarian must bring out together. It seems as though it would be quite impossible to invent any system that will change the air of a car while in motion and at the same time be effective while it is standing still. With electrical power it may be possible to place fans in a car, the same as you do in a house, that will be effective when the car is standing still, but when the car is moving the pressure of the atmosphere upon the outside is so great that considerable change will take place inside the car. Then again this pressure of the atmosphere is so different when the car is moving slowly, than it is if the car is moving rapidly, that it brings up another point in the problem of ventilation to be solved by the practical mechanic.

Before the use of the power brake, the duties of the trainmen were almost constant and imperative, but with the advent of the automatic brake his duties were made much lighter and less exacting. It is true that with the introduction of the various improvements that have been or may be instituted, a higher order of intelligence may be required than was necessary to assist in stopping or starting a train, yet that does not prevent the average trainman from doing good work, providing he has proper instruction.

The *Railroad Car Journal* publishes the report of the Committee of the Master Carbuilders' Association, from which I quote at length:

"In all modern systems of ventilation, sanitary engineers endeavor to have a plenum instead of a vacuum, or, in other words, to have a slight excess pressure inside of the building instead of a slight vacuum. With a plenum there can never be any cold drafts or admission of dust, smoke or cinders, for the reason that the pressure would always be driving the air outward through every crack and opening. With a vacuum the reverse is the case, and dust, smoke and cold air will find their way in at every crack. It is very desirable that the windows of passenger cars be so arranged that they can be locked fast in winter time, to prevent one obstinate passenger interfering with the comfort of the whole

car load, but this can only be done when a sufficient supply of fresh air is constantly being furnished to the passenger, comfortably warmed. The opening of the doors at stations is also a great interference with a uniform system of ventilation. This can not be avoided, but the evil effects of it can be largely overcome by building the cars with an inner swinging door. Most of the modern larger passenger cars having smoking rooms, double saloons and heating apartments, can be easily fitted up with a swinging door at the end of the passage in between these compartments, which will act as a kind of air-lock and prevent a good deal of discomfort otherwise unavoidable. A convenient way of arranging the windows so as to avoid the drafts and interference to the comfort of the passengers in the winter time, would be to have the outer sash arranged, as is commonly the case now, with the inner sash arranged so that when lowered they will lock themselves tight and can only be released by a lever at the end of the car, attached to a locking bar running the full length of the car on either side. These windows could be kept raised in summer time, the outer sashes being so that the passengers can raise them or lower them as they please. In the winter time, when these sashes are lowered no window could be raised.

"To summarize, the ideal conditions would be as follows:

"1. The admission of thirty cubic feet per minute per passenger of fresh air, and the carrying off of an equal amount of foul air, summer or winter.

"2. The fresh air so admitted must not be moving at a speed of more than three or four miles per hour in winter time.

"3. Fresh air admitted must be of a temperature in winter time of about 70 degrees Fahr.

"4. Fresh air so admitted in winter time must have added to it a proper degree of moisture for the temperature at which it is admitted, according to the average humidity of the atmosphere, when at 70 degrees in the climate in which the cars are running.

"5. No system of winter ventilation can be more successful unless means for the fresh air supply are provided independently of and separately from the windows and doors, as well as the ventilators for carrying off the foul air.

"6. The fresh warm air should be distributed through as many openings and as low down as it can be conveniently ranged for, and the foul air should be carried off through many small openings in the roof of the car as can conveniently be arranged for in winter.

"7. The ventilation should be entirely independent of the speed of the train and act as well whether the car is standing or running.

"8. The ventilation should be so arranged that there will be a plenum or slight excess of pressure inside the car, so that all drafts will be outward instead of inward, and smoke and dust thus excluded.

"9. It is most desirable that double windows should be used, and so arranged that they can be locked fast in winter time, but readily opened in summer time.

"10. It is most desirable that an inside swinging door be used, so as to form an air-lock or inside vestibule, to prevent the admission of cold air and dust every time the doors to the platforms are opened."

In arriving at these conclusions this Committee had an investigation made under the supervision of an expert, and incorporated into their report something of his work, and the reasons for summarizing such ideal conditions as they have deemed necessary for perfect ventilation.

The Committee add the following:

It may be argued that there is no use for any such system of ventilation as this, that the present arrangements for ventilation of passenger cars are good enough, and that nobody is any the worse for the present state of affairs. To show that this is an entirely wrong position, your Committee had a number of tests made to show the degree of foulness of the air in sleeping cars, and day coaches, which tests have been under the supervision of Mr. Wm. Forsyth of the U. S. & Q., through the kindness of Mr. Rhodes. Pure air contains from three to four parts in ten thousand of carbonic acid, and at 70 degrees Fahr. an average condition of moisture would be from four to five grains of water per cubic foot.

Mr. Angus Smith made a series of careful experiments in air-tight rooms for the purpose of seeing how long healthy people could exist in an atmosphere having an excess of carbonic acid and moisture. As the result of his ex-

periments, it was shown that it was very unwholesome to breathe an atmosphere having more than seven parts in ten thousand of carbonic acid, and that an atmosphere containing ten parts in ten thousand could not be endured by delicate people for long without injury, and that as the presence of an excess of carbonic acid is a direct indication of the presence of microorganisms, commonly called disease germs, the injurious effects are not merely limited to the poisonous influence of carbonic acid, but that the danger of taking organic diseases was very largely increased. It was further shown that the senses are a very unreliable guide in judging of the foulness of the atmosphere, and that people who remained in a room in which the atmosphere had become gradually fouled would hardly notice its foulness, whereas outsiders suddenly coming in would be almost suffocated.

"Microorganisms, or disease germs, are not given off to any harmful extent in the exhalations of healthy human beings, but they are given off in large numbers in the breath and spittle and evaporation from the skin of unhealthy persons. Especially is this the case with people suffering from tuberculosis, whooping cough, fevers and so on, and the disease germs grow and multiply very rapidly in a foul moist atmosphere. To quote a prominent naval surgeon: 'The road is short, straight and sure from vomica and mucous patch to the receptive nidus in another's body. Who that has ever had forced on him an aerial feast of cabbage, onions, garlic, alcohol, tobacco and gastric effluvia of an old debauch, can doubt that aqueous vapor can transport microscopic germs by the same route?' (A. L. Gihon, in an address before the Pan-American Medical Congress in Washington, D. C., 1892.)"

Experiments made in Europe on animals which were inoculated with a preparation from the dust beaten out of the cushions of railroad cars in ordinary service and which cars were not known to have carried sick people, showed that the most of these animals which were inoculated died of violent diseases. Few of them lived long enough to die of tuberculosis—none of them survived. As these microorganisms are in the air and simply settle on the dust, all this goes to show how very necessary indeed it is to carry off the foul air, and that, to quote a Southern physician:

"The movement of vast masses of people annually from one section of this broad country in search of those climatic influences modifying the course and progress of disease, has become, from a sanitarian standpoint, a great unsolved problem, namely, that of accomplishing the proper ventilation of cars by the introduction of pure air, free from dust, cinders, smoke and so on, and at the same time the withdrawal of the impure air arising from the natural emanations of the body, as well as the more serious dangers accruing from chronic or contagious influences."

"In all these devices which depend upon the speed of the train for their action, and where the air intakes surround the stovepipe, every time the car stops the ventilating process ceases and may be reversed; at slow speed it will be almost inoperative.

"Great improvement could, however, be made in the condition of the air in our crowded passenger cars if the trainmen were compelled to pay proper attention to the ventilators; a regular set of instructions should be furnished them for their guidance, and division officers should be instructed to pass through the train at every opportunity and report cases where the ventilators have been neglected and the air is overheated or foul, to the division superintendent for discipline. The men would then soon learn to attend to this part of their duty. Sleeping car companies should have a code of rules printed and posted in the cars, and their porters and conductors should be made to observe such rules. One specially important thing is not to open the ventilators on the windward side of the train, otherwise with drop sash or trailing sash ventilators, down drafts and cross drafts are unavoidable."

The above extracts from the report of the Committee of the Master Car Builders' Association has much to commend itself to our notice, as it comes from the best and most advanced class of practical mechanics. As a rule, such men are not visionary, but reason from cause and effect, therefore their opinions are entitled to our consideration. I under-

stand the report was written by Master Mechanic Sunderson, of the Norfolk and Western Railroad of Virginia; yet when asked his personal opinion of its being practical to carry out such ideas, and use the average trainman to accomplish the work, he remarks in rather a sarcastic manner: "I wonder what the A. R. U., or any other railroad organization, would say if we required our immaculate brakeman to do the chores in the railroad cars?"

Another member of this Committee, when asked if he believed it was possible to carry out such an ideal system as the report would allow the public to expect would be in use in a few years, says: "I would say in answer to your first question that I do not believe, as a railroad mechanic, that it will be possible to introduce and have accepted by railroad managers, the ideal conditions in a passenger car as expressed in the paper that was read on this subject. I do believe that if our trainmen were educated to make better use of our present facilities there would be less complaint. They have been relieved from year to year of their former duties, until they feel that all they need to do is to wear a uniform."—Mr. West, Master Mechanic, N. Y. O. & W. R. R., Middletown, N. Y.

Undoubtedly this is true, and we are all the more ready to believe its truth after having once asked one of these uniformed "Mikados" to ventilate the coach. That look of pity and condescension makes an impression never to be forgotten.

In support of that part of the report which I have quoted—relating to the experiment on animals inoculated with a preparation of dust from passenger coaches—I will give an extract from the report of scientists who have recently conducted a series of experiments, under the direction of the Imperial Board of Health of Germany, as to the danger arising from the dust in railroad carriages. Their results show a decided risk involved in traveling under the present sanitary conditions of coaches:

"The dust was collected in each instance from a square meter of surface, and from forty-five compartments, representing twenty-one carriages. The inoculations were made upon guinea-pigs. Many of them died of various diseases, and the rest were killed. Three only were found to have tuberculosis. The number of bacteria was largest in the fourth-class cars, and grew less with each rise in grade of the compartments. In the fourth-class cars the number was estimated at 12,624 per meter; in the third-class, 5,481; in the second, 4,247; and in the first-class, 2,583. On the seats and upper walls the numbers varied in the four classes from 2,646 to 29, while the roof was almost free. Though the third- and fourth-class carriages were the most infected, it was much easier to clean them, as they could be washed with hot water and soap, which could not be so vigorously applied to the better class carriages owing to the carpetings and upholstery."—(*Boston Medical and Surgical Journal*.)

The following letter written on a trip to the Eastern States, says:

"In our sleeper were three consumptives returning home to die, and that alone was depressing enough, but when, on getting up in the morning, one sees a considerable amount of dry, yellow sputum on one's *vis-a-vis* neighbor's bed-linen, it is neither dainty or reassuring. Morning cogitations, usually so pleasant, are apt to turn to the uncomfortable possibility of all the bedding in the car being subjected from time to time to the same infection, and being probably imperfectly washed or simply rinsed. Then it is impossible to clean the upholstery and carpeting without taking them out of the car, and an infected sleeper should be dangerous, as the continual vibration keeps the dust and bacteria in the air. The space is also necessarily confined. Moreover, travelers are apt to catch cold from drafts and from sleeping close to the windows, thereby rendering the mucous membrane receptive to germ implantation. They order these things better in Europe; on some of the continental lines

special coaches are provided for consumptives, and these are constructed with particular reference to ready cleansing and disinfection at the end of every trip—which, it should be noted, are much shorter than the 'runs' in this country, and the need of precautions is, therefore, and for so much, greater here than abroad."—(Dr. Douglas W. Montgomery's letter to the *Pacific Medical Journal*.)

Dr. S. S. Herrick, of San Francisco, read a paper before the Section on State Medicine, at the meeting of the AMERICAN MEDICAL ASSOCIATION the present year, entitled, "Common Carriers as Disseminators of Contagion."

The writer dwelt particularly on the disposal of the excretion of the people on inland waters and railroad coaches; believing that certain communicable diseases whose contagious properties are discharged from the alimentary canal are liable to reach the alimentary or respiratory tract of other persons not intercepted or destroyed, and cholera, typhoid fever, dysentery, intestinal tuberculosis and other filth diseases are notable in this way.

He says: "Companies who provide meager accommodations for passengers were properly censured, and should be held justly responsible if inadequate remedies were provided for their patrons."

Discussions by Drs. Ruggles and Cochran, Davisson and Stoner, all of whom were in accord with the opinions advanced by Dr. Herrick. These men, who are enthusiastic supporters of preventive medicine, are gentlemen of sound judgment and are not carried away by any desire for notoriety. They believe that State and Federal authorities should be ever on the alert to secure health for the individual, and that it is a duty which they owe to the people of the country to have a watchful care over the transportation company as well as the municipal lines governing health officers.

The *Ohio Medical Journal* says of the prevention of consumption:

"We do not deem it wise or prudent to invade the homes of tuberculous patients for the purpose of securing disinfection or the isolation of the sufferer. The instruction of the patient and his household, by his physician, in the necessity of prophylactic measures, is at present sufficient. But we believe that a vast deal of good might be done by the exercise of strict sanitary measures against the contamination of rooms in hospitals and hotels and the berths in sleeping cars. The most careful cleansing and disinfection of apartments occupied by consumptives should be required before other individuals are permitted to occupy them."

As we have said before, in this report, cleanliness is one of the first principles of sanitation; whether it be a car, a house, an office or a work shop, the same principle holds good. In the construction of coaches for passenger use, something should be done to render the cleansing of the car a matter of small expense, for while in the process of construction, little things might be done that would add to their convenience, healthfulness and cleanliness.

All passenger cars at the present time are constructed with water-closets; the floor of such coaches and a few inches of the side or mop-board should be covered with copper, as an ordinary wooden floor will soon become filthy and can never be made clean. Odors will always be given off from an ordinary board floor whenever the temperature rises to that of summer heat; but if the floor be covered with sheet copper, hot water, dry steam and chemicals may be used, leaving it without any absorbing surface to develop odors which may be latent in cold weather and very active on a hot summer day. If the designer and purchasing agent give attention to this in

first instance, the extra expense will be little or nothing, and will add very much to the efficiency of the car when the rules of sanitation are applied. As cars are now heated with steam direct from the engine, and as these pipes pass through water-closets for the purpose of protecting them against the cold weather, I can see no reason why taps may not be placed in those pipes in the water-closets and used for the purpose of cleaning them with hot steam; and it certainly could not be but very little extra expense at the time of the construction of the car.

Dr. S. S. Herrick, of California, in commenting upon a statute law of that State relating to the maintenance or commitment of a nuisance, remarks:

"Obviously, travelers themselves should not be held responsible for committing a nuisance, so long as transportation companies provide no facilities for obviating the same; and the legislation should be aimed directly at these companies, holding them responsible and requiring them to provide an adequate remedy.

"It is well understood that the law must not ordain what is impracticable, and equally plain that no serious difficulty and expense would be involved in abating such nuisances. No mechanical difficulty exists for a steamboat or a railway coach to have its closet provided with a closed receptacle, having suitable means for deodorizing, disinfecting and ventilating, and for discharging the contents into some proper place at short intervals. The details of a contrivance suited to such a purpose need not here be entered into; they belong to the inventor and mechanic rather than to the sanitarian as such.

"Aside from considerations of health, it seems strange that respect for common decency has not abolished a practice in travel by land which would have brought a blush to common carriers in the good old days of slow coaches. While inventors and builders of palace cars are doing so much for the comfort and convenience of passengers in other respects, they adhere to a form of closet from which travelers must be excluded at the time when it would be most acceptable (halting at large stations), and which scatters filth and disease along the route. It is to be noted that cholera still lingers in Europe, and meanwhile we must not consider ourselves safe here within two weeks' travel by team; while the other filth diseases, like the poor, are always with us.

"In my judgment the time has come for sanitarians to speak plainly and forcibly on the subject, and to demand of legislators a specific remedy which courts will be bound to apply to this class of offenses against health."

I understand several roads are making use of compressed air for the purpose of cleaning the draperies and plush covering of the seats; and that a plant or that purpose can be arranged to be effective, with small expense. If this is true, and I see no reason why it is not, it should generally be used, for thorough cleansing with fresh air would be a most valuable disinfectant.

The vestibule train has become very popular, no one doubts its efficiency as an easy riding coach, and it insures perfect safety in going from car to car, but is an object lesson for the ventilation of cars it becomes a failure, inasmuch as it simply ventilates from one car to the other. Some air will pass into the vestibule section, but as that section has less width than the car itself, the pressure of the atmosphere extending to the car is much more lessened than it is upon the sides of the car itself, therefore but little air is forced in from that section of the construction, as the ventilating property of the vestibule is lost, and aside from that it may be overcome by the extra heat of lighting.

This leads one to consider the lighting of cars. Nearly every large road has been experimenting with different methods of lighting coaches, and car companies like the Pullman and Wagner have done the same.

Whether these experiments have been conducted in the light of sanitation, or as a question of expense may be a matter of doubt, although it is probable that the safety of the car from destruction by fire has entered into the range of experiments. Gas and kerosene lighting, while moderately expensive, are not only dangerous by reason of their possibility of fire, but the extra heat which they occasion in the car in the summer time proves a very serious obstacle to the comfort of the passengers. Then again, the destruction of oxygen by gas or kerosene lighting increases the amount of carbon dioxide in the atmosphere of the car, oftentimes to a dangerous extent, and in that way the health of the passengers is seriously threatened unless there is a large amount of fresh air introduced continuously.

That electric lighting is the ideal of the present time perhaps no one will dispute, unless the expense of the same is taken into account. So far as I can learn, none of the devices for electric lighting have yet been brought down to the maximum of the manager's idea of expense, and therefore, some other method will find favor until the public demand safety in lighting as well as in heating coaches.

It is also well to note that the public are critical regarding the water supply. Some years since, Dr. R. H. Reed of Ohio, in investigating this matter, found that the water-tanks of ordinary coaches, and sometimes those of palace cars were notoriously filthy. The water supply must of necessity depend largely on the character of the supply at given points along the line. When cars are cleansed and the water tanks refilled, the ice supply depends upon the same conditions, but there can be no excuse for filthy tanks any more than in public or private houses. There are enough men employed about the trains to see that every tank is made clean day by day, and not to do so and thereby endanger the health of the traveling public becomes criminal.

In conclusion, I have but little to add, as, until the use of such devices for lighting, heating and ventilating we now have are fully understood and appreciated by the average trainman, who should be held responsible to his superior for the safe condition of his coach from a hygienic and a mechanical point of view, it is useless to assume that a more elaborate mechanism will find favor.

Nothing as yet approaching an automatic system in heating, lighting or ventilating of a car has been placed before the public, but as it is only a comparatively short period since automatic brakes and couplers have been placed upon the market, we may confidently look forward to the time when the public demand for hygienic improvements will evolve from the mind of man, some plan or system to meet the emergencies of the occasion.

In order to do this, effectually, some one connected with the road would have to instruct the employe in the use of hygienic appliances, the same as is now necessary in the use of automatic brakes; and it would seem quite practical that all roads having a surgical department should extend this work into the domain of hygiene, and give the surgeon-in-chief authority to inspect, instruct and to hold responsible such employes as are in any way concerned in maintaining a healthy condition on our trains. The surgeon, more than any other person connected with railroads, appreciates the hygienic condition of the coaches, stations and grounds of our railroads, for

in case of accident he has much to contend with that is unknown to the physician and surgeon called to see those injured in ordinary accidents, and, therefore, will always be on the alert for all sanitary improvements.

However it may be brought about, the employe should be taught how to make the best use of all the devices in use to promote the sanitation of cars; and should be held responsible for any unsanitary conditions arising by reason of his negligence.

SOCIETY PROCEEDINGS.

Chicago Academy of Medicine.

[Reported exclusively for the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.]

(Continued from page 728.)

MORAL TREATMENT OF EPILEPSY.

DR. H. M. BANNISTER—The subject allotted to me is a limited one. The epileptics we meet with in general practice hardly require any moral treatment. In a few cases moral reform is necessary, and in spite of all we may say of the incurability of epilepsy generally, is sufficient for all purposes. The epilepsy in these cases is only an episode, a result of excesses, sexual, alcoholic, etc., and the epileptic habit not being set up, a moral reform cures the disease. I am satisfied that I have known several such cases.

Moral treatment, properly so-called, is applicable solely to epileptics who have undergone mental deterioration, or who are mentally below par from the beginning. These cases require guidance and control. I shall speak, therefore, of this class; insane or semi-insane epileptics.

It can readily be inferred from what has already been said this evening, that epilepsy is not in itself a disease, but is merely a symptom of cortical irritability. The theory now generally accepted is that epilepsy is primarily a cortical affection; though I do not say that there may not be exceptions, yet that is the rule. When the epileptic lesion, whatever it may be, involves the psychically functioning elements of the cortex so as to bring the subject within the class of which I speak, psychic irritability is the result, and we may say in general terms that irritability is the key-note of the epileptic character. This is the indication for moral treatment, and the reason why in many of these cases it is even more important than medical treatment. Many, even of this class, are insensible to or intolerant of the ordinary remedial agents, and moral treatment is the only practicable resource. This psychic irritability shows itself by its reaction on the physical system, often in a very marked way. It is well known to those who have had to deal with epileptics *en masse*, how readily they react to all sorts of suggestion. It is often observed that one epileptic having a fit in a ward will seem to cause others to have them. The effect of operative procedures on the attacks is also in point. While I have never seen permanently good results follow any operation on old confirmed epileptics, I have seen just as good temporary ones from slight surgical procedures, such as setons, as from the most radical cerebral operations. This fact has been remarked by others, among them Dr. L. C. Gray, of New York.

Hysteria has been mentioned this evening as a complication of epilepsy; the fact is the two conditions continually overlap, and moral treatment is required for both.

Here I may mention another point, in regard to which I think erroneous impressions exist. By many, unconsciousness is made the criterion of epilepsy, in the post and pre-epileptic states, and all that is done by the individual in these conditions is called automatic. If this were true, moral treatment would be useless in these conditions, but according to my observation, and I think this has been extensive, it is not generally true. Often there is not even subsequent amnesia, and I am not prepared to say that consciousness is necessarily or invariably lost in the epileptic attack itself. Even the subjects of epileptic furor are more or less susceptible to prudential considerations. I have often noticed epileptics in that condition avoid attacking other patients who they knew would be likely to do them injury. I have had the testimony of epileptics themselves as to this fact, given in such a way that it could not be doubted. (Here Dr. Bannister narrated an illustrative case.)

This is probably the secret as to how some of these patients are managed outside of asylums; but while intimidations and force fall under the head of moral, or, perhaps we should say, immoral treatment, they would be out of the question in the proper management of these cases.

I have spoken of the epileptic character and said that its key-note was irritability. As ordinarily described in textbooks, it is a very unamiable character. It is admitted however, that there are exceptions, and one Italian author has estimated the proportion of epileptics who are altruistic as about 16 per cent. of the whole number. I should say that under proper conditions and taking account of and providing for the predominant element of irritability, we can find a much larger proportion than that. Many apparently very vicious epileptics, under judicious management and proper conditions, develop many very amiable qualities. An insane or mentally deteriorated epileptic still possesses his natural disposition, *plus* the irritability and the mental weakness. The latter is comparatively unimportant and may even aid in his management; the irritability must be controlled largely by moral measures. I have found it best to treat them as reasonable beings, explaining to them that their physical disease necessitated certain restrictions which had to be enforced. Then by granting them all the privileges I could, consistently, with their welfare and that of others, letting it be understood that it was as a favor, not as a right, I made friends; while the opposite course of giving them liberties as a right, and having to restrict them when they were least fit to be reasoned with, made them vicious and unmanageable.

The very marked religious tendency of epileptics, so often spoken of, and to their disadvantage, may often be utilized as a valuable aid to treatment. They are generally sincere, and their inconsistencies are the result of their irritability and disease. As religion is one of the greatest social forces in the world, it is not hard to see how it may be of advantage here. In individual cases I have seen it of the very greatest value. (An illustrative case was given.)

I believe the colony treatment the best that has yet been devised for a large part of the mentally deteriorated epileptics. They are not wanted in the insane asylums, and there are good reasons for this, both on account of others and themselves. Yet if the colonies are to completely relieve the asylums of this class, there will have to be some restrictive arrangements for a certain proportion that can not safely be let go, at all times, at large.

OPHTHALMOLOGIC RELATIONS OF EPILEPSY.

DR. CASEY A. WOOD—I feel that I ought to confine the few words that I have to say to the ophthalmologic relations of this subject, because during the last few years I have given some attention to them. There is, perhaps, no man in this country who has studied this subject with the fullness which Ranney has, and there is no one who has given us proportionately fewer results than he has in his papers. I have had occasion to operate on a half dozen cases of supposed eye-strain due to inequalities in the action, and alteration in equilibrium of the external ocular muscles, and my conclusions are that any other operation of equal severity would have brought about the apparently beneficial result that I obtained in these cases. Out of this number, there has been one case which up to this time I regard as cured but inasmuch as the case has only been under observation for a year, I perhaps ought to wait longer before deciding positively as to a cure having been effected.

In looking at the literature of operations for idiopathic epilepsy, I find that a great many operations performed on perfectly normal organs have resulted in cures of the disease. I presented this observation in the form of an appendix to my paper, which appeared in the *New York Medical Journal*, and suggested that there should be some regularly instituted operation for the treatment of idiopathic epilepsy. I think if we were to remove small patches of skin from various portions of the body, extending the surgical treatment over six months, that we would get about as good results as from operating on the eye muscles or any other organ of the body. I do not wish to enlarge upon the ophthalmologic part of this debate, but it seems to me that one important point has been overlooked, and that is the possibility of *spontaneous cure* in epilepsy. There are a great many cases mentioned in literature. I have been able to find more cases of spontaneous recovery from idiopathic epilepsy than I have, for instance, from the results of operations of any sort on the eye. I can point out to you cases where people have recovered from idiopathic epilepsy where nothing whatever had been done

or where the last thing done could not have borne any relation to the causation of the epilepsy. I think, also, in this matter of epilepsy, we should regard with a great deal of suspicion any operative procedure, whether on the eye, nose or throat—no matter where it is. I quite agree with Dr. Brower and others in that respect. I have on hand now, a small boy, from whose middle ear I removed a number of granulations nine months ago. The boy up to that time had attacks of epilepsy every two weeks. He has not had any since. Whether it was the moral effect I do not know. The bromids, in this case, have been stopped. I think what Ranney has given us simply points to one great fact; that if we do something for the patient and tell the parents and neighbors that he will probably get well, it will have a marked influence upon the epilepsy, even if it does not entirely cure it.

MEDICINAL TREATMENT.

Dr. DANIEL R. BROWER—To discuss the treatment of epilepsy in ten minutes is certainly a task that I am altogether unable to perform. It has been said by one of the preceding speakers that epilepsy is not an entity; this I indorse. It represents an irritable condition of the cells of the cerebral cortex, and these irritable cells may be thrown into a state of commotion at any point and by any one of the peripheral end organs of the body, and develop an epileptic attack as a result. These patients are intensely emotional; they are, therefore, most susceptible to suggestions, and in estimating the value of any treatment this fact must be borne in mind. I have had sometimes good results in experimenting with these patients, from the simple administration of what was practically nothing, but given with suggestion great results would follow. There is one important point in the treatment to which I wish to call attention, and that is the necessity of treatment of the aura.

These epileptic attacks, I care not what their foundation may be, after a while become purely a matter of habit, and while, as Dr. Lydston has said, we may remove the cause of the disease, the habit goes on. By the successful treatment of the aura, we may sometimes break up the habit. Just how the aura is to be treated depends very largely upon what it is. I have under observation at the present time a young man whose aura begins with a peculiar sensation and twitching of the hand, and pressure made at the wrist or somewhere on the forearm will arrest the progress of the paroxysm. So he carries a stout string about his wrist and jerks it the moment the sensation is felt, and this prevents the development of the paroxysm. A good many of these expedients might be suggested for this purpose. Unfortunately for these patients, a certain proportion of them have no prodromal symptoms, and in such cases treatment before the attack can not be instituted. Medical treatment in the interval between the attacks is then the only indication. And here comes in the question of the possible etiologic factor. What is it that, acting upon the irritable cerebral cells, develops the paroxysm? Every one knows that each case must stand by itself. As regards the importance of the etiologic factor—auto-intoxication—discussed admirably by Dr. Evans, I believe it plays an important part in the development of the paroxysm, and I think it is most important to watch carefully the condition of the gastro-intestinal tract; frequently the best we can do for the patient is to administer gastro-intestinal antiseptics. Unfortunately, as you know, we have no absolutely reliable remedies of this class, but I think excellent results can be obtained by the use of resorcin, beta-naphthol, the sulpho-carbolate of zinc, and salophen. Some one or more of these intestinal antiseptics, either administered separately or in combination, will produce marked improvement in the condition of the intestinal tract, stopping intestinal fermentation, and diminishing the frequency of the epileptic paroxysms. A very good combination, in my judgment, is resorcin with the sulpho-carbolate of zinc. Then another important thing to consider is the necessity of watching renal elimination. I think there is too little attention paid to this. I had an epileptic patient in my office, a man weighing 175 pounds, who only eliminated 400 grains of solid matter from his kidneys during the preceding twenty-four hours. This is a common experience in epilepsy, hence the necessity of some kind of medicine directed to this important function. I think one reason why the formula of Brown-Séguard has benefited so many of these patients is because the iodids and carbonates, renal eliminants, are used with the bromids. Everybody recognizes the value of the bromids, but I am free to confess, the more I have to do with these patients the less confidence I place in these drugs, and I certainly do not

give them in the doses that I formerly did. The mental deterioration from excessive use of the bromids makes the second stage of the epileptic worse than the first. As to the value of the several bromids, my preference is for the bromid of sodium, I presume because I regard it as less destructive to general nutrition or to the muscular tonus of the body than bromid of potassium. I prefer ammonium bromid in the cases of petit mal, and of nocturnal epilepsy. I have had very satisfactory results from a combination of ammonium bromid with antipyrin suggested by Dr. Wood, of Philadelphia. In cases of petit mal and of nocturnal epilepsy, I have used the treatment suggested by Trousseau, that is belladonna or its alkaloid, which I usually combine for this purpose with ammonium bromid.

Chloralamid is a valuable addition to the treatment of epilepsy, especially in the nocturnal form, and in those patients who sleep badly. I prescribe alteratives in addition to the general treatment suggested; I prefer as an alterative the chlorid of gold and sodium. I think there is in epilepsy, not only the condition of cells already mentioned, but also a chronic degeneration of the neuroglia, and this drug, I believe, is of some advantage in interstitial inflammations, not only in the brain but in the spinal cord, in the kidneys and in the liver. It is to a certain extent a cerebral tonic.

Lastly, I use electricity, the galvanic and static. I use galvanic currents of high ampèreage by longitudinal application. The anodal electrode, twenty centimeters in diameter, is applied to the head, and the cathode, ten centimeters square, is applied to the cervical spine. A current of ten to fifteen milliampères is used. These high ampèreage currents have some modifying influence over the irritability of the cortical cells, and inasmuch as such a high ampèreage current must have at least a catalytic, if not an electrolytic effect upon the brain, I believe it does modify the nutrition of the interstitial tissue.

Dr. JAMES G. KIERNAN—Epilepsy illustrates very strikingly the influence of the factor of personal equation, the factor of the moral influence as pointed out by Dr. Bannister, and the factor of the constitutional influence of the operation or the medicinal treatment *per se*, as mentioned by Dr. Wood. With reference to the question of curability, there are several things to be considered. In the first place, it is the grand mal which strikes the majority of people as the great evidence of epilepsy. The average ophthalmologist—although we have had no illustrations from the ophthalmologists this evening on the reflex hypotheses—takes it for granted that when the grand mal disappears the epilepsy is cured. Behind that are hysterical, sensory, mental and petit mal phenomena, and finally, which is ignored in the vast majority of cases, nocturnal epileptic phenomena. Until you can show that every one of these has disappeared, you can not say with any degree of positiveness the patient is cured or even ameliorated, because the grand mal is the smallest part of the problem.

With regard to traumatic epilepsy, I fully agree with Dr. Lydston that the sooner the operation is performed, the less chance will there be of the epileptic habit being formed. I do not believe when the epileptic habit is once established, that you can ever cure, in the true sense of the word, a case of epilepsy; at the same time, I do think every epileptic should have his intestinal canal, his eyes, and every other organ put in shape.

In reference to the point raised by Dr. Evans of auto-intoxication, while I agree with him from many standpoints, I desire to call attention to one fact which he has perhaps unintentionally omitted, that the epileptic status can be best explained along the line which he has stated, and that every investigation along the auto-intoxication line has simply served to corroborate the opinion of Meynert, based on clinical phenomena alone.

I heartily agree with the position taken by Dr. Brown, that the great tendency is to regard epilepsy as the grand mal type and to ignore the sensory phenomena, the aura and other conditions. I remember being in a case once with Mills, of Philadelphia, and Spitzka, of New York, and two European physicians. We were able to make a diagnosis from the evidence in the case that the man had epileptic insanity, but the verdict of the jury was otherwise. The case finally went to the Supreme Court, and the Supreme Court did not agree with the jury because the verdict was against the facts.

With regard to Dr. Moyer's position, that no epileptic should be held responsible who has committed a crime of violence without rational motive, I most heartily agree. I think in the condition of amnesia referred to, where there is general irritability, the epileptic is conscious, but I do not

believe after careful examination of these cases that he is conscious in the other conditions. In dealing with that state I am taking into account a factor which is often ignored. In somnambulism a man may rise in his sleep, may be conscious, may do everything and forget all about it. I do not think, after investigating the condition of epileptics, you can regard their condition as conscious outside of an irritable state with consciousness. We must remember this, that a large number of our acts belong to the subconscious category. We register an immense number of acts without being conscious of it and that registration rises into consciousness and occurs in morbid conditions as a state of delirium. That being the case, it can be seen how many complicated acts can be performed by an epileptic without assuming the condition of amnesia. With regard to the latter condition, I do not think a single attack of that kind is characteristic of epilepsy. We may have temporary amnesia. I can recall instances where I have been awakened, have acted, returned to sleep, and forgotten all about it. I think every one has done the same thing. With regard to the utero-ovarian status of epilepsy, the vast majority of wonderful cures which have been reported by gynecologists are due to a lack of knowledge of epilepsy. Taking into consideration all things, a large proportion of the recoveries from epilepsy reported are simple evidence of lack of knowledge of the ordinary facts of the disease outside of the state of grand mal. While at Ward's Island and the Cook County institution I had chronic epileptics who had been "cured" by all possible procedures. At the Cook County institution, three patients were reported to have been cured by operation, but they were just as bad epileptics as they were before operation. Another case at the Cook County institution was a gentleman who had been "cured" of epilepsy, by trephining, by a French surgeon. You will find a report of the case in 1868 in *Champonniere's Journal de Medecine Pratique*, but the man had epilepsy just as bad in 1884 and 1889 as he had in 1868.

INOCULATION TREATMENT.

DR. A. LAGORIO—My attention was called to the method of inoculation of nervous matter in the treatment of epilepsy about two years ago. It happened this way: A little boy 8 years old was brought to me at the Pasteur Institute in August, 1890, to be treated for a bite inflicted by a supposed rabid dog. The little patient received a full course of anti-hydrophobic fluid inoculations. Twenty-two injections were given in all, during a period of eighteen days. At the time of treatment the boy was rather anemic, poor in health, and had been treated for different ailments since childhood. I did not hear anything of the patient until about a year and a half afterward. To my astonishment I learned from the mother that her son had escaped hydrophobia, that the injections given not only improved his health, but had made him strong and vigorous, but that above all things they had cured him of epilepsy. This surprised me not a little, and I began to investigate the matter. That the boy had been truly suffering from epilepsy was assured me by the family physician, the late Dr. Thuemmer. The epileptic attacks would come on sometimes once a week, and then at other times once every two weeks, or once a month. There was no question about his having had epilepsy, and there is no doubt that from these several inoculations he recovered from the disease. What the causative factor was in curing the boy's epilepsy has always been to me a question—was it the substance which was injected? In my published report of April 12, 1892, I made a brief mention of this case—a copy of it was mailed to the leading medical journals of the country and also to several Pasteur institutes. It naturally aroused considerable interest, and many experimenters at once tried it; and although several of them reported cases, it pained me to notice that all them forgot to mention the source from which they received the inspiration. The object of my reporting the first case on record was not to claim any positive cure for epilepsy, but rather as an incentive to others to try the method and report.

Paul has injected the gray matter of the brain in many patients afflicted with nervous diseases and he has noticed that the vertebral pains and hyperesthesia rapidly disappear after a few hours and that in a locomotor ataxia the fulgurant pains cease, as also the neurasthenic headache and insomnia.

The experiments made by Brown-Séguard, Paul, Babes and others, and their claimed results led Crocq to believe that the effect of these nervous matter injections was due to the phosphorus contained in it, for according to Jolly there is found 2.928 per cent. of phosphorus in the white matter and 1.911 per cent. in the gray.

Crocq therefore instituted a number of experiments in the Hospital Molenbeck Sain-Jean (Bruxelles), with the injections of phosphate of sodium. Two cases of locomotor ataxia, one of chloro-anemia, and one of paralysis agitans were treated and the results were very encouraging indeed. But no beneficial effects can be attained whenever there are present profound lesions in the nerve substance; whenever the disease is essentially functional as in hysteria, chorea and epilepsy some good results can be had.

Colucci and Germano, of Naples, have given us a report of fourteen epileptics treated with the anti-hydrophobic emulsion. They find that this Pasteur fluid has an almost immediate action on the blood vessels. After three or four injections there is noticed a slowing of the pulse, and after a greater number of injections there is a marked irregularity and arrhythmia of all the cardio-vascular apparatus. If the injections are continued, a prostrating effect upon the body follows. The action of this Pasteur fluid is compared by them to such poisons as atropin, muscarin, veratrin, duboisin, etc. Their conclusion was that the Pasteur inoculations had rather increased the intensity of the epileptic attacks, and that such treatment, as a rule, failed in all of them.

I have treated about twenty epileptics with the nervous matter injections. I have abandoned long ago the rabic fluid, and only use the plain nerve matter emulsion. The effects are pronounced indeed. The epileptic seizure soon stops. Is it due to the moral impression or to the tonic effect produced upon the nerve centers? I do hold that such injections act as a most powerful neuro-tonic. Patients who are run down in health, haggard looking, anemic, nervously prostrated will soon improve in strength and health, and their appetite will revive. I will not enter upon the history of all cases, for the short time will not permit it, but will explain in a few words my method of treatment. I always begin with a course of nerve injections—one every day for twenty days, then one on alternate days for two weeks. I then administer bromid of sodium, occasionally, with belladonna and digitalis in small doses for some time to follow, and the results have always pleased me. I have had patients who came saturated with strong bromid mixtures but their attacks would still come. It was only after a course of nervous emulsion injection that they have showed signs of improvement.

This method which I have adopted, I believe is the best I can use in cases of epilepsy. By alternating the treatment, giving the injections first and then follow with a mild bromid medication, we can attain far better results than by administering the bromids alone.

Although I have written to all the patients, I have been unable to receive replies from all, especially from those living out of the city. Four patients living here have faithfully reported occasionally, and the results in these cases are remarkable. A young man began to have epileptic attacks four months after being infected with syphilis in 1890. He took a complete course of anti-syphilitic treatment for many months. He also took bromids *ad nauseam* for the relief of his epilepsy but nothing helped him. He was referred to me and finally submitted to nerve emulsion injections, and then bromid of sodium was given. It is a year and a half since he was treated, and he has had only two attacks during this time. When we consider that previously to the injections he was having two to three attacks a week, we must admit the result is highly promising.

In another case, almost identical with the one reported, and in which I applied the same treatment, nine months have passed without any attacks whatever.

A lady patient began to have epileptic attacks at the age of 6 years, following scarlet fever. These attacks occurred about twice a month. She had taken all sorts of treatment, but of no avail. When she called on me she had marked symptoms of bromidan from the large amount of the bromid salts taken. After the injections her general condition improved and has remained so for five months without a single attack.

Another case of nocturnal epilepsy also reported to me lately that the treatment had improved her wonderfully.

But, gentlemen, we must never be too sanguine, and must not rush into enthusiasm because of any fair or good results that we attain in our method of treatment. This method of nerve injections although in use a short time deserves attention and is worthy of trial. Time, only, will tell whether the results are permanent. I hope the farther we go, the more we will improve the method and the better probably will be our results.

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SATURDAY, NOVEMBER 17, 1894.

A PLEA FOR BREVITY IN MEDICAL WRITING.

"Therefore, since brevity is the *soul* of wit,
And tediousness, the limbs and outward flourishes,
I will be brief."—*Polonius* in "Hamlet."

Gracefulness and elegance is not given to all alike, nor can every one hope to express himself with perfect propriety and perspicuity; but in the use of the mother tongue all may be able to combine clearness of expression with brevity. This, indeed, is that simple style so much praised and so seldom seen.

A fact stated with simplicity gains in force, while if buried in tropes and figures or in mere words, it has no vigor. Too great attention to ornament destroys the dignity of an article, and is nearly fatal to its authority. One need not reject ornament, but in writing upon scientific subjects ornament must be held subordinate to truth and simplicity. These last are indeed cardinal virtues in the manuscript intended for the medical journals. Let the writer write what he thinks, express what he feels, and record what he observes. Observations of unusual cases are *always* of interest, no matter how they are reported, but even these reports lose none of their interest by being brief.

There is no need to use two words where one will answer the purpose of conveying to the mind of another some new fact, or the thoughts that the knowledge of that fact has evoked, and PROFESSOR EDMUND ANDREWS' article on this subject in this JOURNAL, August 18, 1894, was pointed and timely.

If we thus relegate ornament and redundancy to a subordinate place in medical writing, what shall we say of obscurity, and wrong use of words? While obscurity of meaning most frequently results from incomplete description, it very commonly arises from

redundancy. Delicacy of expression and nicety of shading only come from long practice and study. They are never intuitive; but simplicity may be natural. The wrong use of words comes usually from a lack of study of rhetoric and want of attention to the rules of composition. No one need fear criticism if he will write what he thinks, as he thinks it. He can make the necessary corrections in style afterward. It is the thought—the concept—that is wanted by his fellows, and it is the interchange of conceptions that enlighten minds and raise the average of human knowledge. We can truthfully say that American medical writers are improving year by year, and we have had many American medical men whose writings can not be excelled, but it must be admitted that the average journal article is too long and tedious. The papers of the Surgical Section of the AMERICAN MEDICAL ASSOCIATION, read this year, are much above the average, because CHAIRMAN ROBERTS wisely placed a time limit on each writer when he solicited his paper.

There is an argument for brevity in medical writings, that should appeal even to those who write merely for the sake of writing, found in the well-known fact that wherever the writer of a very long and tiresome paper puts his "conclusions" at the end, in the form of a synopsis or summary, that part is not only read first, but is frequently the *only* part read by anybody except the writer and the proof reader. In such cases the "conclusions" frequently contain about all there is of value in the paper. Short papers are always read, and the great improvement in our medical literature in the past few years, as shown by the pages of the JOURNAL, is doubtless owing to the tendency of the time toward pithy articles. Let us hope that at future meetings the plan of CHAIRMAN ROBERTS may be the rule instead of the exception.

LIABILITY OF DRUGGIST TO PHYSICIAN.

The relation which exists between druggist and physician is one peculiar in its character. What are the legal rights and liabilities thereof, on the druggist's side, furnishes not only to him, but to the physician, an interesting and important subject for contemplation.

As a general proposition, the Supreme Court of Louisiana declares, in the case of *Tarlton v. Lagarde* (decided July, 1894, but just reported in the advance sheets of 16 *Southern Reporter* 180) it can not be conceded that the mere refusal of a druggist to fill prescriptions furnishes any occasion to hold him for damages to the physician who gives the prescription. In many cases the druggist may have the best reason for declining. As a chemist, he may perceive, or have cause to suspect, the physician erred in his prescription. Or the druggist may not have at

hand the ingredients, or he may distrust his ability to prepare the prescription, or other causes may incline the druggist to undertake filling prescriptions.

From the evidence in this case it appears that a druggist declined to prepare two prescriptions. In one a patent medicine formed a component. He seems to have been averse to putting up prescriptions of which this patent medicine formed a part. In his own language as a witness, he was unwilling to take the responsibility of such a prescription, as he was not sure of the composition of the patent medicine.

There was testimony that it was not usual to make a patent medicine a component of a prescription, and there was testimony that it was not infrequent. This difference in the testimony of the physicians who testified, the court thought, deserved some consideration in connection with the unwillingness of the druggist to prepare the prescription,

With reference to the other prescription, which it was contended that the druggist should be made liable because of his refusal to fill, the answer was, that the prescription was not filled for want of the necessary ingredient and other causes. Under these circumstances, the court holds that the druggist was not liable in damages to the physician merely and only because the filling of his prescriptions on these occasions was declined by the druggist, for reasons not at all impugning the physician's capacity. Neither did it believe that the impression arising solely from the exercise of the druggist's right to decline to fill the prescriptions furnished any cause of action.

On the other hand, the court held that the druggist incurred liability by, without the slightest cause, indulging in public expressions tending to create the impression of the physician's incompetency. The slander attributed to the druggist was in the course of a discussion between himself and one of his fellow citizens, begun on the street, and continued in a barber shop. It first began with a request of the druggist for information of the gentleman addressed, formerly a Representative, whether the laws compelled a druggist to fill prescriptions presented to him. The information given on that subject did not suit him; but excited him, and led him to make observations offensive and unjust to the physician, at least in their tendency to affect those who were gathered by the animated and angry discussion, or to whom the observations might be repeated. The druggist, having exercised his privilege of declining to fill the prescriptions, should, for that very reason, have abstained from any comments calculated to convey impressions damaging the physician's character as a professional man. On the contrary, he engaged in a public discussion on the subject of the latter's prescriptions, in which he derided his diploma, and he further commented on one of his prescriptions. For

this the Supreme Court thought that a judgment in favor of the doctor for \$50 was too small, and increased it to \$100.

EXPERIMENTATION ON CONDEMNED CRIMINALS.

Medical history informs us that upwards of nineteen hundred years ago, ERASISTRATUS and others made inquiry into certain anatomic and physiologic questions by means of vivisection. Some two thousand condemned prisoners were dissected alive in the course of those novel and instructive experiments, and now in the nineteenth century comes GOVERNOR FLOWER, of New York, who is said to have granted permission not to destroy, but to save the lives of persons electrocuted.

It appears that under the present law providing for execution by electricity, a clause was included which provides that in all such cases a *post-mortem* examination shall be immediately made. Certain electricians have asserted with much positiveness that it was the necropsy which destroyed the criminal and not the electric current. To settle this question, if authoritatively raised, it has been suggested to his Excellency the GOVERNOR, that proper experiments to determine whether or not these victims of the law could be resuscitated would not only be in the interest of science but in the interest of humanity, for if these persons could be brought to life, many a case of accidental electric stroke might be saved which, under present methods result fatally.

It is stated that the only apparent obstacle is the general theory that when a man is condemned to die by due process of law he must die in fact, and if by a new operation of the electric current, life was restored, the electrocution would have to be done again.

CASTRATION AS A REMEDY FOR ENLARGED PROSTATE.

Women have long had almost a monopoly of the sensation of being unsexed, thanks to the enterprise and valiant skill of the gynecologist; but now the general surgeon, despairing of having castration of men adopted by law as a punishment for crime, has recommended it as a remedy for disease. PROFESSOR RAMM, of Sweden, performed the operation twice in 1893, for enlarged prostate. HAYNES, of Los Angeles, three times; FREMONT SMITH, of St. Augustine, once; WHITE, of Philadelphia, once; C. MANSELL MOULLIN, of London, once. That well-known writer, in the *British Medical Journal* for November 3, advocates the operation in desperate cases, and states that it is invariably followed by disappearance of the enlarged prostate.

The crop of eunuchs, heretofore not very great in this country, may now be expected to increase with surprising rapidity, as our home talent is certainly

not less bold than that of foreign nations, and no matter how dull the practice may become, American surgeons' knives are quite sharp enough to produce any number of *sans testicules* that may be demanded by the fantastic fads of the times.

CORRESPONDENCE.

Was Death the Result of Cocain?

ALBION, MICH., Nov. 9, 1894.

To the Editor:—Oct. 26, 1894, I had occasion to remove a nasal polypus from the left nostril of a lady patient aged 60 years. Less than a year previous I had thoroughly cocainized the anterior and posterior nares upon two occasions, and each time removed a large number of mucoid growths, varying in size from a pea to a walnut, which completely filled the cavities and rendered respiration through the nares impossible. Upon neither of these occasions did she exhibit any toxic symptoms or evidence of shock or prostration. She was a patient of rather a nervous, delicate organization, but without any established history of organic disease. Upon the day mentioned she came to my office, complaining she was again experiencing difficulty in breathing freely through her nose. Examination revealed the presence of a mucous polypus in the left anterior nasal passage. A 4 per cent. solution of cocain was applied by means of a small pledget of absorbent cotton twisted around the thin end of an aluminum applicator, the entire mass being little if any thicker than an ordinary round match. The cocain solution by this means was lightly applied to the base of the growth; no packing of the nostril nor prolonged application was at any time made. After waiting two or three minutes, this same procedure was repeated and then immediately the mucoid growth, as large as a walnut, was removed by the forceps without any difficulty. The resulting hemorrhage was about the average attending these operations. The patient expressed herself as relieved and delighted at the luxury of again having free nasal passages. She vigorously walked to the washstand and thoroughly washed her face and hands, and remained in the waiting room of my office for perhaps ten minutes, occupying an ordinary upright chair. At the end of this time she expressed herself as feeling all right, got into her buggy at the door and was driven to the home of her daughter, a quarter of a mile distant, where she remained about three-quarters of an hour, making no complaints of illness, but expressed a desire to go to her own home, some two miles in the country. Herself and husband entered the buggy, and as he was the subject of senile cataract, as was her usual custom she did the driving. She continued, according to her husband's statement, to talk naturally and rationally, without any complaint of physical ailment. When within a mile of home she suddenly fell forward, gasped a few times and died.

No *post-mortem* was made; hence it is not known whether any organic cardiac lesion existed, but no diagnosis of such condition had been made during life, though during the past four years she had been attended by two physicians besides myself—(a year ago I attended her in an attack of la grippe). The time elapsing between the operation and her death was approximately one hour and a half. Can any connection with the result be traced to encain or the operation?

HENRY DENNY THOMASON, M.D.

Case of Twins; One White, One Black.

WAYNE CO. HOUSE, ELOISE, MICH., Nov. 7, 1894.

To the Editor:—In reply to yours of November 2, I will say

that twins were born, one African and one white child. The colored baby lived. The mother is a light-haired German woman, and I learn from her that the father was "a nigger born in slavery"—probably his father was someslave driver, at least he must have been a white man. "Breeding back," as the horseman says, seems to be applicable in this case.

Yours very truly,

F. B. HEISOROT, Resident Physician.

The First Statue to a Medical Man in the United States.

NEW YORK, Nov. 5, 1894.

To the Editor:—In your editorial of Nov. 3, 1894, you state that the Sims statue is the first public statue erected in the United States to the memory of a medical man. How about the statue of Dr. J. D. Crawford, which for years has stood in the rotunda of the Capitol at Washington, as the discoverer of ether in 1842?

It is a more graceful execution than that of Sims, who is represented with harsh angles without the smoothness and ease of the real Dr. Sims, as his presence graced the parlors, chambers and streets of New York.

If a medallion or monument can be called a statue, then Dr. Ephraim McDowell, of Kentucky, was thus honored.

I am glad to see your notice. The erection of this statue is an unique event and deserves fullest recognition. Few such statues adorn the capitals of Europe. That of Boerhaave, at Leyden, is a remarkably fine one. I am told there is one at Leipsic of another medical man. At Westminster, you see the marble bust of Sir J. Simpson, a fine portrait also; while at Newcastle-on-Tyne there is in one of the Established churches a magnificent full length portrait, in stained glass, occupying a whole large window, of a medical man of that city.

It is too bad that Dr. Rush's statue project languishes. We should prize the memory of such men. But now we have two statues of our professional worthies let us, as we look on or think of them, be inspired to do good work as they did. I thank God that such lives were lived for our encouragement.

Yours truly,

E. CUTTER, M.D.

BOOK NOTICES.

The Physician's Visiting List. (Lindsay and Blakiston's) for 1895.

This well-known and popular visiting list is, as usual, first in the field for the new year. It will be found quite up to date. A dose table has been prepared giving the dosage in the decimal system, also in the old British apothecaries-weights. Those wishing to use the decimal system who have not heretofore used it, will find the table of doses invaluable.

A Manual of the Practice of Medicine. Prepared especially for Students. By A. A. STEVENS, A.M., M.D. Third Edition, revised. Illustrated. Cl., pp. 501. Philadelphia: W. B. Saunders. Chicago: E. H. Colegrove & Co. Price, \$2.50.

This is an excellent manual quite up to date in everything except dosage, clearly written, and in general quite satisfactory. The special pathology is necessarily brief, but it fairly represents the accepted teachings of the day.

Diagnosis, Differential Diagnosis and Treatment of Diseases of the Eye. By A. E. ADAMS, M.D. Cl., pp. 94. New York: G. P. Putnam's Sons. 1894.

Works on diagnosis without regard to size are always valuable, unless they contain positive errors. This little volume seems measurably free from them, and as it consists of tables arranged in parallel columns it will be found very convenient for ready reference.

The Pocket Anatomist. (Founded upon Gray). By C. HENRI LEONARD, A.M., M.D. One hundred and ninety-three illustrations. Eighteenth revised edition, containing Dissection Hints and Visceral Anatomy. Detroit: The Illustrated Medical Journal Co.

This useful pocket book, while intended mainly for students, will be found useful to general practitioners as well, for convenient and ready reference while on their rounds. The paper is poor but the low price at which the book is furnished probably precludes better material.

Essentials of Diseases of the Skin, including the Syphilodermata, arranged in the form of Questions and Answers. Prepared especially for Students of Medicine. By HENRY W. STELLWAGON, M.D., Ph.D. Third edition, revised and enlarged, with seventy-one letter press cuts and fifteen half-tone illustrations. Cl., pp. 270. Philadelphia: W. B. Saunders. Chicago: E. H. Colegrove & Co. Price, \$1.

An excellent book of its class, and one of the few question books that teach nothing to be unlearned afterward. The book is well printed and handsomely illustrated.

The Late Charles Warrington Earle.

A memorial volume to the late Charles Warrington Earle has recently been issued. It contains the memorial addresses of Rev. Frederick A. Noble, D.D., Bishop Samuel Fallows, D.D., William E. Quine, M.D., Henry T. Byford, M.D., and Mrs. George Sherwood. The frontispiece is an excellent steel engraving of Dr. Earle.

These addresses are so elevated in tone, and so touching in style, that it is well to have them preserved in permanent form not only on account of the many virtues and endearing qualities of the subject, but as well for their intrinsic merit.

The Pulse.

This is a handsomely illustrated annual, published by a committee of students of Rush Medical College, which publication the committee assure us will be continued from year to year. It contains a narrative of the college, the professors, ancient and modern, and of many alumni. The work is embellished by many half-tone illustrations, representing the building, the professors, the students, the clinics, and many humorous pictures. The letter press contains beside the heavy literature commemorating the many virtues of the college, specimens of class poetry, and facetiae concerning various members of the class, which doubtless are best appreciated by "those who are in it."

The mechanical part of the book is excellent and, as a whole, it is highly creditable to those concerned in its production.

Essentials of Chemistry and Toxicology. For the Use of Students in Medicine. Twelfth Edition. (Wood's Pocket Manuals.) By R. A. WITTHAUS, A.M., M.D., Professor of Medical Chemistry and Toxicology in the University of Vermont; Member of the Chemical Societies of Paris and Berlin, etc. 32mo, 314 pages, muslin, red edge. Price, \$1.

This little book is a handy volume that may be carried in the pocket. That its teachings are sound is evident from the fact that it has passed through twelve editions. In the present edition, "the part relating to the compounds of oxygen has been in great part re-written and re-arranged to keep pace with the advances in organic chemistry so far as is possible in a work of this character." The orthography adopted by the American Association for the Advancement of Science has been adopted, and it looks a little queer to read of "sulfur" and the like, but as we have already become accustomed to "fluorin," "chlorin," "bromin" and "iodin," the shock is not great. This intensely practical age has little time to waste in writing and printing superfluous letters from mere etymologic reasons.

NECROLOGY.

BENJAMIN McCLUER, M.D., of Dubuque, Iowa, November 4. He was born in Franklinville, N. Y., in 1824 and was graduated from the medical department of Harvard in 1852. He

began the practice of his profession in Holliston, Mass., where he resided for four years. In 1856 he moved to Dubuque engaging in general practice until 1861, when he was appointed surgeon of the Ninth Iowa Infantry. He served during the war with distinction and in 1865 was brevetted Lieutenant-Colonel. In 1866 he returned to Dubuque and resumed practice until 1893, when he retired to private life.—T. M. Ingraham, M.D., of Flatbush, N. Y., November 4, aged 72.—Frank Hartzell, M.D., of Churchtown, Pa., November 4, aged 50.—William A. Thom, M.D., Jr., of Norfolk, Va., November 1. He was an ex-President of the Norfolk Medical Society, and was at the time of his death President of the Society of the Alumni of the University of Virginia. He was for a number of years quarantine officer of Norfolk.—Rodolph B. Shultz, M.D., of Reading, Pa., November 3, aged 34 years. He was graduated from the Jefferson Medical College of Philadelphia and was for several years physician at the County Hospital.—E. B. Forsee, M.D., of St. Joseph, Mo., aged 50 years.—J. H. Davis, M.D., of Waterloo, Wis., October 28. J. R. Coleman, M.D., of Princeton, Ill., November 4, aged 60 years.—C. H. Lovelace, of Dukedom, Tenn., November 7, aged 40 years. He was for many years a member of the ASSOCIATION.—Charles T. Chase, M.D., of Brooklyn, November 8, aged 63 years.—E. B. Elrod, M.D., of Flora, Ill., November 10.—J. S. Geigley, of Canton, Ill., November 2, aged 36.

PUBLIC HEALTH.

Syphilis in Greenland.—Nelms comes to the following conclusions (*Rev. Int. de Bibl. Med.*), on the subject of syphilis in Greenland: 1, a few cases of syphilis occurred in Greenland during the decade 1870-1880; 2, at present there are no cases in that country; 3, the Greenlanders manifest a relative immunity to the disease.

Brewers' Grains and Cow's Milk.—One of the most important problems in the hygiene of infancy is that of the quality of cow's milk, which forms nearly the entire food of many children, and we know that many deaths from atrepsia are due to milk of poor quality. It is generally believed that brewers' grains fed to cows make the milk more abundant but "watery," and that dairymen feed them as an indirect way of watering the milk. In order to elucidate this question M. Garnier undertook a series of researches, the results of which he has communicated to *Les Annales d'Hygiene Publique*. To his mind his investigations prove that grains when mixed with sufficient dry forage to keep animals in good condition may modify or diminish the proportion of fats, but have no marked influence on the quantity of water in the milk.

Protection Against Noxious Animals and Insects.—A new section of the Pasteur Institute, devoted to the experimental study of means of defense against injurious animals and especially insects, is to be founded, according to the *Gazette Medicale de l'Algerie*. It will be under the management of Professor Metchnikoff. This scientist was the first to utilize the parasitism of certain mushrooms for the destruction of insects ravaging them—the *Anisoplia austiaca* and *Celonus punctiventris* by *Isaria destructor*. The station will have for its mission: 1, to collect and maintain cultures of all the pathogenic microbes of insects and injurious animals; 2, to study the conditions of development of these microbes in animals and artificial media; 3, to direct experiments in the field; 4, to supervise and control their application in practice. The section will publish a special bulletin and will have the advice of a number of eminent savants—MM. Giard, Laboulbene, Grandeau, Künckel d' Herculeis and others.

Sewer Discharges of Seaport Towns.—M. Cassedebat, a French army surgeon who has made a special study of potable waters, has been investigating the action of sea-water upon microbes with a view of determining whether the discharge of sewage into the harbors of seaports has any injurious

effect upon the public health. He collected samples of water in the port of Oran, Algeria, at varying distances from the mouths of the sewers, and has discovered that the liquid was so charged with germs that it was not possible to count them until a twentieth dilution was made. The bacteria were most numerous where the water was most tranquil and allowed the germs to be brought to the surface and distributed along the shore, whence they might readily be disseminated by the winds over the city. Nevertheless, sea-water is destructive to microbic life. M. Cassedebat, using tubes of sterilized sea-water, found pus microbes died in from twenty-two to twenty-four days; the pneumococcus in from thirty-five to forty days; the anthrax bacillus in from twenty-one to twenty-four days; and the microbe of typhoid fever after forty-eight hours; the rapid death of the typhoid bacillus is of most interest.

A Health Department Appreciated.—It is so seldom that the lay press gives just recognition to the public health services, that the *JOURNAL* hastens to reproduce the following from the Toronto (Ont.) *Star* of a recent date: "One of the best managed departments in connection with our civic affairs, and the one which gives the best returns for the money expended, is the Health Department." The appropriations and expenditures for sanitary purposes during 1894 are then given in some detail, and the *Star* adds: "For this expenditure the general health of the city is better than ever before. Besides this expenditure, there is a large amount appropriated for building and maintenance of the isolation hospital, but the citizens have the satisfaction of knowing that the city is being so well fortified against epidemic diseases that the danger of a serious outbreak is reduced to a minimum." It may also be noted in this connection that the health departments of some of our large cities—where political corruption is rife and municipal pay-rolls have been overloaded for election purposes—have been recently singled out for honorable mention, because of reduced rather than increased expenditures.

Sanitary and Medical Legislation in New York.—The amendments to the State constitution adopted at the late election in New York make feasible some needed legislative changes in the interest of State medicine in that commonwealth. One amendment strikes out the word "coroners" from the old instrument so that it is now reasonably certain that the forthcoming General Assembly will enact legislation analogous to the Medical Examiner laws of Massachusetts, Connecticut and New Jersey with regard to the inquisition into the causes of sudden or violent deaths and into cases in which there is reason to suspect that death was due to other than natural causes. This amendment has been urged by the New York Academy of Medicine on grounds which may be summed up substantially in the statement that diverse and incongruous functions, requiring an almost impossible combination of expert knowledge, are embodied in the old office of coroner; and that, as a result, society is not adequately protected—its lower classes especially, against the negligence of employers and corporations and all classes in general against crime, by the coroner system. Another amendment abolishes the limitation to \$5,000 of the amount of damages recoverable in case of death by accident; and still another forbids the sale of lands and the cutting of timber in the State forest preserves—a prohibition in the interest of the conservation of the water supplies and the preservation of health resorts.

Epidemic Contagious Diseases.—Smallpox "storm centers" continue at Milwaukee and Chicago, and there is some increase of danger points in other States—New York, New Jersey, Pennsylvania, Ohio, Indiana, Michigan and Iowa. Under date of November 5, Dr. Wingate, Secretary of the Wisconsin State Board of Health, reported 139 cases of smallpox in Milwaukee and 37 cases in seven localities in Milwaukee, Waukesha, Walworth and Manitowoc Counties; during the week ending November 13 there had been reported thirty cases with seven deaths in five localities in four counties, and twenty-three new cases with nine deaths in Milwaukee; Dr. Wingate adds: "This is the smallest number of cases reported from Milwaukee in any one week since August 4; there are now on hand in the city 107 cases (41 in hospital and 66 at home) a decrease of 32 as compared with the week

previous, and of 44 as compared with two weeks ago;" since the outbreak in January last the disease has appeared in forty-seven different localities in Wisconsin, and now exists in Milwaukee, Wauwatosa, South Milwaukee, Greenfield, Franklin, (all in Milwaukee County), Beaver Dam (Dodge County), Muskego (Waukesha County), Spring Prairie (Walworth County) and Two Rivers (Manitowoc County). Except four cases at Sandwich, DeKalb County, on the 14th inst., there is no smallpox reported in Illinois outside of Chicago, where there were on the 13th inst., fifty-seven cases—all in hospital. A dispatch of the 13th says that of the forty-three cases now known to exist in New York City, thirty-two are said to be traceable to the family of a grocer in which there was an unreported case of smallpox some time ago, during the existence of which the shop was kept open, and customers contracted the disease. Whether as a result of the amount of attention given by the public press to the new antitoxin treatment of diphtheria or because the disease is really more prevalent and more virulent than usual, the fact remains that the *JOURNAL* is in receipt of an unusually large number of reports of the prevalence of diphtheria; its incidence seems to be general north of the Ohio River, and in many localities whole families are reported to have been swept off, panic created, schools closed and business suspended. Other dangerous contagious diseases in this country—typhoid fever, scarlatina, etc.—present no features worthy of note. A recent Berlin despatch reports 170 soldiers of one regiment, at Glogau in Prussian Silesia, ill with symptoms of Asiatic cholera and the barracks closed in consequence. Professor Flügge has been sent to determine bacteriologically the exact nature of the disease; several cases of choleraic nature have also been reported at Jaetschau in the same province, but the season is too far advanced to warrant alarm on account of these reports.

Activity Among Health Authorities.—In addition to the actions of the various State Boards of Health and municipal health officers heretofore noted in the *JOURNAL* from time to time, there is manifest at the present time an unusual activity among these bodies which is attracting general interest. As a result of the efforts of the Maryland State Board of Health, a Sanitary League of the health authorities of that State has been organized with Dr. T. W. Simmons, of Washington County, as President; Dr. James F. McShane of Baltimore, Vice-President, and Dr. James A. Steuart, Secretary of the State Board of Health, as Secretary; the League purposes to devote its energies to securing needed sanitary legislation. From Ohio, Dr. C. O. Probst, Secretary of the Ohio State Board of Health, announces the tenth annual meeting of the National Conference of State Boards of Health to be held in Washington, D. C., December 12-15, prox.; Dr. Probst, President of the Conference, will open the discussion on one of the questions propounded by the Michigan State Board of Health. "Is it possible to have united action throughout the country on the prevention and restriction of consumption?" the Ohio Board will offer the following question for discussion by the Conference: "What measures should be taken by State Boards of Health to prevent the conveyance of smallpox contagion by tramps?" and Dr. J. W. Scott, of the Illinois Board, will read a paper on the State control of the production of vaccine virus. The Michigan State Board has prepared a bill, which it will urge at the next session of the Legislature, prohibiting, under severe penalties, the sale of milk from cows affected with tuberculosis; and another, requiring school teachers and professional nurses to possess certificates from reputable physicians, that they are free from tuberculous or other disease communicable to pupils or patients. The Illinois Auxiliary Sanitary Association held a meeting during the week at the State capital, at which Dr. C. N. Metcalf, Secretary of the Indiana State Board, read a paper on the "Best Methods of Sanitary Organization;" Dr. A. K. Reynolds, Health Commissioner of Chicago, on "Needed Public Health Legislation;" Dr. Sarah Hackett Stevenson, of the Illinois State Board, on "School Hygiene;" Dr. Henry B. Baker, Secretary of the Michigan State Board, on "Vital Statistics and the Best Methods for their Collection;" Dr. Adolph Gehrman, Director of the Chicago Municipal Laboratory, on the "Bacteriologic Diagnosis of Diphtheria;" Dr. C. O. Probst, of the Ohio State Board, on the "Restriction and Prevention of the Communicable Diseases."

Among the topics of "Needed Sanitary Legislation," Dr.

Reynolds urges the extension of the burial-permit ordinance to every locality and the adoption of a uniform classification and nomenclature of the causes of death, as essential to a more perfect registration of deaths and their causes—the shifting of the duty of reporting births from the physician or midwife to the parent or householder on whose premises the birth occurs, in order to secure a more perfect registry of births—the compensation of physicians for the notification of contagious diseases, or their relief from this obligation and its imposition upon the householder—the vesting of the control of county charities in a continuing, non-political board of trustees—and the creation of the office of medical examiner to relieve the unqualified political corner of the duty of determining “the cause of death.” In Iowa, during a two-day session, the State Board of Health took action on the subjects of tuberculosis, smallpox, diphtheria, “walking” typhoid, trichinosis and other diseases; tuberculosis was declared to be communicable and as such a quarantinable disease; Professor Bay, the bacteriologist of the Board, in submitting his report of work done in the bacteriologic laboratory, stated that he had, “simultaneously with Dr. Klein in Germany, discovered and identified an unmistakable rod bacillus, constantly found in smallpox and vaccine virus,” and had named it the *Dispora iowaeensis*; “walking cases” of typhoid fever are declared to be as capable of spreading the infection as the bed-fast, and are, consequently, to be subject to the same rules of surveillance, disinfection, etc.; typhoid fever, roseola, chickenpox, mumps and whooping-cough are recommended to be stricken from the list of quarantinable diseases. In Missouri a Sanitary Commission, appointed by Dr. George B. Homan, Health Commissioner of St. Louis, has made an elaborate report on dairy inspection and the regulations necessary to secure a pure milk supply, and the report has been adopted as the basis of legislation to prevent the sale of milk from diseased cows, and from cows within one month before or one week after calving, of milk which coagulates upon boiling, and of milk handled by persons afflicted with or exposed to a communicable disease. From all of which, and much more of a similar character not here noted, it might be inferred that the occupation of the physician will soon be like Othello's.

Statistics of Serum Therapy in Diphtheria.—The following figures, compiled from a lengthy article by Dr. E. Roux, in a recent issue of *Les Nouveaux Remèdes*, form the numerical basis on which rest the claims of serotherapy in diphtheria—the bracketed figures being the JOURNAL corrections of a few minor errors of computation in the original article which do not, however, vitiate the general results: Serum treatment was begun in the Hospital for Sick Children in Paris, Feb. 1, 1894, and continued to July 24; all sick children found in the diphtheria pavilion from day to day were treated with the serum without regard to their condition and without other change in the treatment usually employed, so that the gross results of the months of serum treatment may be compared with those of similar preceding periods; the statistics of the diphtheria service for previous years were furnished by the superintendent and the director of the hospital and supply all the elements necessary for comparison; in addition, the statistics of the Trousseau Hospital for Children, which also has a diphtheria pavilion and in which the serum was not used, furnish another term of comparisons. During the years 1890–1893 inclusive, 3,971 children were admitted to the diphtheria pavilion of the Paris Hospital for Sick Children and of these 2,029 died; the yearly percentages of mortality were: 1890, 55.88; 1891, 52.45; 1892, 47.64; 1893, 48.47—a mean of [51.11] per centum. During the period of serum treatment 448 children were admitted and of these 109 died, or [24.33] per cent. All the conditions being the same, except the addition of the serum to the usual treatment, the difference between these percentages measures the benefits of the antitoxin treatment. During precisely the same period in 1894 there were 520 children admitted to the diphtheria pavilion of the Trousseau, and of these 316 died—a mortality of [60.7] per cent. Obviously, the disease was not of a benign type during this period. Differentiating between the anginas and the tracheotomized croups—the anginas gave a mortality of 33.94 per cent. in 1890, 1891, 1892 and 1893; during the serum treatment period of 1894 the mortality was 12 per cent., but in the Trousseau, where the serum was not used, the mortality was 32 per cent. during the same period. The tracheotomized croups gave a mean mortality of 73.19 per cent. in 1892–93; during the serum period the mortality was 49 per

cent., but during the same period in the Trousseau the mortality was 86 per cent. Dealing only with the cases bacteriologically demonstrated to be true diphtheria—300 in number with 78 deaths,—the mortality was 26 per cent., as against the 50 per cent. mortality of the ante-serum period demonstrated by the researches of MM. Roux and Yersin and MM. Martin and Chaillou. The following table presents an analysis of 169 diphtheric anginas treated by the serum, with 21 deaths—a mortality of 12.4 per cent.:

| | Cases. | Deaths. | Mortality, per cent. |
|--|--------|---------|----------------------|
| Pure diphtheric anginas | 120 | 9 | 9.5 |
| Deduct 7 in hospital less than twenty-four hours | 113 | 2 | 1.7 |
| Anginas with associations | 49 | 12 | 24.2 |
| Deduct 4 in hospital less than twenty-four hours | 45 | 8 | 17.7 |
| Association with the small coccus | 9 | 0 | |
| Association with staphylococci | 5 | 0 | |
| Association with streptococci | 35 | 12 | 34.2 |
| Deduct 4 in hospital less than twenty-four hours | 31 | 8 | 25.8 |

There were 56 deaths in 121 croups operated on—a gross mortality of 46.2 per cent.; deduct 14 who died within 24 hours after entering, leaves 107 operations with 42 deaths—a net mortality of 39.2 per cent.

| | Cases. | Deaths. | Mortality, per cent. |
|--|--------|---------|----------------------|
| Pure diphtheric croups | 49 | 15 | 30.9 |
| Deduct 4 in hospital less than twenty-four hours | 45 | 11 | 24.4 |
| Diphtheric croups with the small coccus | 9 | 1 | [11.1] |
| Diphtheric croups with staphylococcus | 11 | 7 | [63.3] |
| Deduct 3 in hospital less than twenty-four hours | 8 | 4 | 50. |
| Diphtheric croups with streptococcus | 52 | 33 | [63.4] |
| Deduct 7 in hospital less than twenty-four hours | 47 | 26 | 57.7 |

[The deductions in the two foregoing tables are of moribund cases dying in less than twenty-four hours after admission.]

The most important German statistics with which to compare the foregoing are those of Ehrlich, Kossel and Wasserman, who report 220 cases, 168 recoveries, 52 deaths—mortality [30.9] per cent.; among these were 67 tracheotomies with 30 deaths—mortality [44.7] per cent.; in another article Ehrlich and Kossel report 55 new cases—26 tracheotomized with only 8 deaths; they do not state, however, that a bacteriologic examination was made in all cases.

English Expenditures on behalf of Public Health.—The burden of many addresses before sanitary associations and public health meetings in this country has been the impossibility of obtaining appropriations of public money for sanitary purposes. Money is appropriated freely by Congress for the general good in almost every line save in that for the protection of the people against preventable diseases; and the most liberal of our State Legislatures and municipal authorities begin to tighten the purse strings when the needs of boards of health become the subject of consideration. Is it too much to say that, generally, in matters of sanitary progress we are following in the ruts of British sanitation, and about twenty years behind, confined to this rearward position by the backwardness of legislators to give to sanitary propositions the consideration which they should command? When will a President of the American Public Health Association be able in his annual address to “point with pride” to the vast sums expended by his government for the benefit of the public health, as was done by the President of the British Sanitary Institute at the recent meeting in Liverpool? Sir Francis S. Powell, M.P., who delivered the address, restricted himself within the boundaries of public health as affected, in England and Wales, by administration and by law. It was impossible to survey the field without a sense of satisfaction, almost of triumph. The difficulties hindering progress were diminishing both in area and in gravity. Improvement in public health had justified both the cost involved and the labor expended. The Local Government Board had, during the last twenty years, sanctioned a capital expenditure, chiefly for sanitary purposes, of £53,021,334 in urban and of £3,923,270 in rural districts, while, during the same period, local Acts had authorized a further expenditure of £67,335,966; and vital statistics have abundantly proved the wisdom of these expenditures.

During these years a great deal has been accomplished in the United States; but it has been the work of individuals,

mostly members of boards of health and of the Public Health Association, operating within their jurisdictions, removing harmful influences and urging protective measures, renewing their efforts after every defeat with fresh energy, undiminished vigor and full confidence that they will ultimately be successful. To such solid and efficient federal and local support as is given to the health authorities of England, our own vital statistics would respond freely, for few of our urban or rural districts have mortality rates so low as to resist the reducing action of sanitary measures.

SOCIETY NEWS.

Mitchell District Medical Society.—The forty-sixth semi-annual meeting of the Mitchell District Medical Society will be held at Mitchell, Ind., Dec. 27 and 28, 1894. The program is an excellent one and a large attendance is expected.

The Women's Medical Club of Chicago gave their first banquet Wednesday evening, November 14. Gertrude G. Wellington, M.D., was Chairman of the Committee of Arrangements.

The Medical Society of Virginia held its annual meeting in Richmond, October 24. The following officers were elected: President, Robert J. Preston; First Vice-President, Hugh Nelson; Second Vice-President, C. M. Stegeman; Third Vice-President, John Grammer; Recording Secretary, Landon B. Edwards; Corresponding Secretary, J. F. Winn, of Richmond; Treasurer, R. T. Stile.

The American Academy of Railway Surgeons completed its organization at its meeting held in Chicago November 9 and 10, and elected the following officers: President, C. K. Cole, Helena, Mont.; First Vice-President, C. M. Daniels, Buffalo, N. Y.; Second Vice-President, W. H. Elliott, Savannah, Ga.; Secretary, Webb J. Kelly, Galion, Ohio; Treasurer, C. B. Kibley, Corry, Pa.; Editor, R. Harvey Reed, Columbus, Ohio. The next meeting will be held in Chicago, Sept. 12, 13 and 14, 1895.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION has by formal vote been selected as the one in which the Transactions will be published. The constitution as adopted limits the membership to 200.

Middle Tennessee Medical Association.—The first regular meeting of the Middle Tennessee Medical Association will be held Nov. 20 and 21, 1894, in the Senate Chamber of the Capitol at Nashville. The Association will be called to order by the President, Dr. J. B. Cowan, Tullahoma, at 12 o'clock. All physicians are most cordially invited to be present.

On August 21 last, a number of the leading physicians of Middle Tennessee, in response to the call of a committee met in Nashville and effected the temporary organization of his Association. Temporary officers were elected and committees appointed, and it was decided that the permanent organization should be formed at the next meeting, the time of which was set for November 13 and 14, but the committees thought best to change the date to November 20 and 21.

It was determined at the preliminary organization, that papers and discussions should be arranged for the forthcoming meeting, and, in carrying out this idea, the Essay Committee has secured a most excellent program. The object of the Association is the advancement of medical knowledge and the promotion of a fraternal feeling in the profession, and it is intended that it shall work in unison with, and not antagonistic to, our State Society.

The Nicholson Hotel will offer reduced rates to its guests. Reduced fare will be given by the railroads, but the manner in which it is given differs in the two roads. Those who intend traveling over the Nashville, Chattanooga & St. Louis railroad must buy the round trip excursion ticket which costs one and one-third of the regular fare, and will be good until November 22. The Louisville & Nashville Road gives the reduction upon the certificate plan. Certificates of purchase of tickets should be secured from the ticket agent when starting, which certificates, when countersigned by the Secretary, will enable the holder thereof to secure return ticket at one-third the regular fare.

The following is the program: **The Climacteric: Its Phenomena and Dangers**, by J. S. Nowlin, Shelbyville. Discussed by A. H. Abernathy, Erin; **Perineal Urethrotomy: Its Indications and Technique**, by James W. Handley, Nashville. Discussed by M. Woodson, Gallatin; **Etiology and Pathology of Vascular Diseases of the Brain**, by J. R. Buist, Nashville. Discussed by W. L. Nichol, Nashville; **Differential Diagnosis and Treatment of Vascular Diseases of the Brain**, by John A. Witherspoon, Nashville. Discussed by John S. Cain, Nashville; **The Use and Abuse of Antipyretics**, by J. W. Waters, Nashville. Discussed by W. C. Bilbro, Murfreesboro; **The Treatment of Pleural Effusions**, by J. B. Murfree, Murfreesboro. Discussed by S. B. Fowler, Gainesboro; **Placenta Previa**, by F. J. Runyan, Clarksville. Discussed by J. Bunyan Stephens, Nashville; **The Methods of Conducting Gynecologic Examinations**, by W. K. Shedd, Williamsport. Discussed by W. D. Haggard, Nashville; **The Prognostic Value of Examinations, Abdominal, Vaginal and Pelvic, Before Labor**, by W. A. H. Coop, Lawrenceburg. Discussed by Thomas Menees, Nashville; **The Prevention and Treatment of Puerperal Mastitis**, by A. J. Swaney, Gallatin. Discussed by B. B. Gracey, Smyrna; **A Clinical Report on Naso-Pharyngeal Reflexes**, by L. B. Graddy, Nashville. Discussed by George H. Price, Nashville; **Differential Diagnosis and Treatment of Conjunctivitis and Inflammations of the Anterior Portions of Uveal Tract**, by G. W. Hale, Nashville. Discussed by T. Hilliard Wood, Nashville; **Is Appendicitis Essentially a Surgical Affection?** by Robert Pillow, Columbia. Discussed by John Wickham, Palmyra; **The Treatment of Severe Typhoid Fever**, by T. H. Marable, Clarksville. Discussed by G. W. Moody, Shelbyville; **Fractures of the Femur**, by Paul F. Eve, Nashville. Discussed by S. C. Bridgewater, Dixon Springs; **The Radical Cure of Inguinal Hernia**, by Charles S. Briggs, Nashville. Discussed by Charles S. Brower, Nashville; **The Significance of the Uric Acid Diathesis**, by J. B. Cowan, Tullahoma. Discussed by William Murrell, Winchester; **A Study of Acute and Chronic Nephritis**, by Hazle Padgett, Columbia. Discussed by N. D. Richardson, Jr., Nashville; **Facial Blemishes**, by C. R. Atchison, Nashville. Discussed by Cranston Nash, Nashville.

HUGH R. MILLER, M.D., Secretary.

MISCELLANY.

The Hard Times.—The funny man of the *Washington Star* says that the times are so hard that his doctor told him that even his blood was impoverished.

Change of Address.—Dr. P. O. Hooper has returned from California, to Little Rock, Ark., and has resumed practice there. Dr. Albert M. Jones to Redlands, Cal., from Eaton, Ohio.

Intubation in Sub-Glottidean Edema.—At the meeting of the Imperio-Royal Society of Physicians held in Vienna October 26, M. Chiari presented a woman 46 years old who had been attacked by stricture of the larynx due to a catarrhal inflammation of the sub-glottidean region. The dyspnea had become very intense, and M. Chiari introduced an O'Dwyer tube No. 4, but the tube was expelled by the patient in a few hours. He then introduced a No. 6 tube which remained in place almost to the next day, and it had a most favorable action on the edema and the dyspnea.—*Semaine Medicale*, November 3.

The Water-Supply at Jerusalem.—The Turkish Ministry of Public Works has determined upon the reconstruction of the ancient water conduits of Jerusalem, dating from the age of King Solomon. By this means it would be possible to convey 2,500 cubic meters of water daily to the Holy City. Of this it is proposed to give 1,000 meters away free of charge to the poor of Jerusalem, the distribution to take place at the Mosque of Omar, the Holy Sepulchre, and other places frequented by pilgrims. The new conduits are to be joined to the ancient aqueducts of Arob, and are to be carried through a tunnel 3,570 meters in length. The total outlay in connection with these works is estimated at 2,000,000 francs.—*The Sanitarian* from *London Standard*.

A Sketch of Dr. Roux.—Dr. Roux has been the assistant of Pasteur for fifteen years. Pasteur himself, who has pushed so far all researches relating to microbes and vaccinating against them, is only a chemist. When he came to study human diseases with his peculiar methods it was necessary that he should have some trained physician to assist him. He applied to Vulpian, who was then at the height of his fame and at the head of the faculty of medicine in Paris. He chose the young Dr. Roux, who was but an unknown student.

Fortunately the student was of the stamp of Pasteur himself. He is capable of working twelve or thirteen hours a day week after week, and he is as curious to know as he is keen in understanding the results of his observation. He has had a great deal to do with all of Pasteur's discoveries, from the vaccine against carbuncles to that against hydrophobia. The discovery of the special poison of the microbe of diphtheria and croup was made by a German professor of Berlin, but he was unable to reduce it to a method of practical vaccination. It is this which has occupied Dr. Roux for the last two years. The 2,500 doctors assembled together in Budapesth from all parts of the world seemed to believe that he has at least been partially successful. This is already a great deal in the disease which has been called the world over the terror of mothers.

In personal appearance Dr. Roux resembles an English Protestant minister more than a French doctor. He is tall, thin, with blond hair, and a small head from which keen eyes look piercingly. He is always dressed with the utmost soberness, wearing no ornament but the rosette of officer of the Legion of Honor, which was given him at the jubilee of Pasteur himself. He looks on strangers with distrust, and the mention that one is a journalist is sufficient for him to wrap himself in icy silence. Some of the Paris journalists have even had a harsher experience at his hands. They have at least learned that the power of his tongue is as great as that of his knives.

He belongs to the vigorous peasant race of Auvergne, where he was the schoolmate of M. Dupuy, the present Prime Minister of France. The latter is full-faced and jovial. There could be no greater contrast between two men, but they are always great friends. Dr. Roux has never married. He lives with his widowed sister, to whose children he gives a parent's attention. Wonders are also told of his charity. It is certain he never tells of it himself—nor apparently of much else that comes his way until it is ready to be of some use.

All last winter his daily visits to the children's hospitals were enough to exhaust the strength of one man. But he was often seen in the remote quarters of Paris at the bedside of little ones down with the terrible disease. Sometimes he has passed the whole night watching them. When the poor parents in the morning asked what they could give him the famous physician darted out of the door and disappeared as if afraid of their thanks. This disinterestedness, which he carries to an extraordinary degree, is known to all his associates of the Institute. He is now the head of the service, but as the Institute is always in want of funds he does not even draw the small salary which is allotted him. His friends say that he belongs to another age, that he knows nothing of money and cares less, and that he has given up his whole existence to serve science and humanity. Among his other good qualities is an absolute devotedness to the person of Pasteur, whom he rightly considers his master. He is one of the best bicyclists in Paris and arrives each morning at the Institute on his wheel.—*Boston Transcript*.

Illinois State Board of Charities.—The following circular has been issued:

CHICAGO, Oct. 22, 1894.

The State of Illinois has about 7,000 insane in public and charitable institutions. Five thousand are cared for in State hospitals; the remaining 2,000 are in hospitals and wards of poor-houses of the counties.

Governor Altgeld decided in 1892 that the existing State hospitals should not be enlarged, but that a new hospital should be built. In order to avail ourselves of the most advanced thought and of recent experience, we beg to address to you the following circular containing a number of questions to which you will be kind enough to give us an answer from your personal experience:

Would you prefer care of the incurable in county asylums and poor-houses at the expense of the counties, to care at the expense of the State, either with more State supervision or with concentration of those patients in State hospitals?

Does the difference in the needs between curable and incurable patients justify the construction of a less expensive hospital for the chronic incurable?

What percentage of patients do you judge fit for work on a farm? (After the plan of Alt-Scherbitz in Germany. First, male; second, female.)

Is a separate institution for epileptics desirable, and to what extent will it relieve the insane hospitals?

Is the Scotch boarding-out system feasible in this country?

Which is, to your knowledge, the best plan for a hospital of a thousand patients?

1. For largely acute cases. (What percentage of those cases would require special medical care and nursing in real hospital wards and watch-wards, after the arrangement of Dr. Scholtz in Bremen, compare *allg. zeitschr. f. Psychiatrie*, Vol. L.)

2. Hospital for chronic patients.

Very truly yours, BOERNE BETTMAN, M. D.,
President Illinois State Board of Charities.

Louisville Notes.

FALLS CITY MEDICAL SOCIETY.—At the regular meeting November 8, the paper of the evening was read by Dr. W. R. Blue, upon "Vegetable Parasitic Diseases of the Skin." Of the different varieties mentioned he said that he had never seen a case of *tenia tonsurans* in an adult. He advised quarantine. Of the thirty-four cases reported the average duration of the treatment with the remedies below was five months. His success was in part due to the regularity and persistence of the treatment. The following was recommended as a routine treatment: First soak the scalp and rub well the affected parts with a 5 per cent. carbolic ointment; shampoo with tr. green soap; paint on the spots a solution of bichlorid of mercury dissolved in tr. benzoin co. of the proportions of 2 or 3 grains to the ounce. Over this is painted flexible collodion. This dressing remains intact for four or five days; it should then be removed and the bichlorid solution re-applied as before. Dr. Butler reported the case of a man brought into the City Hospital with delirium tremens. He was very violent and was put into the cell under the care of an attendant. His hands were confined in a jacket, but while the attendant was gone from the room for something he succeeded in freeing them and when next seen had pulled his tongue out with both hands and had bitten it in two, the severed piece several hours afterward measuring two and three-fourths inches. He had a great deal of hemorrhage which was with difficulty stopped by the application of subsulphate of iron. His pulse grew rapidly weaker and he died a few hours afterward. The interesting part of the case is the fact that the patient could articulate plainly even after his tongue was severed.

THE CITY HOSPITAL.—Several interesting cases have been admitted to this institution during the past month. Three are of particular interest:

Case 1.—A man walked into the hospital saying that he had been cut in a fight. An examination showed the following: A cut in the cervical region of the left side which extended down to the vertebra and cut off a piece of the transverse process, severing one of the arteries; considerable hemorrhage took place from this wound. In the right mid-axillary line, about in the lumbar region, there was a superficial cut four inches long, extending through the skin and fascia. On the left side there was a descending cut which severed the eighth and ninth ribs, cut through the diaphragm into the abdominal cavity, and made a large cut in the spleen. Shortly after, a laparotomy was done, the incision being made in the median line, but no wound of the gut was found. The omentum protruding from the wound in the side was replaced, the cavity flushed, the wound in the spleen packed, a drainage tube inserted and the median wound closed. The patient went on the table in a fairly good condition and remained so until the chloroform was stopped when he began to grow weaker, his pulse rapid and he died thirteen hours after the cut was received.

Case 2.—A penetrating gunshot wound of the abdomen. The wound of entrance was between the seventh and eighth ribs in the post-axillary line. Exploration with the finger showed it to range downward and inward to the liver. Abdominal section was done and the cavity found full of blood, but no wound of the gut was found. The cavity was washed

out and the wound packed. The patient did not rally and died three days later.

Case 3.—Gunshot wound of the abdomen. Ball entered in the left iliac region ranging upward and penetrating the cavity. A laparotomy was done and much blood found in the cavity with a wound of the stomach below the omental attachment near the cardiac end; two penetrating wounds of the transverse colon were also found. The wounds were closed, the cavity flushed and the abdominal incision closed with drainage. There was no shock present but the patient died twenty-four hours afterward.

The report of the hospital for the month past shows an average number of patients in the hospital as 127 per day. There were twenty-one deaths. The average cost of the entire force, including patients, was 80 cents; the average cost per day for the patients' diet was 17½ cents; the average cost of each patient was 50 cents per day.

HEALTH REPORT.—The Health Officer's tabulated report for the week past shows a total of fifty-three deaths. This list includes nine deaths from phthisis, four from pneumonia, and three each from organic disease of the heart, Bright's disease and cerebral meningitis. Three of the deaths occurred at the City Hospital. There were four still births. The Health Officer has had a most excellent ordinance passed for the regulation of the school children as to successful vaccination, by which a complete record of all the children in the city is kept. Details of this will be written in the next letter from your correspondent here.

Washington Notes.

MEDICAL SOCIETY OF THE DISTRICT.—At the Medical Society November 5, Dr. F. B. Bishop read a very instructive essay on electric batteries and some of their distinctive features in the treatment of disease. Dr. Acker presented a patient suffering with scleroderma. Dr. E. F. King presented a specimen of aneurism of the aorta. Dr. A. A. Snyder exhibited some fluid aspirated from a lumbar abscess supposed to be a pyonephrosis.

THE WOMAN'S CLINIC.—The annual meeting was held on the 6th inst. The report of the work for the year was received from the medical staff, and shows a steady increase in the attendance. This hospital is conducted entirely by women physicians and supported by voluntary subscriptions. The election of officers for the ensuing year was postponed to an adjourned meeting to be held two weeks later.

ASSISTANT CHEMIST APPOINTED.—Secretary Morton has appointed Dr. W. G. Brown, Professor of Chemistry in Washington and Lee University, Lexington, Va., First Assistant Chemist of the Division of Chemistry, Department of Agriculture, vice Dr. G. L. Spencer, resigned.

TRAINING SCHOOL FOR MISSIONARIES.—The Washington Order of Deaconesses is extending its work, and now proposes to establish a home and training school in this city for nurses and workers in the missionary field. Articles of incorporation were recently filed by the members of the society with this in view. The new organization will include the Lucy Webb Hayes Deaconess Home, the Sibley Hospital and the Nurses' Training School of the order. It will be known as the National Training School for Missionaries, and will be managed by the members of the Methodist Episcopal Church. The incorporators were Jannett C. Fisk, Elizabeth L. Rust, A. Lewis Clark, Jane Bancroft Robinson, G. McDowell, Hiram Price, Harry L. Roche, B. H. Stinnetz and John F. Hurst.

MARINE-HOSPITAL SERVICES IN WASHINGTON CITY.—Passed assistant Surgeon H. D. Geddings, has been detailed to assist the Health Department during the continuance of smallpox in the District. Surgeon P. H. Bailhache, of the New York Marine-Hospital, has been detailed at Washington in connection with the same service, and has investigated the present outbreak and made a very careful report to the same to the Surgeon-General, whose personal representative he is. The Department has been using its large steam disinfecting chambers at the quarantine station under the direction of the local Health Department.

THE HOMEOPATHIC MEDICAL COLLEGE IN COURT.—In the suit for equity filed Oct. 14, 1893, by the Washington Homeopathic Medical Society, asking for an injunction against the Na-

tional Homeopathic Medical College, the plaintiff on the 9th inst., filed an amendment and supplemental bill.

After reciting the fact of the filing of the original bill the plaintiff states that the defendants were served with process, and although they made emphatic declarations through the public press of their desire to be heard, and to vindicate themselves, they have never answered the bill, and have sought to delay their answer by raising a technical objection to the form of the summons, insisting that the District of Columbia corporation is entitled to sixty days within which to answer, and the defendants have never made the slightest effort to bring the cause to a hearing.

In defiance of the outraged sentiment of all the reputable physicians of the District of Columbia, the bill goes on to say, the defendants, or one of them has during the past year pretended to conduct a homeopathic medical college in which they profess to give instruction in the science of medicine.

The plaintiff claims that the defendants have made no addition to their equipment nor any improvement in the personnel and standing of their so-called faculty; that they succeeded by unscrupulous advertisement in deluding into attendance some persons honestly desirous of obtaining a medical education; that in at least one case it has granted a diploma to a person who has actually studied medicine for not exceeding seven months in the alleged college; that in another case it has granted a diploma to a person who was forced out of a recognized and respectable medical school because of absolute inability to pass any examination, and that the defendants, for the purpose of attracting students, have continued to advertise, as members of the faculty, the names of physicians who had previously positively refused to be identified with the college or to allow their names to be used in connection with it.

The court is asked that the defendants, pending the suit and perpetually may be enjoined from conducting said alleged college.

HEALTH OF THE DISTRICT.—The report of the Health Office for the week ending November 3, is as follows:

| | |
|---|--------|
| Number of deaths (still-births not included): | |
| White | 63 |
| Colored | 62 |
| | — 125 |
| Death rate per 1,000 per annum: | |
| White | 16.8 |
| Colored | 35.8 |
| Total | — 22.8 |
| Death rate per 1,000 per annum for corresponding week last year | 18.4 |
| Still-births: | |
| White | 5 |
| Colored | 8 |
| Total | — 13. |

NEW ORDERS FROM THE HEALTH DEPARTMENT.—The Commissioners, after a lengthy consultation with the Health Officer, approved the following order:

WHEREAS, Smallpox now exists in this District. I therefore direct that parents and guardians shall cause their children and wards to be successfully vaccinated or to be re-vaccinated, except in such cases as have been successfully vaccinated within five years from the date of this order, or as have been protected from infection by a previous attack of smallpox or varioloid.

The late Board of Health, in accordance with an Act entitled "An Act for the prevention of disease in the District of Columbia," passed by the Legislative Assembly of the District, and approved by the Governor June 19, 1872, made the following regulations, among others, in regard to smallpox, and on this the recent order is based:

"Parents and guardians shall cause their children and wards to be vaccinated before they attain the age of 2 years and re-vaccinated whenever the Board of Health shall, after five years from the last vaccination, require it.

"The Board of Health hereby orders and requires the vaccination of all the inhabitants in the District of Columbia, and, whenever, in their opinion, the public health demands it, the re-vaccination of all persons who do not furnish satis-

factory evidence that they have been successfully vaccinated within five years.

"All school trustees, school teachers or others having authority are forbidden to receive into or allow to attend any school, public or private, within the District of Columbia, any pupil not vaccinated, as required by the 'rules and regulations' heretofore made and promulgated by this Board."

The foregoing regulations were legalized by joint resolution of Congress, approved April 24, 1890, and again by an Act of Congress, approved Aug. 7, 1894, which Act provides "that the powers and duties imposed upon the late Board of Health in and by said ordinances are hereby conferred upon the Health Officer of the District."

The drafting of this order was the result of a complaint filed with the Commissioners a few days ago by a parent whose child had been declined re-admission to a public school because of a failure to be vaccinated. They also approved the following:

"That the aforesaid regulations shall apply to all cases of smallpox, varioloid or suspicious cases of disease not distinguished from the aforesaid diseases, provided that the flag or warning placard shall be displayed only upon such premises as are known to be infected with smallpox or varioloid."

SMALLPOX HOSPITAL.—All cases at the hospital are doing well and soon their final disposal will be considered. Dr. Benj. Bell has resigned the position of smallpox inspector, and Dr. L. Elliott has been appointed to fill the vacancy.

Hospital Notes.

THE MEDICO-CHIRURGICAL HOSPITAL OF PHILADELPHIA.—During the month of October, 245 patients attended the eye department of this institution, and 1,225 visits were made by old patients. The prescriptions given for glasses numbered 135. Thirty operations were performed. In the ear department, ninety-five new patients were treated. Fifty-four applied to the throat department. Forty-eight new patients received treatment for nervous diseases and twenty-eight children were prescribed for in the children's department.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Nov. 3, 1894, to Nov. 9, 1894.

Capt. WALTER W. R. FISHER, Asst. Surgeon, will be relieved from duty at Ft. Columbus, N. Y. It., upon the expiration of his present leave of absence, and will report for duty at Ft. Meade, S. Dak., to relieve Capt. NORTON STRONG, Asst. Surgeon. Capt. STRONG, on being relieved by Capt. FISHER, is ordered to Ft. Sheridan, Ill., for duty at that post, relieving First Lieut. GEORGE J. NEWGARDEN, Asst. Surgeon. Lieut. NEWGARDEN, on being relieved by Capt. STRONG, is ordered to Ft. Wayne, Mich., for duty.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Nov. 10, 1894.

P. A. Surgeon F. J. B. CORDEIRO, from U. S. S. "Adams," home, and granted two months' leave.

Asst. Surgeon L. H. STONE, ordered for examination preliminary to promotion.

Medical Director J. H. CLARKE, Medical Inspector C. H. WHITE, Surgeon T. H. STREETS, P. A. Surgeon A. C. H. RUSSELL, ordered as a Board at Naval Laboratory, Brooklyn, N. Y., to examine candidates for admission to the Medical Corps of the Navy, and for promotion in the Corps.

Marine-Hospital Changes.—Official list of changes of stations and duties of medical officers of the U. S. Marine-Hospital Service, for the six weeks ending Nov. 3, 1894.

Surgeon P. H. BAILHACHE, to report at Bureau for special temporary duty, Oct. 25, 1894.

Surgeon GEORGE PURVIANCE, granted leave of absence for five days each, Oct. 2, 1894, and Oct. 29, 1894.

Surgeon W. H. H. HUTTON, to proceed to Gulf Quarantine Station for temporary duty, Oct. 24, 1894.

Surgeon H. W. SAWTELLE, when relieved from duty at Boston, Mass., to proceed to New Orleans, La., for duty, Oct. 26, 1894.

Surgeon J. M. GASSAWAY, when relieved from duty at New Orleans, La., to proceed to Cairo, Ill., October 27, 1894.

Surgeon FAIRFAX IRWIN, to report at Bureau, Oct. 19, 1894.

Surgeon F. W. MEAD, to proceed to New York, N. Y., for temporary duty, Sept. 24, 1894.

P. A. Surgeon C. E. BANKS, to proceed to Bath, Maine, as inspector, Oct. 20, 1894. Granted leave of absence for three days, Nov. 3, 1894.

P. A. Surgeon C. T. PECKHAM, granted leave of absence for twenty-two days, Oct. 16, 1894.

P. A. Surgeon S. D. BROOKS, to proceed to Saginaw, Mich., as inspector, Oct. 26, 1894.

P. A. Surgeon W. P. MCINTOSH, granted leave of absence, Oct. 9, 1894.

P. A. Surgeon A. H. GLENNAN, granted leave of absence for two days, Sept. 29, 1894. Granted leave of absence for three days, Oct. 21, 1894.

P. A. Surgeon H. D. GEDDINGS, detailed for special duty, to assist the health authorities, District of Columbia, Oct. 27, 1894.

Asst. Surgeon C. H. GARDNER, to proceed to Angel Island Quarantine Station for temporary duty, Oct. 13, 1894.

Asst. Surgeon J. A. NYDEGGER, granted leave of absence for eighteen days, Sept. 24, 1894. Leave of absence extended three days, Oct. 17, 1894.

Asst. Surgeon W. J. S. STEWART, to proceed to Alexandria, Va., as inspector, Oct. 10, 1894. To proceed to Glymont, Md., for special duty Oct. 29, 1894.

Asst. Surgeon EDGAR STRAYER, granted leave of absence for fourteen days, Oct. 24, 1894.

Asst. Surgeon KUPERT BLUM, granted leave of absence for three days Nov. 3, 1894.

Asst. Surgeon SEATON NORMAN, to proceed to New York, N. Y., for temporary duty, Oct. 25, 1894. To rejoin station, Baltimore, Md., Nov. 1894.

Asst. Surgeon E. K. SPRAGUE, granted leave of absence for thirty days Oct. 10, 1894. When relieved from duty at Cairo, Ill., to proceed to Mobile, Ala., for duty, Oct. 29, 1894.

Asst. Surgeon, A. R. THOMAS, to proceed to Cairo, Ill., for temporary duty, Oct. 5, 1894.

Asst. Surgeon J. B. GREENE, to proceed to New York, N. Y., for duty, Oct. 27, 1894.

APPOINTMENT.

JOSEPH B. GREENE, of Alabama, commissioned by the President as an Asst. Surgeon, Oct. 24, 1894.

LETTERS RECEIVED.

Alden & Faxon, Cincinnati, Ohio; Antikamufa Chemical Co., St. Louis, Mo.; Atkinson, Wm. B., Philadelphia, Pa.

Battle & Co., St. Louis, Mo.; Booth, W. H., Utica, N. Y., (2).

Crittendon, C. N. Co., New York City; Christian, Jno. M., Washington, Ga.; Clement, W. R., Marquette, Kan.; Cook, Geo. F., Oxford, Ohio.

Dios Chemical Co., St. Louis, Mo.

Elmore, J. H., Iron Mountain, Mich.

Fuller, E. A., Kittrell, N. C.; Farnham, A. B., Minneapolis, Minn.

Garber, J. B., Dunkirk, Ind.; Guild, C. H. & Co., Boston, Mass.; Gamble, W. E., Chicago, Ill.

Hummel, A. L., Philadelphia, Pa., (2); Hubbard, Thomas, Toledo, Ohio; Haine, W. J., West Farmington, Ohio; Hooper, P. O., Little Rock, Ark., (2); Hay, Lyman T., Hot Springs, Ark.; Hill, A. S., Boston, Mass.

Kellogg, Geo. A., New York City; Kennedy, T. C., Shelbyville, Ind.; Kiernan, Jas. G., Chicago, Ill.

McArthur Hypophosphate Co., Boston, Mass.; McKelveen, H. B., Cain, Iowa.; Mills, T. L., New Orleans, La.

Pierson, Wm., Onarga, N. J.

Still, Allen A., New York City; Stewart J. Clark, Minneapolis, Minn.; Slay Brothers, New York City.

The Sanitarium, Battle Creek, Mich.; Thomas, C. P., Everett, Wash.; Taylor, W. S., San Francisco, Cal.

Van Hovenberg, H., Kingston, N. Y.

Wilson, T. A., Keokuk, Iowa.

PAMPHLETS RECEIVED.

M. Stamm. Resection of the Kidney.

J. B. Murphy. Intestinal Approximation.

M. Stamm. Gastrostomy by a New Method.

Burnside Foster. Rational Medicine and Charlatanry.

Wm. B. Colby. Treatment of Inoperable Malignant Tumors with Tonsils of Erysipelae and Bacillus Prodigiosus.

Wm. H. Wathen. Intraligamentous and Retroperitoneal Tumors of the Uterus and its Adnexa.

A. Jacobi. Stomatitis Neurotica Chronica.

A. Jacobi. The Production of Diseases by Sewer Air.

C. H. Alden, Asst. Surgeon-General, Washington, D. C. Special Training of the Medical Officer, with Brief Notes on Army Medical Schools at Home and Abroad.

W. Blair Stewart. Spindle-Cell Sarcoma and Epithelioma; A Report of Cases.

S. W. Abbott. Radical Differences in Methods of Production and Cultivation of Vaccine Lymph.

S. L. McCurdy. Old and Neglected Deformities following Infantile Spinal Paralysis.

Bayard Holmes. The Sources of the Defective, Dependent and Delinquent Classes.

D. Cerna. The Physiologic Actions of Alcohol.

D. H. Rand. Brief Report of Treatment, especially of Syphilis, at Genito-Urinary Clinics.

Wm. Fidler. Trephining the Skull in a Case of Idiocy.

D. Cerna. The Therapeutic Uses of Spartein.

J. O. De Courcy. Diseases of the Alimentary Canal. Treatment.

Drs. Beall, Walker and Capps. Fitness of the Climate of Texas for Operative Surgery, Demonstrated by Results in Recent Capital Cases.

N. A. Drake. Some of the Uses of Hot Water in Recent Injuries in Railway Surgery.

Howard Crutcher. Appendicitis; a Timely Operation.

J. B. Mattison. Morphiniem in Medical Men.

J. B. Mattison. The Modern and Humane Treatment of the Morphine Disease.

Geo. T. Vaughan. Hepatic Abscess.

F. Henrotin. Palliative Operations in the Treatment of Fibroid Tumors of the Uterus.

J. T. Jelks. Address to the "Honor Men" of the Barnes Medical College, St. Louis, Mo.

Wm. F. Drewen. Some Remarks on Epilepsy, and the Care of Epileptics on the Colony Plan.

John Chalmers Da Costa. A Manual of Modern Surgery, General and Operative. Philadelphia: W. B. Saunders. Chicago: E. H. Colegrove & Co. Price, \$2.50. (For review see this JOURNAL.)

Report on Typhoid Fever in the District of Columbia. Submitted by the Medical Society, etc. Washington, Government Printing Office.

Andrew J. McCosh. Excision of Cancer of the Rectum. (Reprinted from the *New York Medical Journal*.) The Same: Iodoform Poisoning. (Reprinted from the *New York Polyclinic*.) The Same: Report of Four Cases of Brain Surgery. (Reprinted from the *American Journal Medical Sciences*.) The Same: Report of Three Cases of Gangrenous Hernia. Subjected to Circular Enterorrhaphy. (Reprinted from *Annals of Surgery*.)

W. B. Ontten. A Case of Gastrolith. (Reprinted from the *Medical Fortnightly*.)

Erratum.—In the first of the series of reports from the Chicago Academy of Medicine, it was stated that Dr. HENROTIN presided, when it should have been stated that Dr. CUTHEERTSON presided.

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ORIGINAL ARTICLES.

AMETROPIA IN MICROSCOPIC WORK.

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Every worker with the microscope who has a refractive error which compels him to wear correcting glasses, has probably tried to wear them in his work, but finding them inconvenient has discarded them to discover that the view of the field was apparently just as good without as with them. A moment's consideration of the optical principles of the microscope will show that in cases of myopia, hypermetropia and presbyopia, glasses are totally unnecessary, as every one is probably aware. Only a very slight movement of the fine adjustment is necessary to throw the image to a point where the person can see

distinct vision without glasses when the full accommodation is in play.

If a person with myopia of high degree, say 8 D., uses the microscope, he must have *c* within his far point, approximately within five inches of his eye, *b* must then be brought nearer the eye-piece, by screwing down the microscope so that *a* is nearer to the focus of the objective. The nearer *a* approaches *x* the farther *b* recedes from *x* and *y*, and the more *b* recedes from *y* the nearer *c* approaches the eye-piece.

The normal eye with the accommodation entirely relaxed, or the presbyopic eye which has no power of accommodation whatever, must have the image *b* at the focus *y*, so that *c* may be at infinity, and rays of light from any one point will enter the eye parallel. The hyperopic eye which is also presbyopic will have *b* outside of *y*, so that the image *c* will be at the negative far point behind the observer's head and the rays of light converging. These movements can be

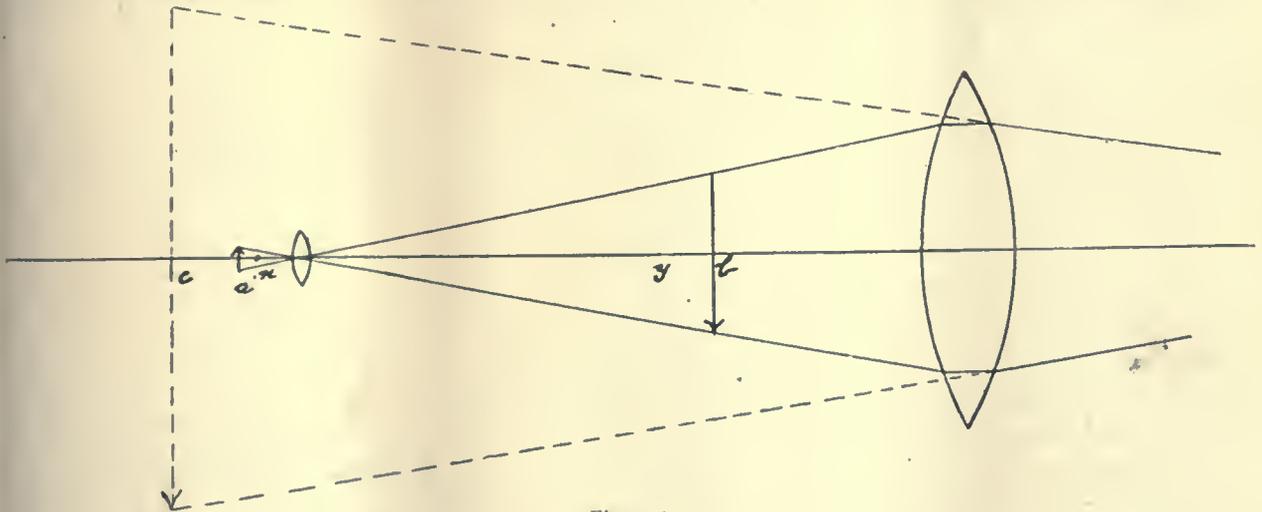


Figure 1.

it clearly. For convenience the eye-piece and objective may each be considered as a single convex lens, and Fig. 1 shows that the objective forms an image *b* just within the focus *y* of the eye-piece, the object *a* being just beyond the focus *x* of the objective.

The eye-piece enlarges the image *b*, throwing it back to *c*, just like a common magnifying glass. Most persons unconsciously use their accommodation while looking through the microscope. Though it is said that the image *c* is usually placed about twelve to fourteen inches from the observer's eye, it is quite probable that the majority of persons by adjusting the instrument cause it to come still nearer; at least as near as the slide. A myopic person brings *c* at least to his far point, and perhaps nearer, so that he exerts his accommodation. The hypermetrope also uses his accommodation and the presbyope may, if he has any power in this direction, but for both, the image can not be brought nearer than the nearest point of dis-

deduced from a study of the elementary rules of optics. For any of the above conditions accommodation is not necessary, as the virtual image can be thrown to the observer's far point, but as already stated most observers do use their accommodation in microscopic work, the image being thrown within their far point.

If the microscope is fixed so that the above myope of 8 D. has a distinct view of the field, let us see what change is necessary in order to give a perfectly clear picture to a person whose refractive error or defect of accommodation renders him unable to see anything nearer than four feet; *c* must now be more than four feet from the eye-piece; to accomplish this *b* must be moved quite near to *y* and for this purpose *a* must be moved farther from *x*, that is, the microscope must be raised from the slide; *b* is so near the focus of the eye-piece that a slight movement to or from the focus, causes *c* to make a very marked movement

from or towards the lens. As b is so much farther away from the objective than a , its position suffers a very marked change for the slightest movement of a towards or from the objective. Consequently the most minute movement of the microscope towards the object, makes a very marked change in the position of c . How slight a movement of the microscope is necessary may be judged from the following approximate estimates. Supposing the instrument is adjusted for the myope of 8 D., the tube is moved upwards by the following turns of the fine adjustment, in order to make clear vision for a person whose nearest point of clear vision is about four feet.

| Objective. | Turns of Fine Adjustment. |
|-----------------------|--|
| 2 inches | About 965 degrees |
| $\frac{3}{4}$ inches | About 180 degrees |
| 1.5 inches | About 10 degrees |
| 1-12 inches immersion | A mere touch, probably less than 3 degrees |

In the high powers the change is very slight, as above figured, because a is so near the focus of the objective, that a tiny movement would send b to infinity.

The actual conditions of the microscope are far too complex even to allude to here, but the above demonstrations, approximate though they be, seem sufficient for the purpose of following out the movements of the image c caused by movements of the objective to or from the object.

Though the number of diameters of enlargement of any combination of lenses, varies according to the distance at which the observer thinks he sees the image, it also varies according to the state of the observer's refraction. The above shows that for the same combination of eye-piece and objective, there is not the same amount of enlargement of the image for the myope as for the hypermetrope. The image c appears slightly larger to the myope and really is larger. As c must be near the eye, b must be much farther from the objective than for the hypermetrope. Moving b from the objective by moving a towards the objective, increases the size of b very markedly, particularly in the higher powers, where the distance of a from the objective is so small in comparison to the distance of b from the objective. To be sure there is less enlargement caused by the eye-piece when c is very near, but the eye-piece has so little influence on the total enlargement as compared with the effect of the objective, that it can safely be discarded in this demonstration. Hence there is a positive advantage in the myope using the microscope without his glasses.

For the astigmatic the conditions are entirely different. *A priori* one would suppose that after focusing the instrument for lines parallel to his axis of greatest refraction, he will not be able to see lines at right angles to these without altering the position of the instrument and throwing the first set out of view. We would judge, then, that the astigmatic observer can not obtain a distinct view of the objects of the field without using a correcting cylinder equal to his own astigmatism, and that unless he does this he will have an erroneous idea of the thickness of the object, from the very fact that he is required to throw the instrument up and down by the fine adjustment in order to see the lines lying in the various angles from his own meridian of least, to that of greatest refraction. This is true to but a limited

extent. In astigmatism of 1 to 2 D., there does not appear to be any appreciable difference in distinctness whether the glasses are used or not, except perhaps in the very lowest objectives. In astigmatism of high degree, say 4 or 5 D., there is a marked indistinctness in using the lowest objectives, but the field becomes clearer with higher powers and with one-fifth or one-eighth objectives it is quite probable that there is an indistinctness only in the very highest grades of astigmatism above 6 or 8 D., forms of the very rarest occurrence.

The reason why the microscope thus corrects the observer's error of astigmatism is probably found in the optical principles by which the microscope is given *penetrating power*. With a good instrument

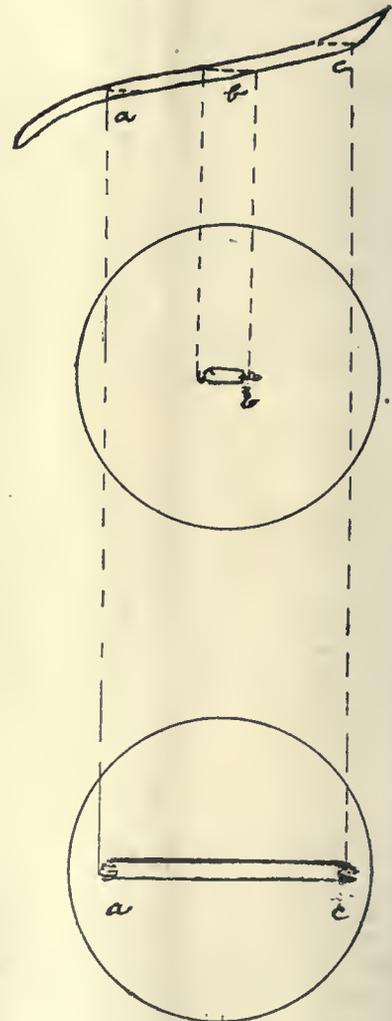


Figure 2.

the field is not a single plane through the object, but includes an appreciable thickness of the object looked at. Everything in this thickness is seen clearly, objects on the bordering planes indistinctly, and those above and below not at all. For instance, in looking at a fiber that is placed obliquely to the axis of a microscope with no penetrating power, we would see only a cross section of the fiber as at b . (Fig. 2.) Owing to the penetrating power we are able to see considerable of the fiber distinctly, say from a to c .

Take a single point of the object looked at, say at a . (Fig. 3.) All the rays from a are brought to a focus at b . Theoretically, there is only one point

where the image is formed, and for our purpose we may consider that there is no spherical or other aberration. At each side of b there are circles of diffusion and each point of light becomes diffused over a circle which increases in size, the farther we remove from b . Now the angle formed at b by the most divergent rays c and d is very small, owing to the great distance of b from the lens in comparison with the diameter of the lens. Hence for a considerable distance on each side of b the circles of diffusion are so small that the retina can not perceive them. Every amateur photographer has noticed that if he uses a diaphragm with a small aperture, there is an appreciable space in which he may move the ground glass of his camera back and forth and still have his scene in accurate focus. In the microscope, objects nearer or further from the lens than a , say a' and a'' and which will be accurately in focus at b' and b'' have circles of diffusion at b that are too small to be seen. The eye-piece forms a clear image of every point in focus theoretically between the two points b' and b'' . Images beyond b' and b'' are blurred as their circles of diffusion are large enough to be seen, and points of light are recognized as circles.

The penetrating power is increased by the fact that

The warped surface of the cornea between the meridians of greatest and least refraction would theoretically prevent clear vision of lines at other angles than the above, but in the milder grades of astigmatism the warping is probably not sufficient to be noticeable, and these lines are clearly seen, as they should be in focus between b' and b'' . Thus it happens that the astigmatic eye has clear vision in the microscope, providing the astigmatism is not very marked, and can be neutralized by the penetrating power of the microscope.

If the astigmatism is so great that the image of the lines in the meridians of least and greatest refraction should be beyond b' and b'' then the eye can not see them without using the fine adjustment and giving the idea of increased depth or thickness to the object observed.

In the two inch objective, there does not seem to be any indistinctness until the astigmatism approaches .25 to .50 D., and for the other objectives the amounts in the table:

| | |
|---------------------------------|--|
| 2 inch | .25 to .50 D |
| $\frac{3}{4}$ inch | .50 to .75 D |
| 1.5 inch | 3.00 D |
| 1-12 inch (immersion) | .8. or 10. D. and probably higher still. |

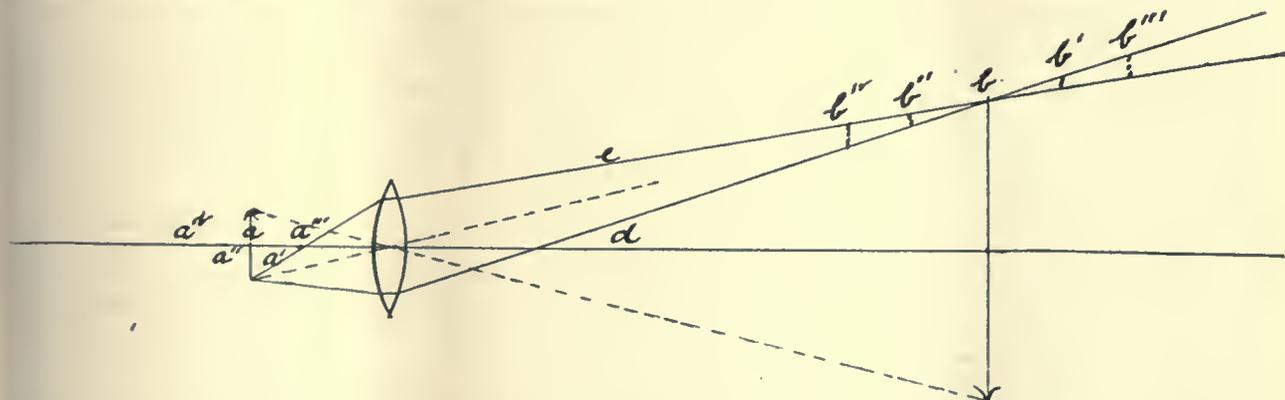


Figure 3.

though the observer's eye is accommodated for the image c (Fig. 1), it can at the same time still see images nearer and farther away than c . This can be explained by considering that the circles of diffusion of these images are too small at c to be noticed. The eye itself has considerable "penetrating power;" that is, if accommodated for a point, say, three feet distant, it can still distinctly see objects much nearer and farther away without altering the accommodation. The point of indistinctness is reached when the circles of diffusion on the retina become large enough to be noticeable or, in other words, when they lay over into adjacent nerve endings.

Now imagine at a , a series of radiating lines like the test card for astigmatism, such as every ophthalmologist uses. They are all in focus at b . An observer with astigmatism who looks at them through the eye-piece, requires the focus of the line parallel to his meridian of greatest refraction to be at b'' so as to be thrown to the far point of his meridian of least refraction. Lines parallel to his meridian of least refraction similarly should be at b' . Though they are both in focus at b , their circles of diffusion are so slight at b' and b'' that when the eye-pieces form images of b' and b'' at the proper points, in front of, and back of c , the eye sees them clearly.

The effect of the microscope in neutralizing the bad vision of the astigmatic increases with the power used, because the higher the power the smaller is the angle at b (Fig. 3) between the most divergent rays c and d , and consequently the greater is the distance between b' and b'' in which the circles of diffusion are too small to be noticeable.

There is a shifting of the apparent depths of lines, so that, though the astigmatic eye sees a field with great clearness, it is not the same field seen by the emmetropic eye. Referring to Fig. 3 again, the emmetropic eye sees all lines in the depth between a' and a'' . Supposing the astigmatic eye should have lines in a certain direction in focus at b' , it is quite evident that it will see all lines in that direction that are in focus anywhere between b and b'' . In other words, lines that are lying in this direction, are seen providing they are at any depth between a and a'' while parallel lines at other depths are invisible. Similarly, lines at right angles to the above are seen clearly if they are at any depth between a and a'' and all others in this direction are invisible.

The figure supposes that the microscope is just sufficient to correct the astigmatism of the observer. If it is more than sufficient, the eye will see the first set of lines if they are at a lower depth than between

a and a'''' that is, some will be below a and some above. Lines at right angles to these will be seen if in a higher layer than a to a'''' . Except for the higher grades of astigmatism, the shifting of the apparent depths of lines at various angles is so trifling that it need not be considered in practical work. In the one-twelfth immersion there is no appreciable change in this respect, even with an astigmatism of 13 D., though there is some interference with clearness. It need be taken into account only in using low powers where a drawing is made of a supposed object of a certain thickness, when what is really drawn consists of intermingled lines from different depths.

The acuity of vision for distant objects suffers a marked diminution as a result of astigmatism. This follows from the peculiar shapes assumed by the circles of diffusion. The expression, "circles of diffusion," is a misnomer here, because *circles* are formed at but one point. The figures are quite complex. A point of light is brought to a focus in a line parallel to the axis of greatest curvature, and at another place in a line perpendicular to the first. Beyond and between these two foci, the diffusion figures are ellipses and at only one point a circle.

Hence it follows that the acuity of vision suffers also in microscopic work, though to a very slight extent. Nevertheless, it is noticeable in high grades of astigmatism, even where there is no apparent shifting of the depths at which objects are seen. Observers with high grades of astigmatism, over 3 or 4 D., are better off if they use a correcting cylinder placed over the eye-piece. Certain microscopists certainly do see and figure most remarkable things that other observers can not succeed in seeing. Much depends on acuity of vision, *i.e.*, a good retina, yet it is safe to say that the frequent accusation of inaccuracy due to errors of refraction of the observers will not hold water, particularly with the higher objectives.

Persons with errors of refraction can therefore assure themselves that no correcting lenses are needed in microscopic work, except perhaps in astigmatism of high grade, and then only when using the lower powers. The spectacles may be discarded for almost all ordinary work. If much astigmatism exists and he desires to picture what the emmetropic eye will see, then the glasses may be used or, better still, a cylindrical glass of proper strength and at proper angle, may be placed on the eye-piece. It is of no consequence whether a convex or a concave cylinder is used.

A convenient method of placing the cylinder over the eye-piece has a soft steel frame, holding the cylinder, and has three soft steel bars to bend over and hold it in place. It was made for me by Meyrowitz, of New York. With its aid, the constant motion of the fine adjustment is less, and there is the absolute certainty that the objects seen in the field are what the emmetrope sees, but as before mentioned it is of no earthly use except: 1, in very high grades of astigmatism; or 2, in moderate grades in using the lower powers. Accurate observation with the higher objectives is compatible with quite a great astigmatic defect.

The spectacle frame prevents the eye being approximated closely to the eye-piece, and therefore restricts the extent of field. Its other inconveniences follow from its obliquity, and therefore its dispersion and reflexion of much of the light coming from the image. The brightness of the field is diminished.

Its obliquity also alters the correcting power of the lenses on well-known principles.

Perhaps observers who wear spectacles may find it comfortable and convenient to use a special contrivance, similar to the bifocal spectacles (Franklin's), but with the lower lens omitted and the upper ones consisting of their usual correcting lenses. They can then look under their lenses when using the microscope.

The writer has tested the vision of an observer who has an astigmatism of 5.00 D. When using the two inch objective there is a marked interference with clearness if the cylindrical spectacles are omitted. A flat circle appears as an oval, and only a portion of the circumference is clear at one adjustment. As the instrument is screwed down, other parts of the circumference come in sight so that this shifting of the apparent depths of parts of the circumference gives the impression that the object seen is of the shape of a circle bent upwards.

In using the $\frac{3}{4}$ objective, there is barely a noticeable indistinctness when he removes his spectacles, but so slight in degree that it would not be noticeable if his attention had not been directed to it. With the $\frac{1}{2}$ objective, there is absolutely no difference in the appearance of the field, whether he looks through his spectacles or not.

The conclusions reached above may also be verified by making the eye ametropic by placing various spherical and cylindrical lenses in front of it, and observing the changes in the appearance of the field if any are noticeable. Such a demonstration is not mathematically exact but it is near enough for practical purposes.

The question of asthenopia resulting from microscopic work is entirely foreign to this paper, but it might be remarked in passing that it is due to bad light, bad position, congestion from constrictions around the neck, the habit of using the accommodation too much and unnecessarily, and to other conditions, but it is *not* due to the observer's errors of refraction. It is intended here, only to call attention to the fact that ametropes have clear vision in using the microscopes without their correcting lenses, and that it is unfair to accuse an observer of incorrect observation because his refraction is not normal.

Prehensile Feet among the Japanese.—The art of "getting there with both feet," which Japan has been illustrating in her treatment of China, seems to be a natural endowment. M. Michaut, the anthropologist, who has been investigating the subject, finds that the Japanese have marvellous address in the use of their feet as means of prehension. These members possess extraordinary mobility; the first metatarsal bone is separated from the second by an interval which may measure from eighteen to twenty millimeters, and the ball of the great toe may be made to touch the two adjoining toes. The Japanese rest on their knees, the feet in forced extension lying on the dorsum inclined inward and crossed one on the other, thus forming a little bench on which the pelvis rests. All the Annamites—the Cochin Chinese, the Tonkinese and the Annamites properly so-called—also have a remarkable separation of the great toe, amounting to from three to five millimeters and prehension also is possible. This can not be attributed to their footwear as might be the case with the Japanese, since the Annamites either go barefoot or wear sandals; nor to adaptation to environment, because they are inhabitants of the plains. History tells us of the kingdom of Gao-Chil, or the people of the "bifurcated toes," who presented this ethnic peculiarity of widely separated great toes in its maximum degree, and examples are still met with—in some families the anomaly being hereditary and descending usually from father to son.

PEDIATRICS AS A SPECIALTY.

CHAIRMAN'S ADDRESS.

Read in the Section on Diseases of Children, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY W. S. CHRISTOPHER, M.D.

PROFESSOR OF DISEASES OF CHILDREN CHICAGO POLICLINIC; PROFESSOR OF PEDIATRICS COLLEGE OF PHYSICIANS AND SURGEONS, CHICAGO.

Is disease in children sufficiently distinct from disease in adults to merit separate and special consideration? It is not intended to submit this question to the members of this Section, for doubtless the answer would be unanimously in the affirmative. It is not so certain, however, that the answer would be the same if the question were submitted to the profession at large. Here I can only use it as a text upon which to set forth some of the reasons for our answer.

A few years ago Dr. Goodhart, of London, in his address as Chairman of the Section on Diseases of Children, of the British Medical Association, took the ground that there was no such thing as a specialty of diseases of children. A similar stand is taken by Ewald with reference to "Diseases of the Stomach." With Ewald I can heartily agree; with Goodhart as heartily disagree, and for much the same reasons.

He who looks at a stomach only, does not look far enough, but he who considers a child, has before him a biologic totality, temporary though it be. It is certainly true that many diseases are so nearly alike in both adults and children that a separate consideration of them from the two standpoints leads to little or no additional information, or to any broader conceptions.

It is equally true that to regard the child without reference to the future adult is but partial work. Pediatrics deals not only with the child as an individual, but as an episode in the development of the future adult, and its most comprehensive aim may be expressed as the attempt to control the environment of the child so as to produce the most perfect possible adult. The accomplishment of this object necessarily demands an intimate acquaintance with the pathology of adult life, so that the possible pathology of the particular future adult may be foreseen and the child's environment managed to avoid this as far as possible. But this necessary intimate acquaintance with disease in adults can only be obtained at the bedside. After all, this is only another way of saying that the specialist should develop from the general practitioner, and not attempt to specialize too early. It is sad to see, as I have seen, a skilled ophthalmologist carefully treat a child's eyelids and not realize that the child was seriously ill from pneumonia. Such an instance is no argument against the existence of ophthalmic specialists, but merely a lesson as to the manner in which they should be trained. Specialties dealing with particular organs tend to the development of narrow views in their devotees, for local disease in one part of the body does not preclude the existence of trouble in other parts; and besides, all organs are more or less intimately connected with each other. These facts furnish the grounds for objection to specialists in general, but after all they only furnish objections to individuals and not to the specialties themselves, for no one can contemplate the modern state of such specialties as ophthalmology, neurology, gynecology, laryngology, etc., without a feeling of professional

pride. The remarkable advancement of gynecology in late years has been due, practically, entirely to those who do and think gynecology exclusively. It is certainly, however, too much to expect that the mind, unless it be that of a genius, which is constantly occupied with the study of pus tubes, and laparotomies, and perineorrhaphy, and round ligaments, should have time for the study and advancement of knowledge regarding the changing functions of developing organs, any more than that there should be demanded of it a ready and accurate knowledge of intra-ocular conditions. And yet the diseases of women and children are usually associated, in thought at least, and usually assigned to the same teacher in our medical schools. No man can serve two masters, and in this combination it is not uncommon to find the children sadly neglected.

Pediatrics, as a study, is free from the objections which apply to local specialties. It is limited because it deals only with a portion of the life cycle, but it includes the totality of the individual within that portion. If this be objectionable, so also is the ordinary practice of medicine, which practically today devotes special attention to the phenomena of another portion of the life cycle. It matters not whether the phenomena of childhood be studied by those who also work with adults, or be relegated to others with sufficient interest in children to study them exclusively, provided only that somebody may be interested to do this work. But as the individual who limits himself to particular channels of thought is more apt to gather all that those channels contain, the latter class would probably advance the subject more rapidly.

It can not be too often emphasized that children are not little men and women. The child is an unstable human being, constantly changing; now developing this organ or system with great rapidity, and now that; at one time provided with relatively great heart power, and at another with relatively weak heart; now having kidneys incompetent to do the work thrown upon them by the rapid and undue development of other portions of the organism, and consequently leading to the occurrence of morbid conditions, and later provided with kidneys capable of far greater strain than they are liable to be subjected to for a long time. If the various organs and systems of the child were developed exactly as needed by the remainder of the organism, and in consequence the functions of each were nicely adjusted to the needs of the organism as a whole, all would be well. But this ideal condition is not often seen, and possibly never exists. On the contrary, it is common to note the development of parts by jumps, with a necessary maladjustment of organs and a clashing of functions.

The clashing of functions may be so slight as to lead only to temporary disturbances of no great importance, but it may be so severe as to permanently disable some parts, and determine a *locus minoris resistentiæ* which follows the individual through life, and ultimately cuts short his existence.

Maladjustment of organs may occur not only from irregularity in development, but may be congenital, and is often largely influenced by hereditary tendencies. It may not be improper to mention two quite common types of organic maladjustment. Between seven and ten years of age children frequently increase very rapidly in weight and height. The heart

does not always develop *pari passu*, but from the strains to which it is subjected becomes dilated. It is then noticed that the child seems to be lacking in energy, and is listless, for which outdoor exercise is thoughtlessly advised. What is needed is restriction of exercise until the heart develops to the conditions demanded by the remainder of the organism. Care at the beginning would have prevented the dilatation—carelessness throughout may permanently impair the organ.

In the reptilian stage of its existence, the fetus tends to the formation of a solid urine. In very many instances this tendency remains after birth and shows itself in the well-known uric acid infarction of the kidneys of the newly born. This clashing of functions is disastrous to the unfortunate infant, whose kidneys are but illy adapted to the excretion of a solid urine, and consequently it suffers pain as the sharp crystals make their way through the tubules. The colic of the newly born is frequently due to this cause. As development proceeds, the organs adjust themselves to each other and usually after about three months the colic ceases.

It is not uninteresting in passing to look at some of the means by which nature attempts to protect the infant from this and allied troubles. First, it provides it with that form of food which of all others tends least to the production of uric acid, and then it diminishes the acidity of the urine by diminishing the acidity of the stomach juices, which last is done at some expense to the child, for it probably increases its liability to gastro-intestinal infection. At any rate, it is certain that the infant is more prone than the adult, to gastro-intestinal infection, but possibly it is better, for the race, to kill off some of the infants than to have a community of adults handicapped with Bright's disease. The tendency to excessive uric acid formation is exceedingly common in infancy, and is responsible for many disturbances of the infantile organism, notably often, eczema, which frequently persists or recurs in spite of all treatment until, as the saying goes, "the child outgrows it," which is but another way of saying that in the course of development the offending organs have become adjusted to each other in function.

The references already made to uric acid suggest the extensive and complicated group of conditions which goes to-day by the name of uricacidemia, or the uric acid diathesis. It is not my purpose to discuss with you this subject, or even to give reasons for doubting that uric acid itself is the real toxic agent in many of the conditions usually ascribed to it, but merely to refer to the condition as one of a group of toxemias having a common origin.

In these days of bacteriologic research, it is customary to ascribe nearly all pathologic processes to the action of microorganisms, even assuming, as is done in the "Index Medicus," that cancer is of microbial origin, something as yet very far from proven, and practically holding that all febrile processes originate from like causes. Such assumptions have, it would seem, concentrated too much attention on these etiologic factors, and clouded our perception of others probably equally important and operating in essentially the same way. Certainly, the most common, if not the whole means by which microorganisms produce their effects, are the chemical toxins to which they give rise in the course of their biologic activity. But all cells equally produce chemical

products, some of which are toxic to themselves, and to other cells. And it is quite indifferent whether these cells lead an independent existence as unicellular organisms, or live in permanent juxtaposition to other cells as units of a differentiated tissue with specialized functions. This latter is the condition of the cells which make up the higher animal organisms, and it has long been known that they produce toxins inimical to themselves, and to the organism of which they are elements. Limiting ourselves to man as the animal in which we are most interested, we know that normally he is provided with abundant means for protecting himself against auto-intoxication, but in abnormal conditions this protective apparatus fails and auto-intoxication occurs, and nowhere in the life cycle does auto-intoxication occur in such varied forms, or so commonly, as in childhood. This is partly due to the incompetency of incompletely developed eliminating organs; partly, to the incompetency of incompletely developed organs normally concerned in the transformation of toxins into non-toxins; partly, also, perhaps, to the unusual products produced by incompletely developed organs, or resulting from the maladjustment of correlated organs. This whole wide field of study is practically untouched, but as clinicians we constantly get perplexing glimpses of it.

Among the numerous pediatric problems which should attract the attention of the clinician, there are none more interesting than those presented in the anomalous fevers. Fevers in adults can usually be named; that is to say, they can be traced to definite etiologic conditions, or to morbid processes having a tolerably well-defined and well-known natural history. But this is not true in childhood. It is common to meet in children, fevers of infectious origin, as shown by their simultaneous occurrence in numerous individuals, in a given community, but which do not run courses consistent with the natural history of any of the known and well-defined febrile processes. In the light of present knowledge it is fair to assume that such fevers are caused by various microorganisms, and that those that are caused by a given organism are tolerably constant in their manifestations in different individuals. But largely because they do not have striking and characteristic exanthematous symptoms they have as yet eluded specific clinical classification. Even now, the eruptive disease, rotheln, is so differently described by various writers, that it can hardly be said to have earned yet a definite place in nosology. The undifferentiated fevers afford a magnificent field for clinical observation, particularly at the hands of pediatricians, for it is during childhood that they are most commonly found. At present the best that can be done is to recognize that there does exist a group of undifferentiated fevers, and to avoid forcibly classifying them with known conditions, and giving them names which are not correct.

Time forbids a farther discussion, but in conclusion let me answer the opening question. Disease in children merits special and separate consideration from disease in adults, for the following reasons:

1. Pathogenesis in childhood includes many elements entirely lacking in the adult:
 - a. Undeveloped organs with incomplete functions.
 - b. Irregular development of organs with consequent maladjustment, and clashing of functions.
 - c. Numerous special auto-intoxications.

- d. Different susceptibility to various infections.
- e. Compensatory relations in the child are often peculiar to it, and entirely different from anything found in adult life, e. g., reaction of the stomach and uric acid excretion.
2. Morbid entities of similar causation often present vast clinical differences in the two periods of life, notably, typhoid fever, rheumatism and tuberculosis.
3. Trifling pathologic conditions are more important in childhood, because of the impress which they make on developing organs, and because of their farther reaching influence over the long future life of the individual.
4. The dangerous plasticity of the growing organism also presents therapeutic possibilities not found in the adult, but of vast importance to the future adult.
5. The nutritional problems are numerous and comprehend many factors not to be considered in adults at all.

OVER-FED INFANTS; CAUSE, EFFECT, TREATMENT.

Read in the Section on Diseases of Children, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY J. A. WORK, M.D.
ELKHART, IND.

We can say properly, that an infant is over-fed when it fails to digest and assimilate the food furnished it. The natural food for the newborn babe, all things being equal, is the food sent with it—the mother's milk—which for the first two or three days after birth seems, to the inexperienced or unthinking mother or nurse very inadequate to the support of the child, but it is all that the little new creature can possibly, with certainty, digest and assimilate. Too often the mischief is played with the child during the initiatory period of its digestion. It is often difficult for the attendants in the nursery to realize or understand the untried weak condition of the whole digestive and correlative systems of the infant. In fact, we must consider that the whole new being with all its varied systems, both anatomic and physiologic is in a primary rudimentary condition. Thus we observe the simplest form of food which is naturally furnished it. Recognizing the foregoing fact we should act intelligently if we are called upon to advise in artificial feeding, and select that food for the unfortunate infant which most nearly simulates the mother's milk. Unless disease is present with the mother, which is transmissible by her milk to the child; we should use our utmost endeavor to have it nurse the mother; as we have the best interests of both mother and child in view.

Some young mothers do not possess the best facilities for furnishing this natural food to their offspring, but there are very few who can not be corrected in this respect by patient persistence. If the nipple is not drawn to dimensions sufficient to allow the babe to nurse well during the first two or three days after parturition, we may have to resort, unfortunately, to artificial feeding; for after lactation proper ensues there is usually such a turgescence of the mamma that satisfactory modification of the nipple then is impossible, and after the usual application of pumps, plasters, and various ointments to remove this gorged condition, the babe is virtually

weaned; and if the child is so fortunate as to get its natural food, unless regular habits of feeding during the initiatory stage are observed, it is in danger, when lactation proper ensues, of over-feeding or being over-fed. There is a great temptation often on the part of the mother, which is largely selfish, to make a breast pump of her child, and thus its stomach is impaired. If normal regular habits as to nursing are well established, on the part of the child, commencing immediately after birth, which habit we know can be attained within seventy-two hours by allowing the child its own undisturbed time to rest or sleep, after first attending to all its needs as to proper cleansing, clothing and food, if it demands it, before tucking it in its little bed in a warm properly ventilated nursery, allowing it to awake by force of hunger, or some other cause peculiar to itself—some dictate of nature. When it awakes give it such care as will make it comfortable for another period of rest, of from two to six hours, then put it to the breast again to its satisfaction. It may nurse itself asleep, then tuck it away again, and so on, and we can truly say it is a natural child, following natural habits of life. And, too, the mother by this habit of the child will find that the supply of food will adjust itself to the needs of the child, and by a little common sense on the part of all concerned in the care of the little one, there will be no danger of over-feeding and bringing on the invariable result, viz., indigestion, bad assimilation and perchance cholera infantum.

The result of over-feeding is the leading factor in the very great mortality in infancy and childhood. It is true that quality of food plays an important part in the ailments of children. Even in considering the zymotic diseases of children, by which diseases so often fond hopes are blighted, we must admit that the mortality is largely due to over-feeding prior to the inception of the disease. The disease is severe or not, according to the fermented condition of contents of the alimentary tract. The decomposed contents of the *primæ viæ* is a fertile field for the rapid propagation of bacilli or disease germs. Thus the severe form of the disease.

The incontrovertible law of cause and effect holds good in the consideration of our subject as well as in all things else with which we have to do. Not long since I was called to the bedside of a child 20 months old, who was feverish, emaciated and debilitated, even to inability to close its eyes; could scarcely utter a cry, had frequent curdy stools and vomited sour curd occasionally. Disease had been denominated cholera infantum. On inquiry of the mother I learned that the child had been sick at intervals for twelve months, and suffered similarly, as at this time. Had employed four physicians during this period; child was weaned from its mother and I learned that she was instructed to give it all the cow's milk it wanted, and whenever it wanted it. The case required but little study to determine a diagnosis; cause, over-feeding; effect, the condition of child as above delineated. Before consenting to treat the case, I had the mother promise to follow my directions strictly. We all know how often a mother's sympathy or affections run away with her judgment and thus our directions are not followed, and the result is not satisfactory to either friends of patient or doctor. I ordered three teaspoonfuls of good fresh cow's milk (cow was in the barn near by)

every three hours, preceded by a weak solution of bicarb. potassium and followed by two or three grains of catalysin and carbon. This treatment was to continue for twelve hours, and if vomiting ceased and stools less frequent, or changed for the better, they were to give four teaspoonfuls at a time, and so on, as the child improved in its digestion and assimilation. We increased the amount of milk until twelve or fifteen drachms were given at a time which was enough to cause the child to improve so that in four days I pronounced it well, and only had to advise temperate feeding.

Over-feeding the infant and the result following *directly*, renders the system less resistant to the diseases of childhood and, in fact, may be a menace to its well being throughout even a long life. On the other hand, if wisdom is used in following the dictates of nature, (as God intended we should) in the feeding of infants, the foundation is laid, physically, for a long and useful life.

DIAGNOSIS OF PNEUMONIA IN CHILDREN.

Read in the Section on Diseases of Children at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY EDWARD H. SMALL, A.M., M.D.

PITTSBURG, PA.

Pneumonia in children may be divided into two classes: croupous pneumonia and broncho-pneumonia. There has been a number of different names given to these two forms, viz., croupous, lobar and fibrinous pneumonia for the first; and catarrhal, lobular or insular pneumonia, bronchitis, capillary bronchitis and broncho-pneumonia for the second. A great deal of confusion has arisen on account of the various names applied to the second class. "Catarrhal" is not altogether correct, for other tissues than mucous membranes are greatly affected. Indeed, Neimyer says: "As no mucous membrane with mucous glands exist in the pulmonary vesicles, the name, catarrhal pneumonia, is not quite applicable to the disease in question." The name "lobular" or "insular" pneumonia "should not be used because it neither includes or suggests the bronchial inflammation which is always present." Neither "capillary bronchitis" nor "bronchiolitis" is an exact term, as inflammation of the capillary bronchi is rarely found without involvement of the lobular structures. "This term would mean a bronchitis which has reached its highest possible development without becoming a broncho-pneumonia—a condition which can not with certainty be recognized by either physical or rational signs." "Broncho-pneumonia" is by far the most descriptive term and the one which should be used.

"Croupous" and "lobar" are sufficiently descriptive. "Fibrinous" is the name the English use.

"Croupous pneumonia is an inflammation involving one or more lobes of the lung, or of both, attended with an exudation into the air-vesicles of the affected part, consisting of coagulable or coagulable fibrin with many red and white blood corpuscles from the surrounding blood vessels."—Pepper.

Broncho-pneumonia is an inflammation of the bronchial lining membrane, which by direct extension involves the connective tissue, bronchioles and air cells, attended with an exudation into the alveoli, principally of desquamated epithelium and leucocytes; or, according to Osler, "an inflammation of

the terminal branches and the air vesicles which make up a pulmonary lobule."

Pneumonia is now considered by most writers a specific infectious disease. The pneumococcus of Fraenkel is the most constant organism to be found, and is the exciting specific cause, although others are often seen in connection with it. This was first discovered through Pasteur in 1881. In 1886 Fraenkel obtained pure cultures of it, settled its specific character and pathogenic action and christened it pneumococcus. This may also be found in human saliva, the pleura, meninges, endocardium, or middle ear. It may invade these parts during a pneumonia, or it may be found in meningitis, pleurisy or otitis media when pneumonia is not present. Netter says it is a reminder of pneumonia, and is met with in persons who have had this disease. In France, bacteriologic investigations in a large number of cases of pneumonia in children showed the presence of the pneumococcus in all cases examined of croupous pneumonia and in 60 per cent. of broncho-pneumonia. It is often very difficult to find it in the latter, on account of its frequent association with other microorganisms.

Croupous pneumonia is almost always a primary affection, occurring at all ages and seasons. It occurs most frequently in the winter and spring, when children are most likely to catch cold. It occurs often in dwellings whose sanitary condition is bad, where there is defective plumbing, in filthy and ill-ventilated tenements, crowded jails and workhouses—these conditions furnish a nidus for the coccus.

Broncho-pneumonia is, on the contrary, a secondary affection. As a rule it is preceded by a bronchitis, and is often a complication or sequela of the infectious fevers: measles, whooping cough, scarlet fever, la grippe or diphtheria. In children it forms the most serious complication of these diseases and often causes more deaths than the fevers themselves. Cases are common after operations on the mouth and nose, after tracheotomy and intubation—the so-called aspiration or deglutition pneumonia, where particles of tissue slip through the larynx into the lungs, and induce such an intense broncho-pneumonia that suppuration, or even gangrene may develop. In infants it may arise from inspiration of the vaginal secretions. The bacillus tuberculosis often causes a fatal form of broncho-pneumonia.

It has been taught by many that croupous pneumonia occurs but rarely in children under three years of age. Jacobi says that about one-third of the cases at this time are croupous. Holt gives a list of 207 cases of pneumonia under three years of age, in which the diagnosis was undoubted, of which 160 or 77.3 per cent. were broncho-pneumonia, 47 or 22.7 per cent. were croupous. Baginski gives 151 cases under three years, with 76.2 per cent. broncho-pneumonia, and 23.8 per cent. croupous. After three years of age the number of cases of croupous pneumonia approach those of broncho-pneumonia.

Croupous pneumonia is a primary disease, coming on suddenly while the child is in good health. Recently I took part in a discussion on pneumonia in children, in which a number of cases of so-called broncho-pneumonia were related, which came on suddenly, without a preceding bronchitis, ran a favorable course of a few days with complete recovery. I think these cases were undoubtedly croupous

pneumonia in which many physicians err in their diagnosis. The first symptoms are cough, pain in the chest, or epigastrium. At the Home for the Friendless we had some twenty cases, in which almost all the children complained of pain in the epigastrium, irrespective of the part of the lung involved. In some children the power of localizing pain seems to be deficient. Then we have drowsiness, lack of appetite, languor, chilliness. The rigor which occurs in adults is rarely seen in children, in place of which there is usually vomiting, or in some, convulsions. (Rusty sputum is rarely seen in children.) Elevated temperature, rapid pulse, and increased respiration soon follow. Often the temperature reaches its highest point in twenty-four hours, 103 to 105 degrees or higher. This keeps up with a slight morning remission for from four to seven days. There is a deep flush on one or both cheeks, some think corresponding to the side involved, and often herpetic eruptions on the lips. The cough continues, but is suppressed as much as possible on account of the pain it causes. The breathing is hurried and the nostrils dilated with each inspiration; the rate may be 40, 60 or 70. The pulse is greatly accelerated; the pulse-respiration ratio is changed from the normal of 1 to $4\frac{1}{2}$ to 1 to 3, or 1 to $2\frac{1}{2}$ or 2. Defervescence takes place in about a week. Usually this is sudden, by crisis. The fall often occurs in twenty-four hours from the highest point to normal or below it. I had a case in which the temperature fell to 96 degrees with good recovery. Holt reports a case in which in fifteen hours there was a fall of $10\frac{1}{2}$ degrees, from 105.5 degrees to 95 degrees, and the next day to 94 degrees, with recovery. Rarely the defervescence is gradual by lysis¹.

Broncho-pneumonia is almost always secondary, following bronchitis. When it sets in there is more fever, the pulse is more rapid, the breathing faster and more labored. The fever is very variable, with no definite curve. It ranges from 102 to 105 degrees or higher. The pulse-respiration ratio is 1 to 2 or 1 to $1\frac{1}{2}$, respiration going to 70, 80, 100 or more. There is great dyspnea, the child fights for breath. There is great dilatation of the *alæ nasi* and retraction of the ribs. The dyspnea is often constant and progressive, and soon signs of deficient aeration, suffused face and bluish finger tips are seen. The child has a most anxious expression and gradually enters upon the most distressing stage of asphyxia. "At first the urgency of the symptoms is marked, but soon the numbing influence of the carbon binoxid on the nerve centers is seen and the child no longer makes strenuous efforts to breathe, the cough subsides and with a gradual increase in lividity, and a drowsy restlessness, the right ventricle becomes more and more distended, the bronchial râles become more liquid as the tubes fill with mucus, and death occurs from heart failure."—Osler. Recovery is gradual, by lysis, and occurs at no definite time—several weeks.

The physical signs in croupous pneumonia are the same as in the adult. They are oftenest at the summits of the lungs. Often these can not well be made out until late, owing to the small amount of the lung involved and to its central position. At first we must depend most upon the general symptoms. The crepitant râle is not so easily made out as in the adult. Bronchial breathing is easily heard during consolidation, especially high in the axilla.

Dullness on percussion will sometimes precede bronchial breathing. Increased vocal resonance and fremitus can generally be made out.

In broncho-pneumonia, fine râles are heard at the bases, or widely spread throughout both lungs. In the first few days percussion resonance may not be impaired, in fact, emphysema may cause hyper-resonance, afterwards areas of impaired resonance or dullness may be found at the bases. Many râles may be heard, chiefly of the fine subcrepitant variety, with sibilant ronchi. At times the careful examiner may make out scattered nodules of consolidation.

So far in this paper, I have endeavored to contrast the two forms of pneumonia in children. I will now recapitulate the chief differences in tabular form:

| CROUPOUS PNEUMONIA. | BRONCHO-PNEUMONIA. |
|---|---|
| Primary disease arising suddenly. | Secondary disease, following a bronchitis. |
| Pneumococcus always present. | Pneumococcus present in 60 per cent. of cases. |
| Temperature of 104 degrees or more in the first twenty-four hours. | Arises more gradually. |
| Definite temperature rate with slight morning remissions. | Temperature of no definite rate. |
| Pulse-respiration ratio of 1 to 3 or 1 to $2\frac{1}{2}$ or 2. | Pulse-respiration ratio of 1 to 2 or 1 to $1\frac{1}{2}$. |
| Respiration rate of 40 to 80. | Respiration rate of 60, 80, 100 or higher, and much more laborious with more dyspnea. |
| Pulse rapid, but soft and full. | Pulse rapid, and often weak and unresisting. |
| Pain severe. | Pain less severe. |
| Flushed cheek. | Lividity of face. |
| Cough frequent, but not constant, and not usually preceding pyrexia. | Cough invariable and usually preceding pyrexia. |
| Not so frequent in children under three years. After the fifth year, uncomplicated pneumonia is generally croupous. | Under three years the ratio is about 4 to 1. |
| Physical signs are mostly confined to one or two lobes of one lung. | Physical signs are heard in both lungs with no definite limitation. |
| Upper lobes most affected. | Posterior inferior lobes most affected. |
| Generally area of consolidation in two or three days. | Only exceptionally are consolidations to be found. |
| Bronchial breathing, fine crepitant râles, bronchophony and increased vocal resonance and fremitus. | Different kind of râles in both lungs and later subcrepitant râles. Although we may have dullness from aggregated affected lobules, we do not have therewith bronchophony and increased vocal resonance and fremitus. |
| Generally ends by crisis in about seven days with good recovery. | Ends by lysis in two or more weeks, with permanent lesions or death. |
| Mortality 5 to 10 per cent. | Mortality 30 to 50 per cent. |

A CASE OF EXOPHTHALMOS IN AN INFANT OF THREE MONTHS.

Read in the Section on Diseases of Children, at the Forty-fifth Annual Meeting of the American Medical Association, held in San Francisco, June 6-8, 1894.

BY HARRIET E. GARRISON, M.D.

DIXON, ILL.

The patient whose case forms the basis of this article, is the elder of twin boys, born June 30, 1893. This was the mother's third confinement. The labor was normal. The delivery of No. 1 was retarded by vertex presentation. He preceded his brother by forty minutes, weighed eight pounds, and No. 2 weighed nine pounds. No. 1 cried lustily and to

all appearances was as strong and vigorous as No. 2. He was warmly wrapped in flannel and placed on his right side. After the third stage of labor was completed, and the mother was made comfortable, as I had but the assistance of an untrained nurse I looked after the children. I found the nurse bathing No. 2, and No. 1 lying as he had been placed at birth, but he had become blue and the extremities cold. In an hour's time by the application of dry heat and hot water internally he had lost the blue color and the hands and feet had become warm. When I saw him twelve hours afterward I could not distinguish him from No. 2, but the attendant said he required more care to keep him warm and comfortable than No. 2, which condition continued. It was two months, August 29, before I again saw the children. Then No. 2 was very sick with cholera infantum. At this time No. 1 weighed nine pounds and No. 2 eleven. On the next day No. 1 showed choleraic symptoms. No. 2 had much the more severe attack of cholera infantum but No. 1 was harder to treat. In a few days No. 2 was rosy and vigorous while No. 1 continued to have gastro-intestinal troubles. September 27 the mother brought the babies to my office. No. 1 was very much emaciated not weighing as much as at birth, but the most marked symptom was the protrusion of the eyeballs—they were apparently being pressed from their sockets. The mother said she had not noticed this condition until a few days previous. At this time I first noticed tachycardia, the pulse ranging at 240 per minute. The next week he was again brought to my office. The protrusion of the eyeballs was not as marked as the week before, but there seemed to be no change in the tachycardia. At this time, the mother thinking No. 1 would not live had them photographed, a copy of which I now present. They are arranged to hide the protrusion of the eyes of No. 1 but it can still be seen. From this time on he continued to improve and in two months the mother told me he weighed fourteen pounds against sixteen for his brother. December 30 the mother again brought him to my office as he had been sleepless, cried a great deal, and his head was hot. He had cut two lower incisor teeth and the upper gums were very red and much swollen. At this time the mother called my attention to the tumultuous heart action. She said she had noticed it for several weeks, sometimes more violent than at others. While in the office the beating was sufficiently violent to shake the clothing over the chest. The pulse rate was now 180 per minute. A careful examination of the heart showed nothing abnormal except the thrilling motion. In January he had a severe attack of la grippe with brain symptoms which continued ten days; pulse 200, temperature 103° F. In the ninth month the pulse was 150, of good volume. The only difference discernible in the twins at this time was the pallor of No. 1 and the staring of the eyes. At the present time in the eleventh month, No. 1 is rosy and hearty looking, has lost the pallor and staring of the eyes, pulse 100, of good quality, creeps actively but does not climb, and stands as much as No. 2. No. 1 weighs nineteen and one-half pounds; No. 2, twenty-one and one-half pounds. No. 1 has all his incisor teeth; No. 2 has six. At this time the children were again photographed. In the photograph the laxness of the muscles of No. 1 is very noticeable as he does not sit nearly as erect as No. 2. His mother tells me his head perspires when he sleeps.

Exophthalmos, Graves' disease, exophthalmic goitre, Basedow's disease, struma exophthalmic, tachycardia strumosa, cardio-thyroid exophthalmus are some of the names which have been applied to this disease—which usually has three prominent symptoms; tachycardia, exophthalmos and goitre.

Graves was the first to distinctly group these symptoms, but gave most prominence to tachycardia and exophthalmos. Then later, Basedow more fully described the symptoms, but made the goitre more prominent. Tachycardia is the first symptom usually observed; the other two varying in different individuals, sometimes the exophthalmos appearing first and sometimes the swelling of the thyroid gland. In this case the exophthalmos was the first symptom noticed. A mild tachycardia very likely existed before the child was brought to me, but the tumultuous heart action was not observed until nearly two months later when the exophthalmos had nearly disappeared, and at no time was any swelling of the

thyroid gland observed. This agrees with a case recorded by Graves in which tachycardia was first noticed, then exophthalmos and two months later the thyroid swelling. Improvement began in my case so soon that the thyroid gland did not become involved.

I have now under my care a girl of 14, with goitre. The pulse is 120 with chlorotic bruit. The murmur is very marked over the carotids and thyroid. The patient's eyes are prominent but not protruding. In another young lady with well marked goitre of right lobe the pulse was never over 120. Exophthalmos came on suddenly while she was being treated for goitre by electricity; the exophthalmos was relieved by treatment but the eyes still looked large. The goitre was but slightly reduced by treatment and is still noticeable at the present time, although she now seems perfectly well and is the mother of several healthy children.

Cause.—There was never any case of goitre among the children's ancestors, therefore, heredity could be excluded. The parents are both large, vigorous and healthy, of German descent. The grandparents are living excepting the paternal grandfather who died of acute pneumonia. The house in which the children live is one of the oldest in this section of the country. It is located on low land near a small stream which at this point is quite sluggish. The difference between the air on the highlands and on the lowlands was very noticeable as I drove down from the surrounding hills in the early morning hours on the day of the children's birth. Although it was very warm June weather the air in the house felt damp and cold, and I directed a fire to be lighted by which the children might be dressed. It is to this unsalubrious situation that I attribute the child's condition; weaker at birth than his brother he could not overcome the unfavorable climatic conditions. Why it should take the form of exophthalmos can perhaps be accounted for by the condition in which the child was an hour after birth. The venous stasis and coldness of the extremities showed a weakness somewhere in the child's system. It could not have been organic heart trouble or it would not have been so quickly relieved by the application of heat. There must have been a weakness of the nerve centers, which control the generation of heat and the vaso-motor nerves. This accounts for the failure of the child to rally from the attack of cholera infantum as this had farther injured the already weak nerve centers. Whether this condition was caused by the pressure on the brain from the vertex presentation or whether it was caused by a defect in nutrition during fetal life, I am not prepared to say.

Treatment.—The child had been taking almost continually, from the time it had the attack of cholera infantum, medicine to assist digestion and to tone up the system. As soon as I saw the child had exophthalmos I gave, in addition to the medicine it was already taking, arseniate of strychnia. A granule containing 1-134 of a grain was dissolved in nine teaspoonfuls of water, and one teaspoonful of this solution was given every six hours. This was given regularly for a long time and was resumed as soon as the brain symptoms of la grippe were controlled. The arseniate is giving as favorable results in the case of chlorosis now under my care. She has been taking it for a month, the pulse rate has decreased to 90 and the goitre is materially reduced. She takes 1-67 of a grain every four hours.

Diet.—The mother having very little breast milk, gave in addition sterilized milk, and as is usually the case, when babies are given the bottle, the children soon became weaned from the breast and the sterilized milk formed the whole diet. After the attack of cholera infantum they were given condensed milk. This agreed perfectly with No. 2, and he has never been under treatment since, but did not agree with No. 1 and he was given, in addition to condensed milk, beef extracts and several infant foods. At the time of the exophthalmos, he was put on peptonized milk for a few days but was soon returned to condensed milk. After the attack of la grippe he was given sterilized milk which at the present time with bread and butter forms the diet. No. 1 consumes double the quantity of milk which No. 2 requires, but does not increase in weight any more rapidly than No. 2.

All the cases of exophthalmos or goitre which have come under my observation before this case, have been in females at puberty or later, for which reason I have always regarded tachycardia, exophthalmos or goitre as being a symptom or symptoms of reflexed nervous origin—the uterus and its appendages being the source of irritation. But since studying this case, I have reached the conclusion that the disease is located in a sympathetic ganglion or ganglia, and the disease of the other organs is due to loss of proper nerve stimulus. And the proper treatment of these conditions is to increase the nutrition of the nerve centers.

DERANGEMENT OF THE KIDNEYS IN LITH-EMIA OF CHILDREN.

Read in the Section on Diseases of Children, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY J. M. G. CARTER, M.D., Sc.D., Ph.D.

WAUKEGAN, ILL.

PROFESSOR OF PREVENTIVE AND CLINICAL MEDICINE IN THE COLLEGE OF PHYSICIANS AND SURGEONS OF CHICAGO; FELLOW OF THE AMERICAN ACADEMY OF MEDICINE, ETC.

One of the most common forms of derangement in the alimentary canal of children is due to the failure of the liver to properly perform its function. This neglect of duty on the part of that important organ permits the accumulation in excess in the blood of glycogen or sugar, uric, oxalic and other acids.

The origin of this trouble is found in improper food in many cases, producing acid digestion. At times, however, the derangement seems to be caused by some nervous influence or an inherited dyscrasia. The condition, whatever its origin, seems to consist in an imperfect digestion of food, or an incomplete oxidation of proteid material by the hepatic cells. An excessive indulgence in sugars, starches, and fats may produce both imperfect digestion and failure on the part of the hepatic cells to completely oxidize the proteids. An acid indigestion is a common result of this indiscretion. Languor, constipation, flatulence and similar symptoms are characteristic of the condition. The skin is sallow or of a peculiar muddy, dingy, unhealthy appearance. The eye is deprived of its normal clearness and, though not tinged with pigment to the extent it is in jaundice, it is dull and characterized by loss of expression. The facial appearance is often listless and uninteresting. The secretions are diminished and digestion is impaired; conditions which may last for weeks or months. A glycosuria may occur in

infants of the first month, and in such children we are likely to meet with lithemia in later life.

Chronic gastritis or gastric irritation and nervous conditions should excite a suspicion of lithemia if the etiology is at all obscure.

When a nervous, fretful, peevish, restless, ailing child, with a voracious or fitful appetite does not yield readily to simple treatment, or is found to have occasional attacks of illness similar to the condition just mentioned, lithemia should be suspected, and a careful examination of the urine made to discover the changes which characterize this disturbance.

If uric acid is not transformed into urea an excess of that acid occurs in the blood and will be excreted by the kidneys. In fact, all acid urine will sooner or later deposit uric acid. Uric acid crystals and urates are sometimes deposited from urine of lithemic children. I should expect that a lithemic child, if this dyscrasia is not corrected, would manifest more serious symptoms of disease in adult life; in England, perhaps gout; and even in America there seems to be a rapid tendency to that popular disease. It must be borne in mind that the continued irritation of the kidneys by the overburdened work of excreting an excess of uric acid for years may be followed by congestion, nephritis and albuminuria. An excess of oxalic acid or oxaluria may likewise be followed by an albuminuria. In such cases there is a high specific gravity of the urine with urates, albumen and casts. These serious cases might be prevented in many instances by a recognition of the lithemia of children and its proper treatment. Along with the intestinal, alimentary and nervous symptoms in such cases will often be found a congestion of the kidneys. The patient desires to urinate frequently, sometimes has a feeling of fullness or distress in the lower dorsal region. Specific gravity generally high, 1020 to 1030; urates, phosphates often and sometimes uric acid, oxalic acid, albumen, or sugar may be present. I have found in some instances a trace of albumen or sugar; and in some I have found indican. I have accepted the presence of indican in obscure cases as indicative of intestinal disease. With the presence of these abnormalities in the urine, ordinarily, there are other symptoms which direct the attention to some derangement of the digestion. The two following cases represent different manifestations of this condition as it has occurred in my experience:

Case 1.—E. P. was a fretful, restless child from birth; sleep disturbed, waking in pain or with some undiscoverable distress many times during the night. Paroxysms occurred every few weeks or months during which the restlessness, wakefulness and peevishness were increased and accompanied by symptoms of acid digestion. The appetite was variable, skin sallow or muddy, the acid urine of high specific gravity and loaded with phosphates and urates. Micturition frequent and often irritating. No albumen or sugar. Tongue slightly coated. Treatment directed to correct the indigestion and eliminate the excessive elements in the urine always relieved the paroxysms. It was seldom necessary to prescribe for the fever which often accompanied these attacks. A permanent cure was produced by regulation of diet and a protracted treatment to correct the morbid condition of the digestive organs.

Case 2.—H. C., 4 years old, frequently has attacks of indigestion and often these verge upon simple continued fever in the persistency of the symptoms and mild fever. The last attack occurred April 15, 1894. Appetite variable. Skin sallow and muddy. Tongue slightly coated, temperature scarcely above normal and pulse only 85 to 90. The patient was peevish, restless, had a constant feeling of fear; and distress in the stomach. Urine 1026, acid, contained a trace

of albumen, urates, phosphates, indican. Urination occurred six to eight times a day. Amount in twenty-four hours eight ounces. Uric acid present, amount not determined. No sugar or bile pigment. The diagnosis was lithemia with congestion of the kidneys. The treatment directed to elimination of retained matters; correction of the indigestion and relief of the deranged kidneys resulted in a cure in two days. There is a persistent custom in this family of feeding the child with sugars, candies, etc., and allowing an uncontrolled appetite to be satisfied at every meal, so that the prospects for a permanent cure are remote.

I may add also that the father is a sufferer from gout. Such cases seldom recover without a complete change of environment. The treatment should be such as will prevent the formation or accumulation of too much acid in the stomach during digestion, and yet will render aid to the embarrassed liver in discharging its functions. The first indication can be met by giving alkalis during or before meals, as bismuth, bicarbonate of soda or lime water; and acids, hydrochloric or aromatic sulphuric, and pepsin after meals. Nitric acid sometimes produces excellent results given an hour and a half before or two and a half or three hours after meals. Theoretically, nitric acid parts with sufficient oxygen to transform uric acid into urea. The phosphate of soda is valuable in many cases. The second indication may be met by giving water between meals. In older children the encouragement of a habit of drinking water an hour before meals and two hours after, will assist in flushing the system, not only relieving the liver but reducing the irritation existing in the kidneys. All treatment should accomplish, or have for its aim, the relief of the kidneys from the excessive work which eventually will lead to permanent trouble if not prevented by the removal of the acid dyscrasia.

Investigations properly directed would undoubtedly show that the increase in the number of cases of Bright's disease which we now meet as compared with the same a few years ago can be attributed in part to the increase of cases of uric acid diathesis and lithemia among children and young people caused by the indigestion of pastries, rich foods, confectioneries, sugars, etc. These conditions are due to the methods of living adopted by families as soon as they attain a degree of wealth that permits such indiscretions; conditions which in many instances might have been corrected in youth. In my experience most of these cases occur in well-to-do families, and it is necessary to give directions curtailing the custom of constantly putting something into the child's stomach. If the cases are infants on the bottle, or young children whose chief diet is milk, it is often necessary to sterilize the milk as that renders its digestibility more nearly like human milk. When such a case occurs in a family where the nervous temperament is prominently developed, I prescribe the syrup of hypophosphites—Churchill's. Ordinarily I prescribe minute doses of calomel and soda or mercury with chalk at the beginning, and have the patient given an alcohol sponge bath morning and evening to be followed byunction with olive or cocoanut oil. These simple remedies with diaphoretics, diuretics and other eliminatives, if needed, will generally be sufficient for the first two or three days. After that I like the effect of aromatic sulphuric or hydrochloric acid (well diluted) half an hour before taking food three or four times a day, and phosphate of soda in 5 to 10 grain doses three times a day until a cure is produced. Seltzer, Buffalo Lithia, Vichy and other mineral

waters have been advised, and should be taken warm and when fasting. The three chief objects to keep in view are: 1, to remove the acid digestion; 2, to regulate the action of the liver; and 3, to relieve the kidneys of their extra work.

SOME REMARKS ON ECZEMA OF CHILDREN.

Read in the Section on Diseases of Children at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY WM. M. HOLTON, M.D.

NEW HARMONY, IND.

Infantile eczema is popularly known as milk crust, tooth rash, moist tetter, etc. The most frequent cause is, probably, a faulty assimilation of food. This may occur from disease or mental distress of the mother. In infants brought up by hand, or "bottle fed," faulty diet may cause gastric disturbance and eczema may result. A scrofulous diathesis is, probably, a predisposing cause. Excessive friction, from too free use of a fine tooth comb or a hard brush to clean the head of dandruff, or excess of either natural or artificial heat may irritate the scalp and produce eczema.

A collection of pimples slightly elevated above the surface is first noticed. The summit of the pimple is usually vesicular, and when broken by scratching, to relieve the intense itching which accompanies the eruption, discharges an irritating fluid, which causes the disease to spread, until not only the entire scalp may be covered, but the ears and face may be involved; indeed, in rare cases, the whole skin may be affected. The secreted fluid at first transparent, becomes opaque, afterwards purulent, and is often stained by blood flowing from lacerations made by the finger nails of the tormented infant. These discharges drying, form thick crusts, covering the diseased parts like a mask and, if the face is much involved, it is disfigured almost beyond recognition. The ears are often thickened, and deep fissures form behind them which almost threaten to detach the ears from the head and are difficult to heal. In the early stages of eczema the child may appear healthy, may even be plump and rosy, but usually the flesh will be less firm than normal and, as the disease advances, slight pallor and an unnatural whiteness of the eye is noticed; later the skin becomes dry, sallow and wrinkled, and the child looks prematurely old.

The mucous membrane of the mouth and nose is often affected, and in severe cases that of the throat and lungs may be involved. Indigestion and diarrhea are frequent complications. The submaxillary and cervical glands often enlarge and suppurate. Wilson, in "Diseases of the Skin," says: "Infantile eczema, when left to itself has no natural tendency to resolution or spontaneous cure. Without treatment it is liable to pass, after protracted suffering, into chronic eczema or, in other words, psoriasis infantalis." Notwithstanding the formidable character of this malady we can promise speedy relief and, in most cases, a permanent cure if proper treatment is adopted and faithfully carried out. Locally, apply an ointment of oxid of zinc, one part to six of simple cerate, or fresh lard; mix well; apply with gentle friction over the entire eruption. Let this remain a week; should it crack and the fluid exude, apply more ointment. After a week, soften the crust with an emulsion of yolk of eggs, cover with

cloths wet with warm water, when the crust can be removed; then continue the ointment as before.

During the time of treatment the use of comb, brush, or of water should be as limited as is practicable. It may be necessary to confine the hands to prevent scratching, but the ointment is soothing, and usually renders restraint unnecessary. As constitutional treatment, $\frac{1}{2}$ grain calomel with 1 or 2 grains of bi-carb. soda, or calcined magnesia, given every night at bed-time is often all that is necessary. A suitable diet should be given, and as relapses are frequent the treatment should be continued for some weeks after the eruption disappears. In obstinate cases, give 2 to 5 drops of Fowler's Solution after each meal. Enlarged glands should be painted with tinct. iodine, and alterative doses of iod. potass, with syrup sarsaparilla compd., given three times a day. These scrofulous cases require protracted treatment, but the result has been, in my experience, satisfactory, and I rely on this treatment with the same confidence that I do on the use of quinin in intermittent fever.

ETIOLOGY AND PROPHYLAXIS OF DIPHTHERIA.

BY B. BECKER, M.D., F.S.Sc., LONDON.
TOLEDO, OHIO.

The Eighth International Congress of Hygiene and Demography, held at Buda-Pesth September 2 to 8, 1894, can be considered as one of the most remarkable and important reunions of representatives of the medical sciences from all countries during the latest times. This can be judged from the reports so far published.

One of the most important proceedings of the Congress was the discussion on the etiology and prophylaxis of diphtheria, which may be shortly related in the following:

Löffler, from Greifswald in Germany, says that diphtheria is produced by a specific bacillus, whose importance is not doubted any more by anybody. As diphtheria we can consider that affection only which is produced by the Löffler bacillus, excluding all similar affections which are caused by other microorganisms. In fact, we often find diseases of the upper air passages, which give the same picture as genuine diphtheria, but which are caused by an infection of streptococci, staphylococci or pneumococci and which, like the genuine diphtheria, can take a benign or a malignant course. The differentiation in diagnosis can only be made by bacteriologic examination, and all the statistics of diphtheria can not have any value as long as this differentiation is not strictly observed.

The course of an epidemic diphtheria depends on different factors: 1, on the quantity and the virulence of the diphtheritic bacilli; 2, on mixed infections by which the virulence of the bacilli is increased, or the organism weakened by the absorption of the products of secretion; 3, on the individual predisposition.

The bacillus of diphtheria is often found in the pharynx or in the nose of healthy individuals, its presence not producing any pathologic symptoms. It produces a disease only in those cases in which it is fixed on the mucous membranes. Lesions of the mucous membrane facilitate this fixation, and atmospheric changes, moist air, etc., seem to favor the de-

velopment of the disease. In the majority of the cases, diphtheria is directly transmitted by contact, by cough, kisses, by hands which are soiled with the fresh secretion, but often also by food, linen, etc., even a long time after the infection.

The patient must be considered as dangerous to others as long as bacilli can be found upon the mucous membrane. Usually they disappear a short time after the healing of the local process, while in certain cases pathogenic bacilli are found in the pharynx and the nose after weeks. Enveloped in organic substances and with the exclusion of light the bacillus can retain its activity for months outside of the organism. Dirt, moist and dark houses therefore favorably affect the conservation of the bacilli and the spreading of the disease. The most favorable condition for such a spreading is found in accumulations of susceptible individuals, as in schools, etc.

As means of prophylaxis are especially recommended:

1. Cleanliness, dryness, ventilation and light of residences.
2. Hygiene of the mouth and nose; repeated gargarisms with solutions of chlorid of sodium, or bicarbonate of soda; cleanliness of teeth, extraction of diseased teeth; removal of hypertrophied tonsils.
3. Cold spongings of the neck.

Every suspicious case should bacteriologically be examined. Every practitioner should receive culture media from drug-stores or health offices to be simply inoculated and sent to the bacteriologic station. The report of all cases of genuine diphtheria, likewise of all suspicious cases, should be obligatory, and all the diphtheritic patients should be isolated. To possibly prevent the spreading of pathogenic germs, local anti-parasitic treatment should be resorted to, if the locality of the disease allows it.

The most effective preventive against the spreading of diphtheria is the prophylactic inoculation of those persons surrounding the patient, especially of the children. Numerous experiments have proven the harmlessness of Behring's curative serum (Heilserum) and its effect as a preventive remedy should be tested liberally in schools and families. Disinfection of the sick room and of all things which have been used by the patient should always be done. Convalescents from diphtheria should not come in contact with healthy people before the absence of the bacillus is proven by bacteriologic examination. In epidemics the laity should be enlightened by public instruction and publications.

Representing the French Committee, Professor Roux, from Paris, offered the following thesis:

1. Diphtheria is a contagious disease; the report of the cases must be obligatory.
2. Diphtheritic patients should be isolated.
3. The health officers have to provide for the proper disinfection of rooms infected by diphtheritic patients, of their clothes, linen and beddings; in short, of everything that has been used by the patients, toys included. During the sickness, the soiled linen, etc., must be disinfected before given out for washing.
4. Carriages, etc., used for the transportation of diphtheritic patients must be disinfected after each use.
5. Children who have had diphtheria should be kept from school until the physician has stated the cure and permitted the return to school.

6. When a pupil of a certain school is taken sick with diphtheria, the rest of the children should be under the observation of a physician for some time. All suspicious cases of angina should be excluded from school immediately. Special care is required for the sisters and brothers of a patient.

Besides these rules to be effected by official ordinance, the following principles should be generally adopted:

1. In order to employ an effective treatment of diphtheria the diagnosis must be made early. The beginning of the disease is insidious in many cases, and it would be overlooked less often by frequently repeated inspection of the child's pharynx. Mothers should make this inspection daily and the children be made used to it from an early age.

2. An early and sure diagnosis of diphtheria can only be made by bacteriologic examination, which therefore should be practiced by every physician.

3. Our knowledge concerning the effect of the anti-diphtheritic serum is of such a kind at present that its prophylactic use can be recommended for children in families with a diphtheritic case.

EMPYEMA OF THE ANTRUM, AND HOW TO TREAT IT.

Read in the Section on Dental and Oral Surgery, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY EUGENE S. TALBOT, M.D.
CHICAGO.

It is not the intention of the author to enter into a minute description of the large number of skulls he has examined in the past few years, but simply to give some of the details of the more marked deformities so that our reasons for certain modes of treatment may be more clearly understood.

Gray says: "The antrum of Highmore or maxillary sinus is a large triangular-shaped cavity, hollowed out of the body of the maxillary bone; its apex directed outward is formed by the malar process, its base by the outer wall of the nose. Its walls are everywhere exceedingly thin; its roof being formed by the orbital plate; its floor by the alveolar process; its anterior wall by the facial and its posterior by the zygomatic surface. This conclusion must have been formed after an examination of very few symmetrical skulls, since the author has been unable to verify this description in all cases after an examination of 6,000 antra.

In order that the cavity may be opened in the proper place and drainage procured, we must possess some idea of its position and shape. I have examined skulls in which the shape of the cavity was just the reverse of that laid down by Gray. In others the antra were almost square with round corners, and still others it was almost impossible to describe, owing to the many deformities assumed.

Septa, bulgings, with corresponding depressions and deformities of adjacent cavities; sometimes the outer wall of the nose will be bent into the antrum from .25 to .33 per cent. of its space and *vice versa*. The size of the cavity also cuts quite a figure in regard to its position and relation to surrounding parts.

In neurosis and degeneracy one antra may develop to such an extent that it will be twice the size of a normal cavity. In such cases it is not uncommon to find the nasal cavities forced to the opposite side,

and the antra of that side only the size of the end of the little finger and situated almost entirely inside the malar process. In such a jaw we should expect to find (in the case of the large antrum) very thin walls as described by Gray, but a far different condition exists upon the opposite side where the antra is very small. Here the walls are thick and a drill would have to pass from one-half to three-fourths of an inch through the alveolar process to reach it at all. Another condition, occasionally observed is, in cases of neurosis and degeneracy, the nasal cavities situated either to the right or left of the face crowd the antrum to one side and bring the floor of the nose directly over the alveolar process; in this case a drill passing through the alveolus would penetrate the nose.

The author has observed two cases where dentists, in attempting to drill through the alveolar process into the antrum with a view of draining it, actually drilled into the floor of the nose. At the time I made the remark that the operator displayed great ignorance in regard to anatomy of the parts. In conversation with specialists on the nose and throat, I have been informed that they have seen similar cases, and I have since learned by observation that we are all liable to the same accident, for the reasons which I have already described. Again, in some cases the antra are almost entirely obliterated. At least only a few cells not unlike the ethmoidal cells are situated at the upper border, while the remainder of the space is filled solid with cancellated bone tissue. Frequently the antra are divided into compartments by bony septa occasionally dividing the cavity into two or more nearly complete cavities. In such abnormal conditions it would be reasonable to suppose that the lowest point in the floor of the antrum would be difficult to find.

The opening into the middle meatus of the nose also varies in size from a crow's quill to a space large enough to admit the end of the little finger.

Difference of opinion exists as to the cause of empyema of this sinus. By some it is believed to be an extension of inflammation of the mucous membrane of the nose due to cold; by others, and especially by dentists to alveolar abscesses. With a view of obtaining some facts in regard to this matter, some years ago I made a special examination of skulls with the following results: Of the 6,000 antra examined, there were 1,274 abscessed molar teeth. Of this number, 76 or about 6 per cent., extended into and apparently discharged into the antrum. Septa were found in 963 cases. In the treatment of 384 cases of pulpless teeth in connection with the superior molars in the past twenty-four years, only four cases of diseased antra were observed. Dr. M. H. Fletcher, of Cincinnati, Ohio, examined 500 skulls or 1,000 antra, in which 252 upper molars had abscesses making 25 per cent. Of the 252 cases, 12 perforated the antra. Dr. Fletcher found, in 224 cases of pulpless molars treated by him, only one case of pus in the antrum. We must conclude, therefore, that diseased antra are rarely due to abscessed teeth. On the other hand, owing to the unstable abnormal development of the bony framework of this cavity which is always found in neurotics and degenerates, we would expect to find inflammation extending from the nasal cavities into the antra, (especially when the openings are large) as a result of cold. Neurotics and degenerates are much more liable to disease, par-

ticularly of the mucous membrane, than those who possess normal development. To drain this cavity, medical men, but more particularly dentists, have been in the habit of extracting teeth or the roots of teeth, and when no teeth are present, drilling through the alveolar process in a perpendicular manner to reach the antrum. As has been shown, the antrum can not always be reached by this procedure. From the extended examinations, made by Dr. M. H. Fletcher and myself, both came to the same conclusion without the other's knowledge, that the best place to open the antrum was at the base of the malar process midway between the root of the second bicuspid and first permanent molar, and illustrated in Fig. 1 B. In such a position the lowest joint in the cav-

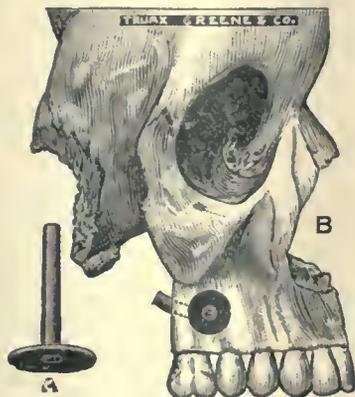


Figure 1.

ity can nearly always be reached and also avoid the possibility of entering the nasal cavity.

One of the great difficulties in treating diseases of the antrum successfully, is to obtain proper drainage after the cavity has been opened. Cotton, ivory and wood are generally used and tubes made of gold and silver. Silver tubes corrode and become very disagreeable, while gold tubes are too expensive. Plugs are of little account because they defeat the object required.

The author has been quite successful with a tube made of hard rubber, as illustrated in Fig. 1 A. They have the advantage over any I have ever used, in that they can be kept in stock at reasonable prices, softened in hot water, and molded to any position required. The flange can be trimmed to any shape



Figure 2.

and degree and the tube cut at any length. The cheek holds it in position, it can be kept perfectly clean and be readily adjusted when the opening is made through the alveolar process and fastened to a tube if necessary.

DISCUSSION.

Dr. YOUNGER—The paper is an excellent one, and I believe the method of opening into the antrum which it describes the best to be found. Two years ago a case came into my hands, in which a tube used to secure drainage from the antrum had been allowed during its removal to slip into the cavity. The patient was a lady 74 years of age. Immediately, though without alarming the patient, an endeavor was made by the surgeon in charge to recover the tube. Chloroform was given, the patient was kept under its influence for two hours, and for an hour and a half the search was kept up, but without avail. Some months later on my

return from a somewhat prolonged absence from the city I was called in, and found the patient much worse and steadily growing feebler. I thought it probable that a part of the tube was still in the antrum but I was unable to find it, although I used cocain, enlarged the opening, and searched for an hour and a half. The operation, however, benefited the patient and for a while she seemed better, but the old symptoms soon returned. I again operated, having in the meantime concluded that the missing tube was behind or over the inferior turbinated bone, and for the purpose of searching for it had a probe made with which I could thoroughly explore every portion of the sinus. The tube was found in fifteen minutes.

DR. DEAN—Was there any local formation of pus or local inflammation, and general rise of temperature?

DR. YOUNGER—We supposed so, on account of the improvement in the patient's condition after the operations.

DR. BOXWILL, Philadelphia—While I have performed many operations about the antrum, I have had but three cases of disease of the antrum which came from the teeth. It is a question how far we, as dentists, may treat antral cases, because they have given so much trouble to the best general surgeons. Much as I love a tooth, and much as I try to save them under almost all circumstances, I think I should prefer, in case of antral trouble, to extract a tooth so as to have plenty of light. It is well not to make unnecessary extra openings in surgical operations; if there is already one, we should try not to make more. After opening the cavity we ought to be able to drain it thoroughly. If this can not be accomplished with cotton then wool may be used, which does very well in many cases. Then, unless there is diseased bone to be removed, we ought to be able to medicate readily.

DR. VAN ORDEN—I have sometimes asked myself if I am always able to recognize antral trouble. In this connection I recall a case in which, if I could get it back into my hands, I should certainly attempt to cure a bad case of nasal catarrh by an operation upon the antrum. At the time this case came to me I treated it, the condition improved, and it was sent to a specialist who didn't seem to pay much attention to it. Dr. Talbot says that only a moderate number of abscesses in the upper jaw complicate the antrum. Would not the engine-point be less painful in operations upon the antrum than the instrument which Dr. Talbot describes, and therefore preferable for use in opening into it?

DR. TALBOT—Yes. The paper stated that the instrument referred to was for the use of physicians and surgeons who do not have the engine.

DR. WALTER F. LEWIS, Oakland, Cal.—Most of the gentlemen present recognize the necessity of having this subject well aired. I move it as the sentiment of the Section that Dr. Talbot's paper should be read before the Dental Congress next week.

The motion was adopted.

DR. TALBOT—I have tried to point out, both in the paper now under discussion and in the remarks which I made upon the chairman's address, that it is only by hard study that dentists can hope to improve the scientific basis of their profession. This paper now under discussion has been eighteen years in preparation, and to reach the deductions stated in it required the examination of over twenty thousand skulls in this country and in Europe. There are facts given in that paper which were never before publicly stated. Dr. Fletcher, as the result of an entirely independent examination, agrees with the conclusion that the antrum can not be depended upon

as to size; that is, whether it is as large as one's little finger or as large as a hen's egg, and extends over to the roof of the mouth can not be determined from appearances. I have seen skulls from which it would have been impossible to extract a tooth on one side of the mouth without going into the floor of the nose. Both myself and Dr. Fletcher reached the conclusion, each without the other's knowledge, that the point named in the paper, between the second bicuspid and first permanent molar, is the proper place to enter the antrum in operating. You must not lose sight of the septum which divides the antrum into two chambers. If you go up into only one antrum, the patient's head should be laid first on one side, then on the other, so as to drain both antra thoroughly. Treatment after opening should be simple. Cleanse out with syringe, using warm water or a weak solution of listerin or boracic acid, or something which will not injure the mucous surface. Many specialists use too strong remedies. Very simple treatment only is needed; cleanse thoroughly with warm water and let nature do the rest.

In reply to queries, Dr. Talbot said that in disease of the antrum the dentist should take entire charge of the case, which he should be competent to treat. I do not consider a man a real dentist who can not do so, though I fear there are comparatively few who are able to treat such cases successfully. I would not attempt to open into the antrum without knowing that it was necessary. I might go so far as to extract a tooth, but should then wait two or three months, if there was any doubt, to give time for a cure of the trouble by nature's help. Then, when sure that it was required, I should make the opening. In mild cases of antral trouble where transmitted light gives no indication I should treat the patient constitutionally, keeping the bowels open and building up with tonics. Ninety-nine out of one hundred such cases are due to inflammation of the mucous membrane, as from the effects of grip or the inhalation of extremely cold air.

DR. C. S. LANE, Oakland—Is the drainage tube a necessity in cases where the antrum is opened? Will it not take care of itself without this aid?

DR. TALBOT—The mucous membrane heals up very quickly in cases where the antrum is opened.

DR. LANE—Some surgeons say that it never heals, and my experience is that unless we do something to assist it, it does not readily heal. The idea advanced by Dr. Talbot seems new and well worth thinking of.

DR. DEAN—By this tube which Dr. Talbot shows, we have practically a valve which prevents the ingress of *débris* from the mouth. I do not feel able to discuss this paper to-day. Ask me a year from now and I may be able to say something upon it.

PYORRHEA ALVEOLARIS.

Read in the Section on Dental and Oral Surgery at the Forty fifth Annual Meeting of the American Medical Association, held at San Francisco, Cal., June 5-8, 1894.

BY W. J. YOUNGER, M.D.
SAN FRANCISCO.

By this name, I mean that condition in which there exist patches of a slate-colored calculus partially or entirely encrusting the roots of the teeth, with the alveolus more or less destroyed and the surrounding gums deep red, retracted and congested—though sometimes attenuated; usually yielding pus at the cervical margin between it and the tooth, but this feature is sometimes absent.

This incrustation is firmly adherent to the cementum, for no pericemental tissue is ever found between it and the cementum. When removed it comes off in scales, leaving the portions of root from which it is detached, clean and white. This is true of the calculus on the shaft of the root, but that which is found around the apex of the fang is very difficult of removal, as it does not scale but has to be dragged off piecemeal or dissolved by chemicals.

This is not in consequence of any difference in the character of the tartar, but in the fact that the apices of the roots are not smooth like the sides and present a roughened surface and therefore a more secure attachment to the calculus.

In consequence of the waste of the bony walls of the socket, when this disease has progressed to any extent the teeth will be found loose and tender on pressure and frequently raised in their sockets or forced out of their position—usually towards the side opposite to the location of the tartar. If the disease is allowed to progress to a conclusion, the teeth will drop, or fall out, in consequence of their attachment to the alveoli being entirely destroyed.

The etiology of this disease is as yet surrounded in mystery, though the professional opinion is strongly drifting into regarding it as of constitutional origin; and the deposit of calculus (which is the bane of the disease and always present, some writers to the contrary notwithstanding) as being of hemorrhagic ori-

gin, due to imperfect nutrition and connected with a gouty diathesis.

That it may be connected with malnutrition may be true, for no organ or tissue can become diseased while it is properly nourished; or that the condition may be aggravated or modified by constitutional disturbance or cachectic state is also palpable; but sufficient proof has not yet been adduced to establish the theory that pyorrhea alveolaris is of constitutional development and especially due to a gouty diathesis.

On the contrary, my experience with this disease (covering a period of over thirty years) has convinced me that it is of purely local origin; and I am very much inclined to the opinion I promulgated some ten or twelve years ago at a session of the California State Dental Association, that it is due to a diseased activity of the pericementum caused by disturbed nutrition or a local irritation, and that instead of bone it produces this disorganized abortion, vulgarly called tartar; itself perishing in the effort by the irritation of its presence.

This is the reason why pericementum is never found under the calculus. And this theory is strengthened by the fact that the constituents of tartar are analogous to that of bone, and why the pericementum is never in contact with the margin of the calculus. For there is always a denuded strip of root between it and the membrane.

While the irritation inducing the formation of this calculus may proceed sometimes from or be caused by the blood (as for instance the impaction of a capillary thrombus) I think it usually due to some irritant acquired from without. For the deposit is first formed near the cervix of the teeth, most frequently upon the approximal surfaces under the lingual margin where food and seed, etc., are most apt to lodge.

It is only in mature life and advanced age that we find it near the ends of the fangs; but in young or old one thing is certain; that between the alveolus and the root there is always free communication between the calculus and the cavity of the mouth. This condition, which in my long experience I have found invariable, shows the probability of some migrating germ or substance from the cavity of the mouth being the original or exciting cause of the mischief.

Now were this disease of constitutional origin there certainly would be many cases in which there would be no lesion whatever between the gum tissue and the neck of the root. The pus seeking egress would pierce the alveolus and the gum just as in alveolar abscess. This would at least go to show that pyorrhea is not always due to an extraneous irritant. But even then it would not prove a constitutional origin and my theory concerning a diseased activity of the pericemental membrane and the lodgment of a capillary thrombus would be a better explanation. Moreover, I have found this disease to exist in an advanced condition, in persons who had always been exempt from any constitutional ailment whatever; who had no gouty or rheumatic diathesis either by inheritance or acquirement (at least had never developed any,) who never had indigestion or any form of dyspepsia, and who had (to use their individual expression, "the stomach of an ostrich" and had never been sick a day in their lives.

It was the consideration of such cases that made me once call pyorrhea alveolaris a "disease of good

health." Another thing that tends to prove the disease is local is the fact that when once it is cured and the gums are made to re-attach themselves the disease does not return to them, no matter what cachectic condition may exist in the system.

As uric acid exists in the blood of the gouty, it is not to be wondered at that in persons of this diathesis, traces of the urates should be found commingled with the calculus of pyorrhea; for any disturbing cause, such as tartar, that induces excitation and flow of blood to a part will almost of necessity acquire a deposit of whatever the blood is freighted with; and therefore the uric acid which Professor Peirce found in some of the calculi and upon which he based his assumption, that the calculus was the result of a gouty condition, was simply the natural outcome of the presence of an over-supply of blood, and had nothing to do with the origin of the calculus.

But the best way to try a theory is to test it clinically; and if, for instance, in pyorrhea alveolaris it is found that the disease can be prevented or cured by constitutional treatment, then we must regard that disease as of constitutional origin. But if, on the other hand, you find a local disturbance or lesion yielding to local treatment, solely, and remaining cured regardless of any systemic pathologic condition, then you may reasonably conclude that this disease is local. And from my experience with pyorrhea alveolaris, I would as soon think it of constitutional origin, as I would that corns, bunions and freckles are of systemic development.

And now to consider some cases in point:

A lady who had a decidedly gouty diathesis, through inheritance (so marked that her finger joints became tender and swollen and the deposit of uric salts was being continually formed in the follicles of her throat) went to a friend of mine, one of the cleverest men in the profession, to have three upper molars, two on the left and one on the right in nearly the last stages of pyorrhea alveolaris, treated and filled. Their roots were so thoroughly incrustated with tartar that they merely hung in their sockets by their apical extremities, and they were all more or less decayed, but especially the right molar, for it had a cavity extending almost to the pulp. She had also suffered for two or three years from frequent attacks of nervous prostration, and the impression commenced to grow that this condition was due, in a measure at least, to the state of her teeth, which in consequence of their looseness and tenderness made it impossible for her to masticate properly.

This gentleman advised her to have these molars drawn immediately for the sake of her health, as he considered it impossible to save them, but as the lady would have to substitute artificial dentures she demurred, and hoping to spur him on to some effort to preserve them she remarked: "I think Dr. Younger could save them!" "Madam," was the retort. "neither Dr. Younger nor God Almighty could save those teeth. They are so loosened by disease, I could pull them out with my fingers!"

The idea that God Almighty should not be able to save them grated on her religious sensibilities, and she determined to wait until my return. I was then on my way home from Berlin, and one of the first persons to consult me on my arrival was this same lady. Having made a specialty of just such cases, I commenced treating her, ignorant of the judgment that had been passed upon the teeth by my esteemed colleague. She feared to tell me until the cure was effected, lest it might prejudice my efforts. In six weeks the teeth were firm and the alveolar tissue strongly adherent throughout their full extent, certainly around the cervices.

It is now nearly four years since the cure was completed, and though the finger joints still swell and become tender and the uric incrustations still form in her throat, the teeth have had no return of the trouble; they are perfectly rigid in their sockets, and

there is nothing in their appearance, nor in that of the enviroing gums, which would suggest the lesion which had been so nearly fatal to their existence. Now no constitutional treatment was made, the success being due entirely to local applications.

Some eight or nine years ago, at a meeting of the State Association, the subject of pyorrhea was in discussion and there was an almost unanimous opinion expressed that this disease could not be cured and that the cures I mentioned could not have been "true pyorrhea." While I was on my feet arguing this, Dr. Cummings of this city came to me, saying: "Can you cure me?" and opened wide his jaws. His teeth were all loose, the swollen gums had retracted from around the roots for an eighth of an inch, and pus was flowing at the slightest touch. I replied: "Yes, if you will permit me to clinic on you before these gentlemen, and prove to them how wrong they are." I then called the attention of the convention to the condition of Dr. Cummings' mouth and asked them to tell me what the matter was. With one accord, they said, "pyorrhea." "Bad case?" "Yes, a very bad case." "Now, gentlemen," I said; "the proof of the pudding is in the eating. I will treat Dr. Cummings before you, and at our next session you will see whether pyorrhea can be cured or not."

I gave the Doctor half a dozen treatments, all local, and the disease quickly yielded; and though eight or nine years have passed since then, there has been no return of the disease, and the teeth and gums are firm and sound.

A few years ago, I commenced treating a gentleman of mature years for pyorrhea. He was also being treated for gout. The pyorrhea was on a fair way to cure, when one fine morning he told me that his physician had informed him that my local treatment could not possibly save his teeth; that the disease in his gums was the result of gout, and had to be treated constitutionally. He therefore dropped me and stuck to his physician; who was a very learned man with a microscope. The result was he was relieved of his gout, also of his teeth, for under the "constitutional treatment" they all dropped out! Had he stuck to me, alone, he would have had his gout, but he would also have had his teeth. He should have stayed by both of us, and now he would have his teeth and be minus his gout.

It is a fortunate circumstance that a knowledge of the etiology of pyorrhea alveolaris is not a necessary factor for its cure. There are few lesions in surgical pathology simpler of treatment than this same disease; the most essential requisite being skill and manipulative dexterity, in order to secure the thorough removal of the calculus and the perfect cleansing of the root. The elimination of every particle of tartar is a *sine qua non* to success. Unless this is done perfectly and absolutely, the disturbing cause of the disease will not be eradicated and it will in time return.

The return of the disease that so many complain of is due very often to the fact that the complete removal of the tartar has not been accomplished, and that the surface of the roots has not been thoroughly cleansed. The appreciation of tartar, however, is not always easy and it requires a certain sensibility in the fingers not common to all persons.

It is that touch which makes one violinist superior to another in the development of the tone of his instrument. This is the reason why so many have failed to discover tartar when it existed, and why it has led them to suppose that either the tartar had been completely removed or that the pyorrhea existed without the tartar. There is, besides the sense of

feeling, an acuteness of hearing by which one can recognize by sound, as the instrument passes over the root, whether it is the substance of the root or an incrustation.

But before the removal of the tartar is attempted, the mouth and crevices and the little pockets containing the tartar and the calculus itself, should be thoroughly sterilized. I prefer the bichlorid of mercury, 1 to 1000. It should be used warm, at least that portion that is injected around the necks of the sensitive teeth, in order to prevent the pain that cold applications are almost certain to produce. The sterilization is necessary to prevent the absorption of septic matter, as the gum is almost certain to be abraded by the instruments used to remove the tartar. For the same reason the instruments should be thoroughly sterilized. The water used as the menstruum for the sterilizers should have been subjected to distillation; otherwise the organic matter and chemicals which are apt to be in ordinary water may be sufficient to decompose or to modify the strength of the sterilizing agent and so negative its action. But, by all means, be sure and sterilize the instruments! Keep them continually in the antiseptic fluid while laid out for use.

When removing the calculus, begin with one tooth and *stay* by it, until all of the tartar is removed, even if it takes the full time of the sitting. And as fast as the tartar is scaled off, wash it out with the warm fluid by syringing with delicate platinum pointed syringes. If this is not done, minute pieces of the tartar will adhere to the raw surface of the gum, keep up an irritation, and prevent the healing process from being established. It is well, when the pockets are very deep, to insert a little lactic acid to dissolve the diseased edge of the alveolus and any minute fragment of tartar which may have escaped the instrument.

The root being thoroughly cleansed, and the *débris* washed out of the pocket, a little tincture of iodine may be dropped into it, or else a solution of chlorid of zinc, three and one-half drachms to the pint of water, to stimulate its contraction and the production of granulations, and to induce the attachment of the alveolar tissue and gums to the root. If this does not take place, then rub quickly with a little wad of cotton saturated with liquor ammonia, washing out immediately with warm water. This ammonia is to remove the mucous membrane from the healed and therefore unattachable surface of the gums; and the water, to wash it off before its escharotic action can be established. By this means a healthy granulating surface is formed, contraction stimulated, and attachment to the clean surface of the root induced. In case the gum should remain flabby, inactive and indolent, then acupuncture should be resorted to. This can be done by rapidly piercing the gum with a sterilized needle. When the amount of the deposit is so great that the alveolar septa have been destroyed, pass a threaded needle through the gums and between the roots of the teeth and approximate them by tying them as nearly together as can be done, without the use of much force. If too much force is used the thread will cut through the gums.

In the case of one lady of 55, the accumulation of tartar was so great that the septa of both gum and alveoli from the first bicuspid of one side to the first of the other were destroyed, and the labial and lingual walls of gums simply leaned against the teeth when the mouth was in repose,

but left them instantly when the tongue or lips moved. For instance, when the lower lip was pushed down, all the wall of the gum upon its aspect went forward with it, leaving the roots of the teeth entirely denuded of gum upon their front. When the tongue was raised or retracted, the gum upon that side moved away also, leaving bare the teeth upon the lingual surface. And when the tartar was removed the separated teeth leaned in every direction.

I gave the gums the ammonia treatment; held them in position by means of ligatures through the interdental spaces; kept the mouth in an aseptic condition by the repeated use of the sublimate, every two hours. In a couple of weeks I had the gratification to see the spaces filled with granulations as high as the margins and firmly binding the two layers of gum into one continuous mass.

This case was reported to the State Dental Association and to the Surgical Section of the Ninth International Medical Congress in Berlin.

The reason for treating the teeth one by one—that is, completing the removal of the tartar and all that has to be done, at one sitting, is that the process of healing should not be interfered with after it has commenced, and also because there is the object of getting, so far as possible, the benefit of healing by first intention.

By the subsequent use of antiseptic washes, until the healing process was entirely accomplished, I have succeeded in curing the most desperate cases of pyorrhea alveolaris, and of restoring to perfect use, teeth that have been for years worse than worthless.

There is only one condition in which I have found failure, and that is where there is a dead pulp in connection with an incrustated apex. This condition is found almost exclusively in the palatal root of the superior molar, and the difficulty in the way of a cure is due, not so much to the tenacity or quality of the tartar, as it is to the septic condition of the substance of the fang, the putrescence of the pulp having invaded tubuli and canaliculi and destroyed beyond hope of restoration the vitality of its tissue, and thereby its ability to re-form attachment.

As the diseased pulp is usually confined to the palatal root—that in the buccal being usually healthy—my treatment in these cases has been to open into these roots, remove their pulps, fill them and amputate the palatal; then grind away enough of the articulating surface of the crown, immediately over the removed root, in order to bring the pressure in the effort of mastication upon the buccal roots. By these means, these teeth can be made comfortable and serviceable for years, if not for a lifetime.

In eleven cases of pyorrhea reported by Dr. C. N. Peirce and Dr. Albert Brubaker, wherein they sought to establish their theory that uric salts were found in the incrustations of what they call "true pyorrhea," in but five of these eleven cases were they able to discover traces of uric salts. Now, although exceptions are said to prove the rule, where the exceptions are more numerous than the rule sought to be established, the exceptions govern the rule. Therefore, the cases decided by Drs. Peirce and Brubaker are not sufficient to establish a theory on which to base their assumption and their conclusion.

There can be no local lesion or irritation which is not more or less affected by the state of the system, that when vitiated will prevent the healing of an otherwise simple sore which under normal conditions would yield readily to local applications.

Dr. Brubaker makes a statement that the deposit of uric salts upon the end of the roots is being "continually renewed." One would infer from the term

"renewed" that the deposit is absorbed and more salt re-deposited; but as such a statement would be absurd he can not possibly mean that. The only inference to be drawn then, is that if the deposit is removed by instruments or chemicals, a fresh deposit of the uric salts would take place, and thus a source of irritation would be continually kept up. Now both Drs. Peirce and Brubaker claim that this condition only takes place in the apex of the fang; but why should it be limited to the apex of the fang? The same exact tissue surrounds the sides of the roots as that which envelops the end. Then why limit this particular action to this particular locality?

The fact is that, when a deposit incrusts the entire end of a root, the irritation set up by its presence results in the death of the pulp, and this condition with the greater vascular activity set up by the propinquity of the calculus to the larger blood vessels entering the foramen of the apex causes in a greater degree a deposit of any salt the blood is freighted with. Therefore, in the few cases in which an examination revealed the presence of the urates such a presence was but a natural conclusion, and the only wonder is that the salts were not found in the entire eleven cases cited instead of only in five.

I do not know why it is that Dr. Peirce calls that condition, only, where the calcic formation surrounds the apex of a root, "true pyorrhea alveolaris." This condition exists so rarely when compared with what he calls pyalogenic calcic pericementitis (but what is known to the profession as pyorrhea alveolaris) that it reminds one of a fanciful name given by early settlers to a certain region in this State, "Strawberry Valley," for the reason that there were no strawberries in the valley! If he wished to make a distinction between the calcic formation on the shaft of the fang and that of the apex he should have left that general condition known as the "true pyorrhea" and given a name to the special condition.

But why is it that this special condition exists almost, if not entirely, on the palatal root of the first superior molar? It is easy to be seen from the fact that the palatal root of the first molar spreads more than that of the multi-rooted teeth. That the tissue over them is more attenuated than it is over the roots of the other teeth, and that they are therefore more affected by thermal changes than the other roots; that the pressure of the tongue and the superimposed food is greater upon these roots; in fact, that the impact of food is stronger on these roots than on any other. They are, therefore, more exposed to changes and vicissitudes than the buccal roots of the same teeth; or of the roots of any of the other teeth. That is the reason why we so often find these roots more denuded and exposed than the other roots, and why the pulps in these roots are more susceptible, in consequence, to abnormal changes and death.

In concluding this paper, perhaps it would be well for me to summarize the arguments for and against the theory of pyorrhea alveolaris being due to constitutional diathesis. The arguments in favor of pyorrhea alveolaris being of constitutional origin are what?

1. That it is found in persons afflicted with gouty diathesis.

2. That traces of uric salts are found in the calculus of some of the people afflicted with the gouty diathesis.

3. That the condition of irritation in the gums and

around the roots, and the discharge of pus, are modified by constitutional treatment.

In opposition to this we find:

1. That pyorrhea is found in persons having no constitutional cachexia or diathesis.

2. That if it were of constitutional origin it would be found in all, or at least in nearly all cases having the gouty disposition.

3. That the amelioration of the irritation by constitutional treatment is what would occur in any local irritation when the system would be placed in a healthy condition.

4. That if it were of gouty diathesis the deposits from the saliva would also be impregnated with these urates.

5. That, if it were of constitutional origin, constitutional treatment would be necessary for its cure; but, instead, local treatment is found sufficient for its complete eradication, notwithstanding the constitutional ailment is continued in undiminished force.

6. In all cases of pyorrhea alveolaris we find a connection between the calculus and the cavity of the mouth, which would not necessarily be so if it were the result of a constitutional pathologic state.

Besides these points, Dr. Van Woert asserts that the disease is communicable by infected instruments which, if true, would prove a very strong argument against the theory of constitutional development.

DISCUSSION.

DR. C. S. LANE, Oakland—These papers are of great interest to those of us who are in active practice, meeting with cases of the characters described every day, and studying to overcome the conditions as we find them. The difference in the positions taken by the writers is an evidence that great minds do not always see things in the same light. One thing that strikes me practically in this disease, is that in some cases I can overcome the condition by local treatment; by a thorough removal of the deposit the way is paved for a thorough cure. In some instances the cure is not so thorough. I have always striven to be very careful in the local treatment of this disease, and yet I find some cases where I can not put a stop to the suppuration, more especially in diabetic patients. I have now one case under treatment which has been in my hands over three years; I have carefully watched the reported discussions on this disease by the leading practitioners, and though I have tried everything that has been suggested I have been unable to arrest the progress of the disease; so that I can not think in this case the cause can be considered due to local conditions, or that its persistence is due to any lack of proper sanitary conditions or local surgical treatment. Many cases of pyorrhea alveolaris can be treated locally successfully, but there are others, especially among patients with diabetic troubles, for the cure of which you have to go farther than merely local treatment.

DR. YOUNG—A case which occurred lately in my practice is called to mind by the remarks of Dr. Lane. A lady, in an anemic state, presented just before an expected six weeks' banishment from the pleasures of the world, with pockets discharging pus around several of the teeth. On careful examination a slight rim of tartar was found near the alveolar process, the disease having progressed on one of the teeth to within an eighth of an inch of the apex. This tooth was so loose that every breath waved it to and fro. I spent one and one-half hours on each tooth, carefully removing every trace of the deposit, and the disease was cured. I used iodine in the treatment. One thing to be borne in mind in the local treatment of these cases is that plenty of time must be taken to each tooth; otherwise you will fail. I think that in the disinclination to do this is the cause of failure frequently. Then again you must have the natural touch that will enable you to know absolutely when the removal of the deposit is accomplished. I know of no other reason why I am successful in the treatment of these cases than the possession of this touch and the taking of the necessary time to do the work thoroughly. You all know me, and you know that I am honest in the opinions I express, and that I take the ground I do, only

because I believe it will be for the benefit of the profession. One reason why I have given the clinical treatment of pyorrhea alveolaris in detail is because I believe the cure is to be found in the careful manipulation of the instrument point, rather than in high scientific theories. I have also received letters from different places, among them Bombay and Krakow, asking how I treat pyorrhea, and this seemed a fitting opportunity to give a general reply.

Dr. JOHN C. MCCOY, Santa Ana—How do you keep patients still for one and one-half hours?

Dr. YOUNGER—By not hurting them. I obtund the sensibility of the tissues so as to cause only the minimum of pain.

Dr. RUSSELL H. COOL, Oakland—I have seen Dr. Younger operate, and his fingers are certainly sensitive. As he says, the proper removal of the deposit in pyorrhea alveolaris requires delicacy of touch; the deposits are tenacious, and you must take whatever time is necessary to remove them. I thought it impossible years ago to cure this disease by local treatment alone, but I have seen cases so cured by Dr. Younger. He mentions warm water in his description of the treatment. He should have said hot—at least as warm as the patient can bear, in connection with the bichlorid. Pyorrhea does not spring up in a night, and I have noticed in young patients, especially, you will find a single pocket, to dislodge the deposit from which requires but little pushing. If neglected, however, we find it spread from this incipency till it involves several teeth. The successful man is he who treats the disease in its incipency without waiting till diabetes is established and the man is on the verge of the grave. You sometimes find in these cases a little abscessed cavity along the course of the pocket. A surgical opening will give room to medicate and treat this.

Dr. I. N. DEMAREST, Santiago, Chili, was here introduced to the Section, but he excused himself from making any remarks).

Dr. G. S. DEAN, San Francisco—I would like to ask a question. Dr. Younger and Cool, and perhaps Dr. Dunbar also, have referred to the occurrence of an abscess between the gingival border and the apical space. Do they mean an actual abscess?

Dr. R. H. COOL—I meant a sinus containing pus. In one case which I recall at the moment, there was such a sinus on the labial surface of one of the teeth. By cutting through the alveolar plate, I opened into it and then treated the same as any other abscess.

Dr. DEAN—I want to call for more testimony. Abscesses which are not apical, we may perhaps call gingival abscesses.

Dr. EUGENE S. TALBOT, Chicago—We have heard both sides of this question—the local and the general—in the papers which have been read, neither of which, however, classified the various forms of pyorrhea alveolaris. I have certainly seen three different conditions which properly come under this name. First, there is the local deposit from the salivary glands; then the serumal deposit directly from the capillaries; and last, a condition which I must say is constitutional, because there is no deposit whatever. I can't harmonize this last with Dr. Younger's conclusions; I don't care if he don't hurt the patient, and no matter if he does take one and one-half hours to each tooth. Take a case of serumal tartar. If Dr. Younger can remove all the deposit, I can not. I don't even know when it is all removed. Take a mouth in which there is a set of good sound teeth, but in which this disease has affected the second molar to within one-eighth of an inch of the apex, the tooth being in consequence quite loose, while others are just beginning to become loose, from the effects of serumal tartar. We will clean that loose tooth thoroughly. We find the ends of the roots exposed and the tooth itself held in the process by one root only. We clean the teeth as well as we can, and in one month's time the patient comes back with the tartar extended all around the mouth. If we remove that loose tooth, treat as before, and watch the case, we can save the other teeth; but as long as that loose tooth remains in the mouth it forms a nidus or rallying place for the destructive forces. I have had that experience over and over again. In the third condition to which I have referred there is no deposit. I have seen cases of this kind where the teeth were loose, and I tell patients from the start that nothing can be done by local measures, and I simply treat them constitutionally. They become built up and the trouble abates; then they stay away for three months and come back all run down with the old condition renewed. I have had other cases where the condition was inherited—not the pyorrhea but a

predisposing condition of the system which was handed down from generation to generation. As long as we practice dentistry as we do to-day, we give evidence that we don't know the principles underlying this disease. We have to get a better knowledge of it. I believe pyorrhea alveolaris is a constitutional disorder, and that it is not due to uric acid in the system, but that the liver is the cause of it and we have to get down to treating that before we can master this disease. It arises from an inherited condition of the liver and not until we know more about the treatment of the liver than we now do shall we know how to really cure pyorrhea.

Dr. YOUNGER—Dr. Talbot asserts that we are as ignorant about pyorrhea alveolaris to-day as we were twenty-five years ago. I would like to know what is known in medicine about for instance, the function of the spleen. I would like to know what the medical profession has taught us about the origin of disease. I think we do know a great deal more about pyorrhea than we did, and that we are able to treat it better.

Dr. BONWILL—I don't like to repeat here what I have just said before the Odontological Society of Pennsylvania where the subject was recently discussed. The majority of dentists don't know how to treat pyorrhea alveolaris. I stated my ideas two years ago in combating the idea of a calcic diathesis being the cause. I agree with Dr. Younger in everything he says, but I go a step further than he does. Dr. Younger looks at the matter in a common sense light. Nothing shows more plainly the uselessness of the dental profession as an appendage to the medical than this one subject. Dr. Younger sees a phenomenon—tartar on the roots of the teeth, which is the true cause of pyorrhea. I have had forty years' experience in the practice of dentistry, and I should be ashamed to have a case of pyorrhea in a mouth of which I had entire control, because I would say it was my fault. In forty years' practice I have not a single case of a regular patient of mine that had pyorrhea. There must be perfect cleanliness. Dentists too often neglect this first important requisite of cleansing the teeth and keeping them clean. The first thing to do before daring to touch a tooth to operate upon it is to see that the mouth is clean. Half of my cases of this disease are the failures of other men. I recall at the moment the case of a patient who came to me after he had been to a number of medical men who told him he would lose all his teeth. Three of them were in fact so far gone that they had to be extracted, but the others were saved. If you cleanse these teeth one by one, take away all the dead tissue the same as Dr. Younger does, cut off the superabundant gum, and cleanse thoroughly they will get well. I have never yet in forty years given a patient constitutional treatment for this trouble. If, after having put the teeth in proper condition you teach patients proper habits with regard to their teeth, there will be no return of the disease. I cleanse the whole upper set if it is at all affected, at once, even if it takes the whole day; cut out the superabundant gum, and don't meddle with nature after giving her a chance to do the work of repair. The gums will again hug up to the teeth. For treatment, there is nothing better than creosote and I now use carbolic acid and not diluted. I attribute much of the cause of pyorrhea to bad dentistry. In almost every mouth under the regular care of the dentist you find that teeth have been extracted in early life; or that that they are cut apart on the approximal surface and filled with flat filling, cutting away the gum to make room. Overhanging fillings at the cervix, amalgam fillings that their author ought to be ashamed of, crude and rough as they are—will destroy the membranes around any tooth. Gold crowns which are not fitted properly or finished fine at the edges are also factors in this disease. Then the rubber dam must be tied on or held up beyond the gum margin, and is another cause of trouble at the cervix. There are many other causes which may help to originate this disease, but those I have mentioned are enough to give my ideas. I am a crank on articulation, for instance. If there is anything which helps out in these cases it is seeing that the articulation is correct. I always take an impression and then knowing the law of articulation, with a little study I can see just where to touch the teeth and correct any deficiency. I am against the principle of the so-called gummy diathesis, and in treating teeth I never cut away too much, but rather too little.

Blank Applications for membership in the ASSOCIATION, at the JOURNAL office.

PREVENTION OF DIPHTHERIA FROM THE STANDPOINT OF THE HEALTH OFFICER.

Read in the Section on State Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY U. O. B. WINGATE, M.D., M.M.S.S.

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In presenting this short paper I do not claim to offer anything original or new, but merely to give the results of my observations and suggest points that may be profitably discussed.

Prevalence.—The wide-spread and variable prevalence of diphtheria is of great interest to the health officer. Rural statistics avail us nothing in this country, as a rule, but statistics of death from this disease in our larger cities are fairly reliable. There is one feature, however, that has not yet generally entered into our statistics that may modify them somewhat, that is, the prevalence of croup and what proportion of cases of so-called membranous croup are cases of diphtheria. The recent researches of Dr. H. M. Biggs, of New York, which show that nearly 80 per cent. of cases of so-called membranous croup were found to be cases of true diphtheria by a bacteriologic examination, are of great importance to the health officer and demand a most earnest and careful consideration. I believe all cases of croup presenting exudation in the throat should be treated by the health officer as true diphtheria, unless a bacteriologic examination proves it to be non-diphtheritic. This would seem to be, in our present state of knowledge, the only safe procedure, for certainly if there be a doubt in regard to the care and treatment of infectious diseases the public should have the benefit of it.

The following is a table showing the per cent. of deaths from diphtheria, on the estimated population during the years 1892 and 1893, as officially received from a few of our larger cities in this country:

| | 1892 | | 1893 | |
|-------------------------|------|--|------|--|
| New York | 0.08 | | 0.10 | |
| Chicago | .07 | | .06 | |
| Philadelphia | .13 | | .08 | |
| Brooklyn | .08 | | .06 | |
| St. Louis | .04 | | .04 | |
| Boston | .09 | | .10 | |
| Baltimore | .08 | | .04 | |
| San Francisco | .07 | | .05 | |
| Cincinnati | .09 | | .05 | |
| Buffalo | .06 | | .05 | |
| Cleveland | .07 | | .04 | |
| Washington | .07 | | .04 | |
| Pittsburg | .11 | | .06 | |
| Milwaukee | .16 | | .08 | |
| New Orleans | .02 | | .03 | |

It will be observed, by this table, that in 1892 the largest death rate from this disease in fifteen of our largest cities was in Milwaukee, Philadelphia and Pittsburg, being .16, .13 and .11 respectively; and the smallest rate for the same year was in New Orleans, St. Louis and Buffalo, being .02, .04 and .06 respectively. While in 1893, the largest rate was in New York, Boston and Milwaukee, being .10, .10 and .08 respectively; and the smallest rate being in New Orleans, Washington, Cleveland, Baltimore and St. Louis, being .03, .04, .04, .04 and .04 respectively. These figures are approximately correct.

Etiology.—That the Klebs-Löffler bacillus and its products cause all the pathologic phenomena connected with diphtheria there seems to be no reasonable doubt at the present time, but the origin of this

bacillus and its habits are matters far from being settled, and these questions bear a very important relation to the etiology of this disease. Whether the bacillus originates *de-novo*, or whether it is a product of evolution from other forms of life, whether it can live in the soil in its true state, or is capable of taking on a form of existence non-pathogenic or saprophytic for an indefinite period of time, and then under certain favorable circumstances is capable of developing into pathogenic qualities, are questions yet to be solved. Quite an extensive experience with this disease, both as a practicing physician and as a health officer in a city which at times has led all other cities in this country in the large number of cases of diphtheria, leads me to observe that it is favored by cold, damp, cloudy weather; that it is more active in winter than in summer; that it is favored by damp dark cellars and poorly drained soil; that in certain conditions of soil and weather it seems to remain dormant for an indefinite period of time, and under more favorable conditions such as cold, cloudy, damp but not too wet weather, it becomes active; that sunlight, good air, good drainage and plenty of snow in its season, very materially lessen its ravages. There is much, however, to be learned concerning the true nature and habits of this bacillus, and this is a difficult matter to study, for nature's laboratory, in which these bacilli operate, is far different from any constructed by man.

That defective plumbing may be an indirect cause there seems to be no reason to doubt, but I have found no evidence that the bacillus is carried in the escaping sewer air; it is more probable that the effect of inhaling these sewer air debilitates the system and renders the powers of resistance less, thereby favoring the infection of diphtheria, as well as any and all other infectious diseases.

Periodicity.—Hirsch has called attention to the possible cyclical character of the epidemicity of this disease, though the cycles have extended over periods of various lengths, many of them only a few years, others lasting several decades. In the city where I reside, the two periods of greatest prevalence of the disease that have existed since records have been kept were about ten years apart, these periods lasting about two years each; at other times, although the disease has been constantly present the number of cases has been comparatively low.

Modes of Dissemination.—The means of disseminating this disease are many; from person to person by means of infected clothing of all kinds, furniture, rooms, books, papers, foods, drinks (especially milk), milk tickets, money, domestic animals, such as dogs, cats, birds, etc., and at school from everything with which the child may come in contact, as almost everything conceivable may, under certain circumstances, become infected. There is no evidence that the disease can be disseminated by the air for more than a very few feet; it is usually necessary to come in actual contact with the bacillus at its lodging place in order to become infected, and unless it is propelled for some little distance by the patient in coughing, it is rarely taken through the medium of the atmosphere.

Stage of Incubation.—The stage of incubation is usually short, not longer than two or three days; it may vary, however, being modified by the virulence or activity of the bacilli and the powers of resistance offered by the patient.

Prevention and Control of Epidemics.—In ordinary communities the health officer must first have great legal powers and they must be executed if he is going to contend with this disease; he must also have the hearty coöperation of all physicians in the vicinity. Without these two requisites he is absolutely powerless. The education of the people in the importance of sanitary matters is an admirable requisition but it will not be sufficient alone, in our day and time, to cope with epidemics of disease of any kind. The importance of law and the coöperation of physicians can not be too highly appreciated by members of our own profession. Our medical schools need to impress this more emphatically on the minds of medical students.

Cases must be isolated early and long, and to do this in most families where the disease prevails, the cases must be reported to the health officers early. Every city and town should provide means for a bacteriologic examination in any and all cases where there can be a question of doubt about the diagnosis, and this is often the case.

Every city and town should also be provided with an isolation hospital, or an isolation ward in a hospital to which every case can be removed, if possible, and isolated from all other cases and placed under the charge of nurses trained in the care of infectious diseases. By these means a better chance of recovery is gained by the patient and the danger of spreading the disease is reduced to a minimum. These facts should be taught the people by the physicians in such earnestness that they can not fail to learn the lesson. These hospitals should not be pest-houses nor disgraced by that name. Under modern scientific medical knowledge we have no longer any use for a pest-house and one should not be tolerated in any civilized community. With the antiseptic and aseptic care of all patients with diphtheria, as carried out by modern trained nurses under the direction of competent physicians, in properly constructed isolated hospitals, the control of the infection is absolute. A case of diphtheria early diagnosed and removed to an isolation hospital, and kept there until fully recovered, or until he dies, and the body properly disposed of, and the house and infected articles in the house early and properly disinfected, or destroyed by fire if of little or no value, will prevent a spread of diphtheria as effectually and surely as a problem can be solved in mathematics; but the details in each case must be correctly observed to arrive at a successful result. Where a large number of cases exist in a community the same principles hold good, but it becomes a more complicated problem.

Isolation and disinfection are the key-notes of the prevention and spread of diphtheria, but the details of these two important measures must be as fully understood, and their importance as fully realized, in order to be successful, as the principles of asepsis in surgery.

Having isolated the patient and thoroughly disinfected all apartments and articles infected, and having cared for the case in the most approved manner known to modern trained nursing, there is one matter often lost sight of, that is, keeping the patient isolated long enough. It is well known that the bacilli of this disease may exist in the posterior nares and pharynx for a long time after all traces of exudation have disappeared, and it is decidedly unsafe

to discharge patients from isolation until the mucous membrane is entirely healthy and has been thoroughly disinfected for several days after all appearance of a diseased condition has subsided.

No case, however light, should be discharged from isolation for at least four weeks from the time of the commencement of the disease, and no child should be allowed to attend school or mingle with other children until the expiration of six weeks from the commencement of the last case in a house, in case of recovery, and in many instances a much longer period of time should be observed. In case of death, the body should be wrapped in a sheet wet in a proper disinfectant and immediately hermetically sealed, and should be prohibited from transportation, but should be buried or cremated within twelve hours after death, after which all apartments and articles infected should be thoroughly disinfected, and those of the family exposed should not be relieved from quarantine for at least seven days after the disposal of the body and disinfection. This rule should also apply to all persons exposed to a case of diphtheria before thorough isolation and disinfection, whether isolated at home or removed to a hospital.

By such measures only can we expect to control the ravages of this disease, and it will require a realizing sense of the importance of such measures on the part of the health officer, as well as courage and efficient police powers and police force, at times, to carry out such provisions successfully.

REMARKS ON ONE HUNDRED ABDOMINAL SECTIONS.

BY BYRON ROBINSON.

CHICAGO.

The typical "control" laparotomy is prepared for three days by administering salts and calomel, until a dozen bowel movements are produced or until the bile glistens in the stool. The patients should then rest in bed and be given no purgatives. This will allow the fermenting gas to escape and when the abdomen is opened on the fifth day the intestines will be collapsed like ribbons. Such a course of preparatory treatment is wise as it stimulates all the alimentary glands to the highest stage of depletion. The pores of the skin are opened and stimulated to secretion by daily baths. At the time of the operation all the secretive tissue is at its highest tension and the depleting avenues are all washed out and open. Pure ether was used as an anesthetic in about 90 per cent. of cases and though it may be followed by bronchitis and nephritis, yet it is in my opinion safer than chloroform, which kills outright by acting on the heart or respiratory centers. No cases were selected or refused. The operations were the following:

1. Removal of the tubes and ovaries.
2. Abdominal hysterectomy.
3. Vaginal hysterectomy.
4. Appendicitis.
5. Hernia.
6. Colotomy.
7. Post-peritoneal abscess.
8. Ectopic pregnancy.
9. Tubercular peritonitis.

There were six deaths in the one hundred cases. One died fifty-two hours after the removal of the sixty pound tumor, from shock and sepsis. One died on the fifth day from pulmonary embolus. One died

from shock by removing a large ovarian carcinoma, ten hours after the operation. One died from urinary suppression beginning on the fourth day after the operation. One died an hour after operation from hemorrhage previous to operation. She had ruptured tubal pregnancy and about four quarts of blood were turned out of the abdominal cavity. The sixth died after the use of the Murphy button. The autopsy revealed one large and two small perforations at the side of the button.

The standard for the operation is the urea. The patient on entering the hospital is ordered to have the urine examined three times, eight hours apart. The urea runs from four to eleven grains to the ounce. I think it is unsafe to operate with less than 5 grains of urea to the ounce. Tests of urine were made for albumen and sugar, but less importance was attached to them. I generally prepare the hands by careful washing for an hour before the operation—say thirty minutes the night before and thirty minutes just before the operation. I wash them in turpentine and alcohol. I note the hand preparation, for I work in *post-mortems* and abdominal operative courses on the cadaver every month in the year. I often scrub my hands an hour previous to the operation and I do not know that I have ever infected a patient. Several years ago I was a pupil of Prof. Karl Braun's first assistant, who worked continually on the cadaver and in abdominal sections and obstetrics, and I never knew him to infect a patient. He scrubbed his hands, however, less than I do. I do not use bichlorid on my hands (unless I have been to a virulent pus case) because it desquamates the epithelium, and makes them so rough that I can not scrub them clean. Hot water, soap, turpentine and alcohol have proved sufficient. I have discarded sea sponges for safety and use now only pieces of gauze. During the last part of the series I make the incision slightly to one side of the linea alba, and I think the union is better and stronger. I now close the abdominal incision with silkworm gut. The suture passes through the whole abdominal wall about four stitches to the inch. I leave the sutures in for three or four weeks. Wounds do not heal very well inside of three weeks. We used the drain tube in all pus cases and in most with extensive adhesions. In short, we used the drain tubes when we were in doubt. We use the tube from a few hours to several days. We are gradually limiting the use of the drain tube. We are also gradually limiting the use of irrigating the peritoneal cavity. The sutures we use in the abdominal cavity are silk and kangaroo tendon and linen thread (Barbour's No. 40).

In the after treatment of laparotomy, half the battle is with the intestines. Gas begins to pass in ordinary cases some fifteen hours after the operation, but we generally begin to give Mg. So, 3i and Hg, Cl, grs. ii, alternating every two hours in the early part of the third day until the bowels move. The patient is given a rectal enema on the second day. If gas does not pass on the second or third day, tympanitis arises, which is a kind of incipient peritonitis. It is intestinal paralysis which if allowed to progress ends in peritonitis. But a bowel movement subsides the tympanitis and hence a purgative is a prophylaxis in peritonitis. From our present knowledge we must look on post-operative tympanitis as incipient peritonitis. We give hot fluid drinks from one-half to two ounces an hour as soon as the patient desires them. If the patient vomits the drinks are discontinued. No

ice or cold fluids are allowed as they encourage thirst. Peritoneal sections give rise to a raging thirst and hot water slakes it better than any kind of drink. Besides water is a natural diuretic; it quiets the patient's stomach and nerves and fills the vessels with fluid. For pain we occasionally give one-sixteenth of a grain of morphin from two to four times in the first thirty-six hours. Several years ago while a pupil of Mr. Tait, the first time I saw him do a laparotomy he ordered his assistant to give the patient a hypodermic of morphin immediately after the operation and this practice he frequently repeated. Opium has its place in laparotomy. Rest and ease are superior to pain which can be judicially controlled by morphin injected under the skin. But in all the after-treatment the judicious use of salts (Mg. So₄) is the most effective. When tympanitis (incipient peritonitis) arises, it then becomes a race between bowel movements and death. If the salts irritate intestinal peristalsis they win the subject.

The post-operative sequelæ are of significant importance. There were two hernias; one occurred in the abdominal wound of a woman on whom I had performed a vaginal hysterectomy (for cancer) and some ten months after abdominal section for a parovarian tumor. The hernia became apparent some eight months after the last operation. It was about the size of an apple. I think the cancerous cachexia explains the deficient union of the abdominal wound. This woman died twenty-two months after the vaginal hysterectomy, from a return of the malignant growth.

The second hernia appeared in a woman of about 60, on whom I assisted Dr. Lucy Waite to perform abdominal hysterectomy for a large fibroid. The operation was started as a vaginal hysterectomy, and as it was found impossible to get the uterus through the vagina it was finished per abdominal section. She made a beautiful recovery and remained in the hospital a month. All wounds appeared satisfactorily healed when she left. Some ten months after she left the hospital I heard that she was in a hospital suffering with abdominal and vaginal hernia. Some dozen fistulæ appeared in the abdominal wounds. Nearly all healed in a few weeks or months. One fistula appeared a year after the operation and is still existing. One fistula lasted a year, and I then pulled out a ligature. So far as I know, 2 abdominal fistulæ still exist out of the 100 cases. At the bottom of the two fistulæ I think, there lies a ligature infected with gonorrhœa. As regards stitch abscesses perhaps ten occurred. Nearly all were in cases of severe pyosalpinx, where pus flowed over the wounds and the temperature was high. But four of them, I think, occurred directly from the use of impure boracic acid. In a series of twenty cases, I covered the whole wound with boracic acid. It dries the wound and induces healing. To our surprise four of these cases had stitch abscesses where we knew of no wound infection. Boracic acid is a common commercial article and may be put up by ordinary laborers. The varying price will indicate this. We now use simply boiled gauze on the wound and remove the sutures three weeks after the operation. In one case the tubes were tied and left *in situ*. In this case uterine hemorrhage came on a year after. In another case, after the removal of an enormous pyosalpinx and the other appendages, quite severe monthly hemorrhages have occurred for thirteen months but in the fourteenth

month I again operated, removing a parovarian cyst which induced the hemorrhage. For over a year we have followed the method of not only removing the appendages, but in twenty-six cases have tied the uterine artery which courses along the side of the uterus down as far as the cervix. Three ligatures are applied to the artery from the fundus to the junction of the neck and body. It has proved safe to tie off that much of blood supply. This operation I introduced two years ago, and it has proved a very efficient one; *a*, in immediately stopping menstruation; *b*, in reducing the myomatous growths of the uterus; *c*, in checking uterine hemorrhages; and *d*, it raises the uterus high up in the pelvis by shortening the broad ligaments.

In one case operated upon by Dr. Lucy Waite, a recto-vaginal fistula lasted about a week. In one of my own cases a recto-vaginal fistula remained in a cancerous rectum. In another case not belonging to us, cancer followed in the abdominal wound. In both these last cases, Dr. Joseph B. Bacon and myself performed inguinal colotomy with much relief to the patient. Three cases were tubercular peritonitis and were wonderfully improved by exploration and drainage. Two cases proved to be large cancers of the pylorus and cardiac end. They were simply exploratory.

As regards the removal of the appendages the operation was generally performed on account of the following connected pathologic condition viz: Endometritis plus metritis, plus endosalpingitis, plus ovaritis, plus as much peritonitis as was involved by the infection. Such a condition is founded on a progressive infectious invasion from vulva to peritoneum. My opinion is that these persistent diseases are chiefly of gonorrheal origin. In these cases the infection spreads over the endometrium, next along the rich and luxuriant folds of the endosalpinx to the ovary where the infection finds a home in the germinal epithelium of the ovary and the glandular epithelium of the membrana granulosa. Finally, the invasive infection irritates into peritonitis a limited field where exudates, adhesions and bands permanently remain. The class of women suffering from the above progressive, infectious catarrhal diseases have leucorrhoea, large metritic uteri, which if not fixed by adhesions lie at the mouth of the vagina from relaxed and edematous supports. The tubes are crooked, convoluted and spiral, fixed here and there by adhesions. The tubes may be cystic or thickened by old chronic inflammation. The ovary is generally saturated through and through with infection.

The Graaffian follicles are pathogenic, degenerate, distended. The exudates, adhesions and bands which almost all start from the mouth of the Fallopian tube show different ages by their different stages of formation. Such women are nearly always helplessly sterile; they have painful menstruation, indigestion, anemia and neurosis. Neuralgia and headaches frequently arise. Distant disturbances from reflex irritation are constant. These patients are far better off with the appendages removed. If the Fallopian tubes are closed by allowing a few fimbriae to remain outside, as the peritoneum closed up at the outer end the patient had continual exacerbation or recurrent pelvic peritonitis. If the fimbriae of the tubes were entirely turned back into the tubal lumen before the tubal end was sealed, the woman would not suffer from recurrent attacks. In such cases the whole of the fimbriae lay neatly folded up like the petals of

a rose. The terrible persistence of the disease indicates to me a gonorrheal origin.

In the cases of removal of the appendages we had a hematocele in about 8 per cent. of cases. It generally arose as follows: We pay no attention to menstruation as far as regards operation. When the operation was performed at the menstruation, the hematocele might appear inside of a week. But if the operation was performed midway between menstrual times the hematocele would likely appear with the next menstrual period. The hematocele was apt to appear when the ligature was thrown around a broad ligament with a large and congested plexus pampiniforms. It occurred, the most frequently in the younger women. Two typical cases arose, in a girl of 15 and one of 19 years of age. The hematocele often produced intense pain for two to five days from pressure. To these patients we gave hypodermics of 1-16 grain of morphin several times in twenty-four hours. When it began to absorb it disappeared quickly. I have sometimes wondered whether such swellings might not be exudates from infection in the ligature, or introduced, but I am inclined now to favor the idea of blood extravasation from the plexus pampiniforms. Mr. Tait had some 12 per cent. of hematocele cases while I was his pupil. Vaginal hysterectomy was only performed once for malignancy. The malignant growth had invaded the broad ligament and was perceptible to the touch. Much warm discussion took place as to whether the growth in this uterus was cancer or sarcoma. However, after more extended microscopic labors on it, Dr. Angear pronounced it cancer. The patient lived comfortably for about eighteen months and died twenty-two months after the operation.

Abdominal hysterectomy was done three times by myself, with the Kleeburg elastic ligature, and Dr. Waite once extirpated the entire uterus for myoma. Of all the methods of abdominal hysterectomy, I think that of applying an elastic ligature around the stumps in the lower angle of the wound is the safest for the immediate safety of life. Byford's method of turning the stump into the vagina acts well but requires longer time. Total or partial extirpation of the uterus will no doubt be the future method. The cases must be judged individually and the life of the patient must be the foremost thought of the operator.

In appendicitis, the majority of cases were done on suppurating cases, and we made an incision far out to the lateral side of the right iliac fossa, just to the inner edge of the iliac crest, and allowed the pus to escape without attempting to break up the adhesions and search for the appendix. We drain with a bent rubber tube. No recurrent attack arose in such cases in two years. In other cases of relapsing appendicitis we make the same incision but extirpated the appendix. In pus cases of appendicitis, I am in favor of the incision close to the iliac crest, of not searching for the appendix, of little irrigation and rubber tube drainage and attempting to keep out of the general peritoneal cavity. The operation in circumscribed pus cases will simply be opening an abscess.

In recurrent cases of appendicitis I am in favor of removing the appendix, deliberately putting the patient to bed, preparing him and then taking out the vestigial remnant. Appendicitis is a grave disease of modern recognition, demanding skill in abdominal surgery to manage it successfully. Amateur

surgery in appendicitis is dangerous. Infection among the small intestines is almost always fatal as the infection travels so rapidly that peritonitis—the process which attempts to save life—can not arise.

In women, so far as my work in autopsies are concerned, the appendix lies over the brim of the pelvic in over 25 per cent. of cases. Hence appendicitis is relatively safer in woman than in man, for the pelvis tolerates much peritonitis or rather infection. Also there is no doubt that much interchange of infectious disease occurs between the appendix and appendages.

The cases of hernia have been inguinal and femoral. The inguinal hernia operation in man was performed by free incisions from the external to internal ring, whence the incision was carried an inch higher up or farther out from the intestinal ring toward the iliac spine. The cord was well lifted up and out, while the posterior part of the inguinal canal was carefully restored with Marcy's kangaroo tendon. Layer by layer, the parts of the abdominal wall were carefully sutured by the buried tendon. The cord was finally buried by suturing the skin superficial and deep fascia over it. When finished, the spermatic cord entered a new canal as near the anterior superior spine as its length would permit. It then passed through the abdominal wall under the deep fascia whence it deflected toward the pubic spine, lying between the deep abdominal fascia and the aponeurosis of the external oblique.

The principle underlying the operation is: *a*, the restoring the obliquity of the inguinal canal (Marcy); *b*, the formation of a new canal for the cord (Bassini and Halstead). The abdominal wall posterior to the cord was united by kangaroo tendon of Marcy. It was permanently buried. But the skin and fascia anterior to the cord was united by silkworm gut.

The plan of the femoral hernia we adopted to some extent from Fabricius. The incision was begun at the pubic spine and extended outward perpendicularly to the long axis of the body. The incision extended from the pubic spine to the outer edge of the sartorius muscle. The first landmark to gain was Gimbernat's ligament. This was slightly cut to allow reduction and proper manipulation of the sac. The vein, artery and nerve are then forcibly pushed and drawn toward the iliac spine, and now the lower edge of Poupart's ligament is depressed and sutured to the fascia on the front surface of the pectineus muscle and to the periosteum. After the pectineal fascia is incised it is turned toward Poupart's ligament. The suturing of the lower edge of Poupart's ligament to the turned up edge of the pectineal fascia is then carried on from the pubic spine as far outward as one feels it is safe to push the vein and artery. Slowly we are pushing the vein and artery farther out toward the spine and following it with the deep suturing. This really makes a new canal and closes and fortifies the old one. We use Marcy's kangaroo tendon. The skin is closed by silkworm gut. How far we can safely push the vein and artery toward the iliac spine is the chief question in this operation. We were afraid of edema of the lower limb from compression of the femoral vein, but Fabricius says we need not be alarmed by that consequence. However, we find that we can push the vein and artery farther toward the iliac spine than was thought at first.

The second ectopic pregnancy case had a tempera-

ture of 106.5. Her pulse was about 160. She had a severe chill and I diagnosed rupture in the pelvis. In this case she had had a tubal pregnancy which ruptured and remained in *statu quo*. A few months subsequent to the tubal rupture she became pregnant in the uterus and an abortion occurred. This fresh uterine abortion exacerbated the old tubal trouble which ruptured. She recovered slowly and to-day, fifteen months after, she has a fistula.

The third one of ectopic pregnancy was a young woman. At the operation she had a temperature of 103 and a pulse of 150. She recovered well.

The fourth case was a woman about 37, who had been in bed eleven weeks after rupture. Her pelvis was full of consecutive layers of blood clots due to recurrent attacks. She recovered slowly but well.

The colotomy performed on two of the patients by Dr. Joseph B. Bacon and myself was done on the left side. The sigmoid flexure was drawn out and well pulled down, so as to avoid subsequent prolapse. Two threads of silkworm or silver wire were passed from one edge of the wound to the other, under the gut, and through the mesentery. It was well lightened. Then the peritoneum was carefully sutured to the gut wall so as to entirely shut off the general peritoneal cavity. The gut was opened from three to five days after the operation. Wonderful relief from pain occurred to the patients who had colotomy done for malignant rectal trouble. Besides it checked the growth of the disease to turn the fecal channel in another direction.

The case of post-peritoneal abscess was operated on by Dr. Waite, and drained through the abdominal wound. A history of five years previously having had an abscess on the backbone probably explained the post-peritoneal abscess as being metastatic.

In this series of 100 cases, Dr. Lucy Waite performed 18 of the operations, but as I assisted her in every case I include them in the report.

During the time that the above series of sections were being performed, I supervised quite a number of amateur surgeons in performing various kinds of abdominal sections not included here. I was impressed with two points by the amateur operator. The first was a lack of knowledge as to the landmarks of visceral disease. They seemed not to have been taught where it is possible that tumors and inflammation are liable to arise. The second impression was that the surgeon lacked systematic methods of examining the viscera after the abdomen had been opened. The surgeon would introduce the hand and pass it around the abdominal cavity without definite views of anatomy and pathology.

As far as regards the chief pathologic landmarks of visceral disease and the systematic anatomic manipulation of the same, there is no wonder that amateur and general surgeons show lack of knowledge in abdominal pathology, and sad need of abdominal anatomy, when no college can be pointed to as possessing a chair of one or both. In every college there should be a chair of abdominal or visceral pathology and a chair of visceral anatomy; besides every student who intends to do abdominal surgery should be put through a prescribed course of experiments on the viscera of animals. During several years of teaching of the anatomy and pathology of the abdomen, I evolved the following table which suggests landmarks of anatomy and pathology in the abdomen:

| | | |
|-------------------------------------|--|---|
| Landmarks in Gynecology | <ul style="list-style-type: none"> a. Anatomy. b. Menstruation. c. Labor. d. Abortion. e. Gonorrhoea. f. Tumors. | <ul style="list-style-type: none"> age. regularity. quantity. pain. |
| Landmarks in the Digestive Tract. | <ul style="list-style-type: none"> a. Mouth. b. Cardiac orifice. c. Pylorus. d. Ileo-cecal valve. e. Anus. | |
| Landmarks in the Digestive Tract. | <ul style="list-style-type: none"> a. Hepatic. b. Splenic. c. Sigmoid. | |
| Landmarks in Peritonitis. | <ul style="list-style-type: none"> a. Mouths of Fallopian tubes. b. Hernial orifices. c. Appendix. d. Gall-bladder. e. Sigmoid flexure. f. Splenic flexure. g. Hepatic flexure. h. Accidental. | |
| Landmarks in Surgical Localization. | <ul style="list-style-type: none"> a. Uterus. b. Cecum. c. Colon. { sacrali coli. { tenia coli. d. Sigmoid flexure. e. Pylorus. | |

A few valuable generalizations aid in analyzing when making a differential diagnosis. It may be noticed that the sphincters are liable to disease on account of: *a*, periodical action function; *b*, delicate nerve apparatus; *c*, complicated and varied blood supply; *d*, extensive lymphatic system; that malignancy is their chief disease and anatomy shows definite localized fixation of sphincters. It may be observed that the flexures are quite fixed and that they are liable, first, to non-malignant; and second, to malignant disease. In regard to peritonitis, there are three notorious regions, viz., pelvic, appendicular and that of the gall-bladder. In these three regions the peritoneum tolerates much infection and inflammation. These regions for ages have learned to cope with inflammation. Remember, that peritonitis tends to save life by throwing out barriers of exudate, preventing infectious invasion while it is infection which tends to kill. Note, also, that outside of the great peritonitic regions (pelvic, appendicular and gall bladder) that infection or so-called peritonitis is very fatal, *e. g.*, among the small intestines.

As to surgical localization it simply involves the anatomy. On opening the abdomen the first organ to locate is the uterus; 2, especially important in localizing landmarks is the cecum; 3, the colon is of some significance, while the sigmoid (fourth) and the pylorus, (fifth) is of less importance. None but the intestinal surgeon realizes the all-important localization of the cecum, which gives an easy clue to the rest of the digestive tract. Amateur and general surgeons should realize the difficulty in diagnosing abdominal tumors, especially on the right side. If one opens a cadaver, a silver dollar may be so placed as to touch: *a*, the pylorus; *b*, the gall bladder; *c*, the supra-renal capsule; *d*, the kidney; *e*, the head of the pancreas; and *f*, the hepatic colonic flexure. Thus six organs, within touch of a silver dollar, might give origin to a tumor in the right portion of the abdomen. On the left side, the cardiac end of the stomach, tail of the pancreas, spleen and splenic flexure of the colon presents similar close complica-

tions. In visceral disease it is well to remember that probability is the rule of life. On account of the scarcity of material and the rarity of practical teaching in visceral anatomy, besides the limited knowledge gained by observing, always, at an abdominal section, by those not having the privilege of manipulating and seeing the viscera, amateur abdominal surgery is, frequently unfortunate, unsatisfactory in results and too often disastrous. It is the opinion of the writer, from ten years of special observation in abdominal work, that young physicians should be impressed with the fact that more personal study, experiment and especial training should be experienced before practice is applied to human subjects.

LESSONS LEARNED FROM ONE HUNDRED ABDOMINAL SECTIONS.

1. That chloroform kills outright by affecting the heart or respiratory center.
2. That ether may be followed by bronchitis and nephritis (immediate or remote).
3. That opening the peritoneum produces a raging thirst which can be slaked by one-half to two ounces of hot fluid an hour. Ice is dangerous and cold water should not be used after abdominal section.
4. That saline purgatives are prophylactic against incipient peritonitis. General peritonitis once established is practically an incurable disease.
5. That it is infection that tends to destroy life, while peritonitis tends to save life by throwing out exudates to prevent the invasion of infection. Local peritonitis is nature's method of repair.
6. That the three great regions of peritonitis are: *a*, the pelvic; *b*, appendicular; *c*, the region of the gall bladder. They resist the invasion of infection and tolerate it markedly.
7. That infection among the small intestines is very fatal, from inability to produce peritonitic exudates to circumscribe the infection.
8. That gonorrhoea is the cause and sustaining factor of the majority of persistent tubo-ovarian diseases or pelvic peritonitis.
9. That gonorrhoeal appendages are apt to infect ligatures which may suppurate and produce a fistula from one month to one year after the operation.
10. That post-operative hernia of the abdominal wound is liable to occur in malignant or aged cases. That advanced, malignant visceral disease should not be molested.
11. That irrigation and drainage of the peritoneal cavity should be limited—irrigation quite limited and drainage to hemorrhage and pus cases.
12. That the Trendelenberg position enables one to do more perfect work by seeing with the eyes and giving wider space for manipulation.
13. That suppurating appendicitis can be radically cured (for two years at least) by an incision close to the right iliac fossa, allowing the pus to escape and not searching for the appendix. The incision can profitably be made close to the iliac spine.
14. That in woman the appendix is in the pelvis in one-third of the cases and tubo-ovarian and appendicular disease may each be derived from the other.
15. That inguinal hernia can be radically cured by restoring the obliquity of the inguinal canal, and removing the spermatic cord into a new canal. (Marcy, Bassini and Halstead).
16. That femoral hernia can be radically cured by

displacing the femoral vein and artery toward the iliac spine, and suturing the lower border of the Poupart's ligament to the pectineal fascia—making a new canal for the vein and artery. (Fabricius.)

17. That tying off the appendages and then ligating the uterine artery as it courses along the uterus as far down as the cervix: *a*, quickly stops menstruation; *b*, checks hemorrhage in the uterine myoma; *c*, it atrophies uterine tumors by cutting off the blood stream; *d*, by ligating the whole broad ligament low down with locked stitches the retroverted uterus can be well elevated; and *e*, by ligating the nourishing nerves, atrophy of the genitals will ensue.

18. That the fimbriated end of the Fallopian tube closes in two ways during the course of disease: *a*, in one case (disastrous); the tubal fimbriæ are only partially turned back into the tubal lumen, leaving infected fimbriæ both in the tubal lumen and in the peritoneal cavity—such cases are constantly liable to recurrent infection and exacerbation because the mucal fimbriæ serve as a home for the germs; *b*, the other (favorable) method is where all the fimbriæ of the tube are turned back into the tubal lumen, where they lie coiled up like the petals of a rose.

19. The very severe forms of menstrual neurosis can be cured (for two years) by removing the uterine appendages close to the uterus. Bleeding myoma is also in some cases cured by the same process.

20. But in re-operating on abdominal cases (one ten months, the other fourteen, after) for parovarian cysts, the viscera are found surrounded by various degrees of adhesions. The fourteen months' case possessed dense and extensive adhesions. I proved the same fact on scores of dogs' viscera several years ago.

21. That parovarian cysts are the most liable to recur in 100 cases of abdominal section.

22. That abdominal fistula is apt to arise immediately after the operation and continue for some weeks to eighteen months. Also that some fistulæ arise from two to six months after the operation and continue for eighteen months.

23. That urea is the best standard for safe laparotomy, as far as regards the kidney. When the woman came to the hospital the urea varied from five grains to twelve grains to the ounce, but in a few days it would become about eight grains to the ounce. Not so much notice is paid to albumen or sugar.

24. That in ruptured ectopic pregnancy there is surgical hope, though the temperature is nearly 107 and the pulse 160.

25. Every case of abdominal section should be in bed at least three weeks.

SOCIETY NEWS.

Southern Illinois Medical Association.—The twentieth semi-annual meeting of the Southern Illinois Medical Association was held November 15 and 16 in Duquoin, and was called to order at 10:30 A.M., by President Dr. McKenzie. There were about 25 members present out of a total membership of 100. The address of welcome was delivered by Dr. L. Dyer, and Prof. C. W. Harris, responded to by Dr. Mitchell, of Carbondale. There were ten papers read: "Criminal Responsibility as Related to Insanity." "Duties of Physicians." "Bacteriology." "Fracture of Femur Treated by Hodgen's Splint."

"Whisky in Medicine." "Effects of Alcohol on the Human System." "Phlegmasia Dolens." "Fever, Causes and Treatment." "Diseases of Children—also Case of Wound of Abdomen." "Necrologist's Report." "Cases of Nephritis with Extensive Edema and Necrosis of Lower Jaw." Dr. G. N. Kreider, Treasurer of the Illinois State Medical Society and Dr. Mudd, of St. Louis, were present by invitation. Dr. Corr, first Vice-President of the Illinois State Medical Society, was present as fraternal delegate. All these gentlemen were accorded the courtesies of the Association. Dr. Corr presented the fraternal greetings of Dr. D. R. Brower, President of the Illinois State Medical Association, who urged a more hearty support of the State Society. Drs. Kreider and Corr were accorded the privilege of presenting the claims of the Illinois State Medical Society in that it needed increased numbers and annual dues to support the Legislative Committee in its charitable and scientific work. The Association adjourned at 3:30 P.M. on the 16th inst., to meet in Carbondale, May 15 and 16, 1895.

Chicago Ophthalmological and Otological Society.—Regular meeting, postponed one week, was held at the Saratoga Hotel, Oct. 16, 1894, Dr. Hotz in the chair. There were eighteen members and visitors in attendance. Minutes of last meeting were read and approved.

The application of Dr. T. Faith was received and referred to the Committee on Membership.

Dr. Hotz reported that Dr. Meyer would read three papers before the Society if agreeable:

1. "Recent Views on Histology of Nervous System."
2. "Minute Anatomy of Optic Nerve Tracts."
3. "Review of Researches of Hinschen and Others."

On Dr. MONTGOMERY'S motion, the President was requested to invite Dr. Meyer to deliver these three essays and the Secretary was instructed to present Dr. Meyer with \$50 as an honorarium.

On Dr. BETTMAN'S motion, the Secretary was instructed to levy an assessment of \$2 on each member.

Dr. Hotz reported a case of skin grafting for pterygium. The patient, 30 years old, had four operations performed before consulting Dr. Hotz but without much improvement. The pterygium extended to center of cornea and was very thick. In November, 1893, Dr. Hotz did the ordinary operation, but the pterygium returned in a few months. Sept. 5, 1894, dissected back the conjunctiva as far as the caruncle, a space ten mm. long and six mm. wide. Over this surface a piece of skin, taken from behind the ear, 4x4 mm. was grafted. A larger piece could not be used because in adduction the graft was pushed over the cornea. It healed nicely but even this small piece has been pushed slightly over the cornea.

Dr. BETTMAN showed a case of skin grafting for symblepharon. The eye was destroyed by lime and very extensive adhesions took place. After enucleation, pieces of skin were implanted and the patient can now wear an artificial eye comfortably.

Dr. WILLIAMS had found that although the gain seemed great from grafts for a few months, yet the grafts were very apt to shrink to almost nothing in time.

Dr. MONTGOMERY also spoke of having had such experiences and quoted cases in illustration.

Dr. BEARD thought that most cases required repeated operation before the final result was obtained. He had operated on one case four times already and expected to do more.

Dr. COLEMAN transplanted skin in one eye and mucous membrane in the other. Both did well but the skin gave the better result.

Dr. BETTMAN said that it was important to remove all cicatricial tissue from the wound before the skin is grafted, and thought poor results were often due to neglect of this precaution.

Dr. BEARD prefers mucous membrane to skin in plastic

operations on the conjunctiva because he had a case in which the skin graft caused an ulcer. He removed the skin, put in mucous membrane and the ulcer got well.

Dr. HORTZ prefers skin grafts on lid border and never had any trouble with them. Takes skin from behind ear in narrow wedge-shaped strips.

Dr. WILDER spoke of a case which had been operated on sixteen times for entropion but always relapsed. Dr. W. thought it was because the grafts were not rigid enough and he transplanted a graft from the hypothenar eminence with good results. He showed some beautiful preparations hardened in formaldehyde. He used a 5 per cent. solution and the eyes were hard in two days. Specimens retain their transparency and colors with this preparation.

Dr. MONTGOMERY read a paper on increase of astigmatism and reported cases.

Dr. COLEMAN said that Gould asserts that correcting full error will favor the increase of hyperopia.

Dr. JONES said that a relaxed hypertrophied ciliary muscle would cause apparent increase.
Society adjourned by limitation.

C. P. PINCKARD, Secretary.

The Board of Medical Examiners, representing the Medical Society of the State of Pennsylvania, held their fall examinations in Philadelphia, October 16, 17, 18 and 19. Thirty-three applicants were examined and four failed to receive the average of .75. H. G. McCormick, of Williamsport, is President of the Society, and W. S. Foster, of Pittsburg, Secretary.

The following questions were asked:

CHEMISTRY.

1. What is a salt? 2. What is an atom, a molecule and an element? 3. Describe nitrogen, naming its oxygen compounds and its relations to atmospheric air. 4. Describe the properties of ozone and its influence on respiration. 5. How do you determine the quantity of urea in a given specimen of urine? 6. Describe an alkaloid, naming two examples. 7. What are the physical properties of bromid, iodine and chlorin? 8. Differentiate between an acid and an alkali. 9. What is the atomic theory? 10. What is the difference between mechanical mixture and chemical union?

ANATOMY.

1. What forms the external malleolus? 2. Describe the ovaries. 3. How do arteries and capillaries differ? 4. Describe one of the vertebrae. 5. What vessels and nerves are contained in the popliteal space? 6. Describe the position of the palmar arterial arches. 7. What blood vessels pass to and from the liver? 8. Describe the pyloric orifice of the stomach. 9. What tissues of the abdominal wall are divided in the operation for appendicitis? 10. Give the distribution of the third cranial nerve.

PHYSIOLOGY AND PATHOLOGY.

1. What are the functions of the stomach? 2. Explain how the normal cardiac sounds are produced. 3. Describe the phenomenon of urinary secretion and excretion. 4. Give the principal functions of the cerebellum. 5. What system of nerves regulates arterial tension? Explain the qualities of the normal pulse.

1. What pathologic changes in the arteries usually precede aneurism? 2. What is the pathology, so far as known, of pernicious anemia? 3. Describe the pathologic processes of dry and moist gangrene. 4. Explain fatty metamorphosis and describe the process as it occurs in the heart. 5. Describe the difference characterizing the pathologic changes of croupous and catarrhal pneumonia.

THERAPEUTICS, MATERIA MEDICA AND PRACTICE.

1. Describe the symptoms and treatment of croupous pneumonia. 2. Give the prognosis and treatment of idiopathic erysipelas. 3. Describe the symptoms and treatment of measles. 4. Describe the treatment of ophthalmia neonatorum. 5. Give the prognosis and treatment of locomotor ataxia (tabes dorsalis). 6. Describe the physiologic action of arsenic, and name three indications for its use. 7. Describe the physiologic action of opium. 8. Describe the dietetic and hygienic treatment of typhoid fever. 9. Give the indications for the therapeutic use of quinia sulphate. 10. Name three conditions wherein and the reasons why ver-

trum viride is contra-indicated. 11. Name three indications for the use of belladonna. 12. Describe how belladonna acts when used, as stated in answer to question No. 11. 13. What condition of the eye contra-indicates the use of mydriatics? 14. Describe vasomotor depressants, with an example. 15. Describe and give the indications for the uses of cardiac sedatives, with an example.

OBSTETRICS.

1. What are the earliest probable signs of pregnancy, and their relative value? 2. Describe the causes, symptoms and treatment of abortion. 3. Describe the mechanism of normal labor, L. O. A. position of vertex. 4. Describe the causes, symptoms and treatment of eclampsia. 5. What are the dangers of the puerperium, and how may they be avoided? 6. Describe the process of delivering the placenta. 7. Give the diagnosis and treatment of placenta prævia. 8. Give the treatment of *post-partem* hemorrhage. Give in detail the proper care of the new-born. 10. What are the uses and dangers of ergot in obstetric practice?

SURGERY.

1. What are the principal points in the diagnosis, prophylaxis and treatment of pyemia and septicemia? 2. How would you expose the brachial artery for ligation at the middle of the arm? 3. Give a concise description of rupture of the perineum and treatment. 4. What are the indications for the use of a drainage tube? 5. Describe the predisposing and exciting causes and symptoms of carcinoma of the breast; also give treatment. 6. Describe any one of the several dislocations of the shoulder joint, and mode of reduction. 7. What are the rules for the administration of ether and chloroform as anesthetics, with contra-indications? 8. Describe the kinds of fistulæ-in-ano; give the symptoms and treatment. 9. Describe the symptoms and treatment of a Colle's fracture. 10. Describe the symptoms and treatment of the several forms of gangrene.

DIAGNOSIS AND HYGIENE.

1. Differentiate between coma and syncope. 2. Describe the physical signs of simple ascites and those of ovarian dropsy. 3. Differentiate between compression of the brain from injury and the phenomena of alcoholism. 4. Differentiate between the early eruption of syphilis and measles. 5. Differentiate between thrombosis and embolism. 6. Describe the proper methods for lighting and ventilating school rooms. 7. What are the proper methods for disposing of excrement and garbage in cities? 8. What is the difference between disinfectants and germicides, and how do they severally act in preventing the spread of contagious and infectious materials? 9. What climatic factors should govern in selecting a proper health resort for consumptives in the primary stage of the disease? 10. What is meant by quarantine, and when and how should it be enforced?

NECROLOGY.

CHARLES T. CHASE, M.D., of Brooklyn, died November 5, aged 63 years, the cause of his death having been chronic interstitial nephritis. He was a well-known practitioner of forty years standing in Brooklyn, and the son of that eminent surgeon, Dr. Charles Chase, of the United States Navy. The junior Dr. Chase had a predilection for surgery, having had experience both in the naval and volunteer army corps as a commissioned surgeon during the War of the Rebellion. About eleven years ago he lost his eyesight, and retired from practice.—Timothy M. Ingraham, M.D., of Flatbush, New York, died Nov. 11, 1894, aged 73. He was a graduate in medicine from the old "Woodstock School," or Vermont Medical College, taking his degree fifty years ago. For many years he had an almost exclusive ride in the town of Flatbush (now a ward of Brooklyn). He was a member of the Kings County Medical Society, having been an officer-bearer therein. A widow and twelve children survive him. His final malady was an attack of apoplexy of short duration.—Henry W. Allen, M.D., of Milwaukee, November 9, aged 31.—Carter Higgins, M.D., of Peru, Ind., November 14.—O. B. Reed, M.D., of Lenox, Mich., November 8, aged 90.—E. B. Elrod, M.D., of Flora, Mo., November 8.—George Wilson, M.D., of Dubois, Pa., November 8, aged 80.

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SATURDAY, NOVEMBER 24, 1894.

MEDICINE IN ANCIENT ROME.

The old Romans had a great contempt for doctors. Up to the end of the Empire no proof of qualifications, neither diploma or other guaranty, was required from those practicing medicine. According to TIBERIUS every man ought to be his own physician after 30. It was the father of the family who treated his wife, his children, his slaves. CATO has left in his *De Re Rustica* the receipts which he used for half a century in the treatment of his two wives, his daughter-in-law, his daughter, his slaves, his cattle and himself. *Callage* was the basis of his therapeutics—good, both internally and externally, it cured all diseases; it was emetic and purgative, diuretic and diaphoretic. Aided by magic formulæ, such as: "*Daries, dardaries, artataries,*" it caused nasal polypi to be expelled and reduced dislocations.

The Greeks introduced a less primitive therapeutics into Rome. The first Greek physician was ARCHEGATOS, who had his office in the crossroads of Acilius; and here, in which were combined a consulting room, drug store and hospital, he gave consultations, dressed wounds, prepared medicines and had some beds for cases of grave diseases or severe operations. Later on, the people resorted to the doctors' offices, as they did to the barber shops, for gossip, lounging and novelty.

The ancient Romans disliked bathing as much as—according to *La Médecine Moderne*—do the Italians of to-day; that journal, from which this gossip is gleaned, says that, "according to recent statistics the modern Italian takes a bath on the average once in two years." In the time of CATO, according to SENECA, the Romans bathed their arms and legs every day, but ablu- tion of the whole body was indulged in only once in

eight days. The craze for *thermæ*, of which ASCLEPIADES was the originator, was of later date; he was the first to treat fevers by cold baths. Under AUGUSTUS cold baths had great popularity, owing to ANTONIUS MUSA, who cured the Emperor by their use; it is true it is claimed he killed MARCELLUS—the "*Tu Marcellus eris*" of Virgil—by the same treatment.

Greek medicine held undisputed sway under the CÆSARS; only Greek terms were used and pills became *catapotia*, liniments *acopa* and *malagmata*. Each physician had some special drug which he carried about with him and which was, of course, superior to the "other fellows," and the more mysterious the name the more potent the drug; such were *Athamasia*, the immortal; *Ambrosia*, the divine; *Panacea*, the all-curer, and *Theriaka*, which ANDROMACHE, the physician of NERO invented and described in a Greek elegiac poem. It had 600 ingredients, the basis being viper's flesh, and cured every disease; the Emperor took a pill of it every morning before breakfast. It had a prodigious success and outlasted the invasions of the barbarians and the flight of the centuries, so that even at the end of the eighteenth century, according to BOILEU, the patients in the hospital of Montpellier took a bolus of theriaka every evening, as NERO had taken his every morning eighteen hundred years before.

Fees were not neglected; under AUGUSTUS the court physician had an income of 200,000 sesterces—about \$10,000. STERTININUS gave up a practice of \$24,000 to become court physician; CRINUS, of Markilles, left \$400,000 to his native town. The patients who contributed to these fortunes avenged themselves by epigrams. "CHARIDEMMUS," says MARTIAL, "knows very well that his wife is the mistress of his physician. But what would you have? He wishes to die a natural death, peacefully and without fever." "FABULA has quit her husband to follow a lover, whom she pays. That is not astonishing—she is the daughter of SOTA, a physician." "Yesterday ANDRAGORAS felt very well; he bathed and supped joyously with his friends. This morning they found him dead in his bed. What could have caused this sudden death? He saw HERMOCRATES, his physician, in a dream."

DIPHThERIA AND THE ANTITOXIN.

Almost without exception the European governments have either indorsed the ROUX-BEHRING treatment of diphtheria by the antitoxin serum or have authorized its study by their medical or public health services. The latest is that of Turkey, which, by command of the Sultan, has despatched a special commission, consisting of Drs. MAHMOUD BEY, MUNIR BEY and DJELAL BEY, to the Pasteur Institute, with instructions to learn the mode of preparation of the serum and the technique of its use; on their

return they are to establish a laboratory in Constantinople for the preparation of the antitoxin.

Favorable clinical reports of its use multiply in the pages of the British and continental journals and an occasional report, also favorable, finds its way into an American periodical here and there. But a very large number, probably a majority, of the profession in this country still look askance at the claims made for the new remedy.

This somewhat remarkable conservatism is due to two obvious causes—the first, and probably the most potent, is the want of a sufficient supply of the serum to make individual tests; and the second, the haunting memory of the tuberculin failure. Municipal and individual initiative is already at work to remove the first obstacle, but the JOURNAL awaits the opportunity to announce that the National medical services have taken steps to set at rest the doubt as to the claimed value of the new treatment.

It is surely within the scope of the authority of the heads of the Army and Navy Medical Corps and of the Marine-Hospital Service to cause an investigation to be made for this purpose, and all of these services contain men abundantly qualified to conduct such an investigation and to make a report which would be accepted as authoritative and conclusive by the profession. It may be, however, that they are awaiting instructions from Congress.

THE UNRESTRICTED SALE OF POISONS.

This periodical has frequently invited public attention to the necessity of legislation placing some restrictions on the sale of poisons and articles containing poisonous substances.

The daily press contains regularly, every day, accounts of persons slain through accident or design, by some poisonous drug.

The abuse of the unrestricted privilege calls loudly for reform, and past experience has shown that the medical profession is the only one at all likely to bring the matter to public attention. When the general public becomes fully aroused on this question, public sentiment will force the law-making bodies to pass the necessary enactment.

Let our medical societies take the matter up and begin the systematic collection of facts bearing on the question. When the facts are gathered and properly formulated let the voice of the medical society be heard in no uncertain tone. A profession which has done so much for the prevention of disease and the prolongation of human life, will be listened to by Legislatures whenever it has undoubted statistics to prove its assertions. Nothing, however, is ever likely to be done so long as our request is based on assertion only. We must collect and furnish facts in order to succeed, and we may as well close this statement by that other which has been repeatedly made in these columns: *Let us have a Department of Public Health with a Cabinet officer at its head.*

THE RETURNS ARE IN.

We note with pleasure that the Fourth Indiana District has retired the Hon. W. S. HOLMAN from further service in Congress from that district, and that this eminent statesman after the fourth of March next will have opportunity to practice that "economy" he has so long preached, in rural retreat. The medical services dependent on congressional appropriations will not after this session have to contend against his antagonism. *Laus Deo!*

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

This flourishing medical organization held its annual meeting this week at Hot Springs, Ark., under the Presidency of X. C. SCOTT, M.D., of Cleveland. We expect a full report of the meeting, for the next week's issue. The attendance was larger than usual, and the St. Louis special train, as usually happens with everything managed by the editor of the St. Louis *Medical Mirror*, was successful in all particulars.

CORRESPONDENCE.

Statues to Medical Men.

PARKERSBURG, W. VA., NOV. 19, 1894.

To the Editor:—Dr. E. Cutter, in his note in the JOURNAL of November 17, trusting to his memory, falls into an error in writing of a statue to Dr. J. D. Crawford, the discoverer of ether in 1842. It was Dr. Crawford W. Long, of Madison County, Georgia, who first used ether as an anesthetic in 1842, and who neglected to make his discovery known to the world until 1849. I doubt whether there is a statue to his memory in the rotunda at Washington.

Probably the statue in the rotunda is in honor of W. Harris Crawford, one of Georgia's most distinguished citizens, who was Senator, Minister to France, Secretary of War and Treasury, and nominee for President in the congressional caucus with Jackson, Clay and Adams; at which time Adams was elected.

These statues are there by action of the National Congress, inviting the States, through their Legislatures, to place there statues of two of their distinguished citizens, and they are mostly statues of statesmen and politicians.

I have no list of those who have been thus honored, so that the above, relative to a statue to Crawford is based on recollection. If Sims' statue is the first, it is to be hoped that it will not be the last, although it accords more with the spirit of our profession to erect memorials to our departed worthies in some other manner, viz.: a memorial hospital ward, or an endowed professorship, etc.

The centennial of Jenner's discovery is nearly here. In the century just passed has his memory been thus honored?

Respectfully, W. H. SHARP, M.D.

Laryngeal Epilepsy.

CHICAGO, ILL., NOV. 16, 1894.

To the Editor:—In the society proceedings of the Chicago Academy of Medicine, as published in the JOURNAL of November 10, on page 727, there appears an article by Dr. Edward T. Dickerman on "Laryngologic Relations of Epilepsy." In this article the Doctor states that "up to date, twenty-one cases have been reported," etc. I wish to state

that the Doctor may be able to add one to the list if he will look up the JOURNAL of June 3, 1893, page 604, and find "A Case of Laryngeal Epilepsy." Respectfully,

JOHN KERHER, M.D.

BOOK NOTICES.

The Weekly Medical Review. Pocket Reference Book and Visiting List, perpetual. St. Louis: J. H. Chambers & Co. 1895. Price, \$1.

This excellent visiting list is formed on the usual lines, containing tables of reference and blank spaces for call list and records.

Physician's Complete Account Book. Arranged by J. MARSHALL HAWKES, M.D., and R. HARLAN HAWKES, M.D. New York (56 Reade Street): Peckham, Little & Co. Price \$3.

This is a simple and convenient account book for physicians, having blank spaces properly ruled for the keeping of accounts and explanatory memoranda connected therewith.

Local Anesthetics and Cocaine Analgesia; Their Uses and Limitations. By THOMAS H. MANLEY, A.M., M.D. Cl., pp. 177. St. Louis: J. H. Chambers & Co. 1894. Price, \$1.50

The author has attempted in a fairly satisfactory way to give the indications and method of cocaineization as an analgesic. He states as a distinctive difference between anesthesia and analgesia that "a local anesthetic of an intense frigorific character produces chemical changes, and temporarily destroys all sense, but an analgesic only affects the pain sense, and in no manner induces chemical changes, or endangers the vitality of the tissues." The book is timely and instructive.

A Synopsis of the Practice of Medicine for Practitioners and Students. By WM. BLAIR STEWART, A.M., M.D. Svo., cl., pp. 433. Price, \$2.75. New York: E. B. Treat (5 Cooper Union). 1894.

This book as its title indicates, summarizes in a careful and useful manner the existing practice. The treatment recommended is sound and in accordance with the latest approved teachings. In typhoid fever, for example, while the author distinctly asserts that there is no specific, he favors antiseptic medication, commending for that purpose the sulpho-carbolyte of zinc, salol and beta-naphthol. In dosage the old apothecaries system is followed.

Transactions of the Ophthalmological Section of the AMERICAN MEDICAL ASSOCIATION at the Forty-fifth Annual Meeting held at San Francisco, June 5-8, 1894. Cl., pp. 216. Chicago: American Medical Association Press. 1894. Price \$1. Postage free.

There are one hundred and ninety-six members of the Ophthalmology Section of the AMERICAN MEDICAL ASSOCIATION, and for their convenience they directed the reprinting of this "Book of the Section." The papers have all been printed in the JOURNAL, and the volume was edited by the Section Secretary, Dr. L. H. Taylor.

A Dictionary of Medicine; including General Pathology, General Therapeutics, Hygiene, and the Diseases of Women and Children. Edited by RICHARD QUAIN, Bart., M.D., LL.D., assisted by FREDERICK THOMAS ROBERTS, M.D., and J. MITCHELL BRUCE, M.A., M.D. With an American appendix by Samuel Treat Armstrong, M.D., Ph.D. New edition, revised throughout and enlarged. Vol. I, Abdomen-Lysis; Vol. II, Maclocheilia-Zyme. New York: D. Appleton and Company. 1894.

The well-known "Quain's Dictionary of Medicine" has now grown into two volumes, each as large as its portly predecessor, while the type remains as small as before. This is a dictionary of medicine alphabetically arranged, in which each subject is discussed according to the editor's estimate of its importance. There are so many collaborators that the great task of revision has been made lighter for the editors. The editor of the American Appendix has introduced some new medical terms, made a few cross references, added

one or two articles on peculiarly American topics and has given much needed information on the American mineral springs—this last topic is one that has heretofore received much less attention than it deserved.

International Clinics; a Quarterly of Clinical Lectures on Medicine, Neurology, Surgery, Genito-urinary Surgery, Gynecology, Obstetrics, Ophthalmology, Laryngology, Pharyngology, Rhinology, Otology and Dermatology. By Professors and Lecturers in the leading medical colleges of the United States, Germany, France, Great Britain and Canada. Edited by JUDSON DALAND, M.D., J. MITCHELL BRUCE, M.D., and DAVID W. FINLAY, M.D. Vol. III. Fourth series. Philadelphia: J. B. Lippincott Company. 1894.

The present volume of this interesting series is not less instructive than its predecessors, and the growing interest taken in these publications by the profession in general shows that they are yearly more and more appreciated. The editors and publishers have spared no pains to give the "Clinics" an attractive setting.

Medical Jurisprudence, Forensic Medicine and Toxicology. By R. A. WITTHAUS, A.M., M.D., and TRACY C. BECKER, A.B., LL.B., with the collaboration of twenty others. Volume II. Cl., pp. 751. New York: William Wood & Company. 1894.

We noticed this book *in extenso* when we received the first volume (see JOURNAL, March 10, 1894) and we are able to renew the favorable opinion then expressed, concerning the work. The present volume contains a chapter on "Examination of Blood and other Stains," and "Examination of Hair," by Edward S. Wood, M.D.; on "Abortion and Infanticide," by J. Chalmers Cameron, M.D.; "Determination of Survivorship," by T. C. Becker, Esq., and J. Parmenter, Esq.; "When Medical Examination of the Living is Permitted or Required by Courts of Law," by T. C. Becker; "Pregnancy, Labor and the Puerperal State," by J. Clifton Edgar, M.D.; "Sexual Incapacity," by I. C. Rosse, M.D.; "Rape," by J. C. Edgar and J. C. Johnston; "Unnatural Crimes," by Irving C. Rosse; "Railway Injuries," by W. B. Outten, M.D., and "Simulated Diseases," by W. Thornton Parker, M.D. The work concludes with a table of cases by the legal authors and by the medical authors respectively. The index is separate for each volume.

The completion of this work enriches the library of forensic medicine in a marked degree, and it will be referred to with pleasure by all wishing information on the subject.

Practical Urinalysis and Urinary Diagnosis: A Manual for the Use of Physicians, Surgeons and Students. By CHAS. W. PURNY, M.D., Professor of Urology and Urinary Diagnosis at the Chicago Post-Graduate Medical School. With numerous illustrations, including photo-engravings and colored plates. In one crown octavo volume, 360 pages, in extra cloth, \$2.50 net. Philadelphia: The F. A. Davis Co., Publishers (1914 and 1916 Cherry Street).

The author has long been known as an authority on diseases of the kidneys. He has shown much originality of research, and his results have added much to the knowledge of the subject. The present book is in two parts, whereof the first is divided into eight sections and is devoted to "Analysis of Urine;" and the second has three divisions and is devoted to "Urinary Diagnosis." There is an appendix on the "Examination of Urine for Life Insurance."

The book is concisely written and will add new laurels to the already established fame of the author. The author's habitual conservatism is well shown on page 268 where in writing of the "Diagnosis of Renal Tuberculosis" he says: "It is safer, therefore, when suspected, but not found by direct examination, to resort to cultures in gelatin in the usual manner and the inoculation of animals."

To the practitioner and as well to the clinician, this book must prove invaluable for the extent of information contained in its pages, and its practical character. There is little of the compiler but more of the author visible in the pages of the work, which we can not too highly commend.

A Practical Manual of Mental Medicine. By DR. E. RÉGIS, with a preface by M. BENJAMIN BALL. Second edition, thoroughly revised and largely re-written. Authorized translation by H. M. Bannister, A.M., M.D., with an introduction by the author. Cl., pp. 692. Utica, N. Y.: Press of American Journal of Insanity. 1894.

The first edition of this work was crowned by the Faculty of Medicine of Paris, and received the Chateauvillard Prize of 1886. In 1891 the author revised the second edition, and now it has been translated by Dr. Bannister and published by Dr. Alder Blumer, who conceived the idea of having the printing done at the Utica Asylum by his patients. "It is assuredly," says Régis, "the first work treating of mental alienation, written by an alienist, translated by an alienist, and under the direction of an alienist, printed and bound by the insane."

The translator says: "It is a rather remarkable, and perhaps not altogether a creditable fact, that up to the present we have had no English translation of any modern standard French work on mental diseases and their treatment. No apology, therefore, seems necessary for having endeavored to present to American readers the work of Dr. Régis which is, as it is considered in France, a model of its kind." The translator and the publisher have each done their work well, and the book will, we feel sure, be warmly welcomed by the American medical profession.

Chorea and Choreiform Affections. By WILLIAM OSLER, M.D. Philadelphia: P. Blakiston, Son & Co. 1894. Price \$2.

This book, which is gracefully dedicated to Dr. W. R. Gowers, of London, represents "in an expanded form, the lectures on chorea which appeared in the *Medical News*, 1887," and from studies of the case books of the Infirmary for Diseases of the Nervous System in Philadelphia. Facing the title page the author has placed two quotations, one from Bouteille (1810), the translation of which is as follows: "All is extraordinary in this disease; its name is ridiculous, its symptoms singular, its character equivocal, its cause unknown, its treatment problematical."

The author says in the introduction: "In the whole range of medical terminology there is no such *olla podrida* as chorea, which for a century has served as a sort of nosologic pot into which authors have cast, indiscriminately, affections characterized by irregular purposeless movements. With muscular disorder as the salient feature, as the generic character of chorea, there have been scores of specific designations, indicating the quality of the movement, the locality involved, etc. In Foster's Dictionary, ninety-four of these sub-varieties are named."

Our author does very much in this monograph to clear the obscurity in classification, but Bouteille's pessimistic view of the therapeutics of chorea is as nearly true now as when written eighty-four years ago.

The charming style and pleasant method of Dr. Osler make everything he writes entertaining and agreeable, as well as instructive, and this book is no exception to the rule.

The Proceedings of the Fourth Annual Meeting of the Association of Military Surgeons of the United States. Held at Washington, D. C., on May 1, 2 and 3, 1894. Pp. 712. Cloth.

The transactions of this Association have grown from a small volume to a large one, and with that growth there is a corresponding increase in the value of the papers presented. The proceedings of the Association occupy the first place in the volume, after which the papers and discussions follow.

The President's annual address by Professor Senn, was one of those scholarly productions characteristic of that author, on "Abdominal Surgery on the Battle-field." He commends laparotomy for the treatment of internal hemorrhage and dangerous abdominal wounds. The "first aid"

should consist in compression over the injured part and auto-transfusion by circular constriction at the base of one or more extremities; the treatment should be prompt; patient at once removed to field hospital, which should be fully equipped. After opening abdomen, temporary compression of aorta should be resorted to if there is much hemorrhage. Venous hemorrhage to be arrested by sponge tampon. Wounds of liver and pancreas should be treated by suture, tampon or actual cautery. Wounds of spleen or kidney may require removal. Wounds of the stomach should be treated the same as wounds of the intestines.

There are many excellent papers in the volume of which a full *résumé* was given by a very competent hand, in this JOURNAL. The volume is well printed on good paper.

A Clinical Manual of Diseases of the Eye, Including a Sketch of Its Anatomy. By D. B. ST. JOHN ROOSA, M.D., LL.D. Octavo. 650 pages, 178 engravings in the text, nearly all original, two full-page chromo-lithographic plates, and a full-page black plate. Bound in muslin at \$5.50, and in sheep at \$6.50. New York: Wm. Wood & Company. 1894.

The author says in his preface that the work was not written because he "supposed that there were not already in the English tongue many excellent treatises on diseases of the eye. It is presented to the profession because I have not deemed that the debt I owe to it could be even approximately satisfied, nor my own reputation as a teacher, whatever that may be, justly settled, unless I presented in a permanent and accessible form some of the results, with their personal coloring, of my long experience both in the hospital and private practice in ophthalmic disease and therapeutics."

Dr. Roosa has properly judged that the "personal coloring" given to the topics of which he treats, will give his book a wide interest. The opinions of one with such vast opportunities for observation, in this country and in Europe, and of such extensive personal experience can not be a matter of indifference to ophthalmologists, and there is no question of the success of the book.

We note with pleasure the wise conservatism of the author in regard to the use of glasses and muscle cutting. Of school children and their eyes, the author says: "These so-called advances in the methods of teaching, involve excessive use of the eyes under sometimes very unfavorable conditions, that is to say, over desks of inappropriate height for the scholars, in rooms poorly lighted, with air that is sometimes foul for hours. Children are given too many studies to work out at home. It is idle to think that any science can combat such conditions as these. The conditions themselves must be changed, or we shall find a race of myopes and asthenopes growing up where formerly we had strong-eyed people."

The publishers have done their work well and the large clear type gives pleasant evidence that in the making of this book they have profited by Dr. Roosa's dictum that "books should always be well printed." (Page 439.)

Heart Studies, Chiefly Clinical. I. The Pulse Sensations; a Study in Tactile Sphygmology. By WM. EWART, M.D. Cantab., F.R.C.P. Lond., etc., etc. With nearly 200 illustrations. Cl., pp. 486. London: Ballière, Tindall and Cox. 1894. Price, \$1.50.

It is refreshing amid the dreary mass of compilations coming to the reviewer's table and books for the issue of which there can be no possible excuse, to meet with a book which displays so much original work and original thought and it will be found no less interesting to the physiologist than to the clinician. The author thus divides his work into seven parts. The first is preceded by the Introduction which contains two chapters: I, "Tactile Sphygmology and Instrumental Sphygmology: a Retrospect. II, "The Sphygmograph and the Finger; Cause of the Lack of Coöperation

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The book under consideration is one of the most original of the year, and deserves a place in the library of every studious physician and surgeon.

PUBLIC HEALTH.

Test for Well Contamination.—The *Journal d'Hygiène* suggests a simple method of determining whether a privy vault communicates with a well of drinking water. Pour into the vault about a pint of a solution of fluorescin—250 grams to 1,000 grams of water. In a very short time, if any communication exists, the well water will be colored a deep red.

Cremation in France.—Judging from the records of the crematory in Père Lachaise, cremation seems to meet with little favor in France. The crematory was established in 1889, but since then only 810 bodies have been incinerated therein. However, the number is slowly increasing from year to year, as the following figures show: 1889, 49; 1890, 121; 1891, 134; 1892, 159; 1893, 199; 1894, including July, 148.

Microbes on Books and Tickets.—In his inaugural thesis (St. Petersburg, 1894), M. Trouskoliavski gives the results of his bacteriologic study of books used by hospital patients and of hospital visitors' tickets, as sources of microbial contagion. Microbiologic examination of newly-printed tickets and books revealed no microbes, but a similar examination of tickets that had been used, and of books that had been read by patients, showed an average of forty-three bacteria to the square centimeter. While many of these are innocuous, some pathogenic bacteria are found—streptococci, tubercle bacilli, etc.—and, affixed to the paper surface, these microbes are found to retain their morbid potency for a long time. Placed on dry sterilized paper, Trouskollavski demonstrated that the comma bacillus remains virulent for from five to

fourteen days; the bacillus typhosus for sixty-three days; the Löffler bacillus for thirty-eight days; and the streptococcus for ninety-eight days. The author dwells upon the danger of turning the leaves of such books by moistening the finger or thumb with saliva—but it is a question whether it is worth while to safeguard those who indulge in such a practice under any circumstances.

A Model Quarantine Station.—The Italian Government has just completed and put into commission a model quarantine station at Syracuse in Sicily. An island in the harbor of Syracuse has been taken for the station, which is built on the site of an old fort of the period of Viceroy Don Garcia de Toledo—the latter half of the sixteenth century. The building, over the gateway to which is the inscription "*Salus populi suprema lex*," is described as divided into two parts—on one side a hospital, provided with every modern appliance to secure pure air, proper drainage and the prevention of contagion; on the other the disinfecting rooms. There are a dead-house for the *post-mortems*, a crematory, and a columbarium for the ashes of cremated bodies. Passengers and crews of vessels from suspected ports—mainly of the East—will be taken into the disrobing rooms, one for each sex; there disrobed and their clothing sent through a hatchway to the disinfecting chambers; after thorough bathing they will pass into the dressing rooms, there to await their disinfected clothing, which, meanwhile, has been subjected to a heat of 120 degrees centigrade. Baggage is treated in the same manner and subsequently both persons and baggage—to which access is freely had—are kept under surveillance for the incubative period of the suspected disease. The provision by which is tested the freedom of the baggage from danger of carrying contagion to the point of ultimate destination, is worthy of note.

Does Prevention Prevent?—One of the most distinguished of American physicians is quoted, in a recent uncontradicted newspaper interview, as saying: "In this category [of dangerous contagious diseases] may be included those diseases that the sanitarians are pleased to call 'preventable diseases!' I have yet to find the preventive or any man who has yet found it." Since the eminent speaker then went on almost immediately to controvert his own statement—by attributing the present surpassingly healthful condition of the city which is honored by his residence to a recent municipal scrubbing up and thorough cleansing—he furnished the antidote to whatever of harm his, no doubt inadvertent, sneer at the sanitarians might otherwise have caused among a public which is justly accustomed to receive his utterances as authoritative and final. There is thus little need for referring to the matter save that—by what our colleague of the *Medical Record* styles "a fortuitous combination of items"—the next article which fell under the eye of the JOURNAL described the methods of prevention of the preventable diseases in the *Hospice des Enfants Assistés* or Foundlings' Home of Paris. These methods are too well known to the readers of the JOURNAL to require repetition; but the answer to the query, "Does prevention prevent?"—could not well be given more conclusively than in the simple historical fact that this institution—until within the last two years the greatest clinical field in the world for the study of measles and diphtheria, which had literally raged as epidemics within its walls for more than a quarter of a century causing a frightful mortality—is now deserted by the students of these diseases because they no longer occur among its inmates. Granted the employment of the preventive, there can be no doubt that prevention does prevent what sanitarians call "the preventable diseases."

An International Bureau of Hygiene.—Dr. Zanni, of Constantinople, has submitted to the editor of the *Medical Press* a series of suggestions for the creation of a Central International Bureau of Hygiene with national branches—each branch to be provided with the necessary appliances and

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Microbes on Books and Tickets.—In his inaugural thesis (St. Petersburg, 1894), M. Trouskoliavski gives the results of his bacteriologic study of books used by hospital patients and of hospital visitors' tickets, as sources of microbial contagion. Microbiologic examination of newly-printed tickets and books revealed no microbes, but a similar examination of tickets that had been used, and of books that had been read by patients, showed an average of forty-three bacteria to the square centimeter. While many of these are innocuous, some pathogenic bacteria are found—streptococci, tubercle bacilli, etc.,—and, affixed to the paper surface, these microbes are found to retain their morbid potency for a long time. Placed on dry sterilized paper, Trouskoliavski demonstrated that the comma bacillus remains virulent for from five to

fourteen days; the bacillus typhosus for sixty-three days; the Löffler bacillus for thirty-eight days; and the streptococcus for ninety-eight days. The author dwells upon the danger of turning the leaves of such books by moistening the finger or thumb with saliva—but it is a question whether it is worth while to safeguard those who indulge in such a practice under any circumstances.

A Model Quarantine Station.—The Italian Government has just completed and put into commission a model quarantine station at Syracuse in Sicily. An island in the harbor of Syracuse has been taken for the station, which is built on the site of an old fort of the period of Viceroy Don Garcia de Toledo—the latter half of the sixteenth century. The building, over the gateway to which is the inscription "*Salus populi suprema lex*," is described as divided into two parts—on one side a hospital, provided with every modern appliance to secure pure air, proper drainage and the prevention of contagion; on the other the disinfecting rooms. There are a dead-house for the *post-mortems*, a crematory, and a columbarium for the ashes of cremated bodies. Passengers and crews of vessels from suspected ports—mainly of the East—will be taken into the disrobing rooms, one for each sex; there disrobed and their clothing sent through a hatchway to the disinfecting chambers; after thorough bathing they will pass into the dressing rooms, there to await their disinfected clothing, which, meanwhile, has been subjected to a heat of 120 degrees centigrade. Baggage is treated in the same manner and subsequently both persons and baggage—to which access is freely had—are kept under surveillance for the incubative period of the suspected disease. The provision by which is tested the freedom of the baggage from danger of carrying contagion to the point of ultimate destination, is worthy of note.

Does Prevention Prevent?—One of the most distinguished of American physicians is quoted, in a recent uncontradicted newspaper interview, as saying: "In this category [of dangerous contagious diseases] may be included those diseases that the sanitarians are pleased to call 'preventable diseases!' I have yet to find the preventive or any man who has yet found it." Since the eminent speaker then went on almost immediately to controvert his own statement—by attributing the present surpassingly healthful condition of the city which is honored by his residence to a recent municipal scrubbing up and thorough cleansing—he furnished the antidote to whatever of harm his, no doubt inadvertent, sneer at the sanitarians might otherwise have caused among a public which is justly accustomed to receive his utterances as authoritative and final. There is thus little need for referring to the matter save that—by what our colleague of the *Medical Record* styles "a fortuitous combination of items"—the next article which fell under the eye of the *JOURNAL* described the methods of prevention of the preventable diseases in the *Hospice des Enfants Assistés* or Foundlings' Home of Paris. These methods are too well known to the readers of the *JOURNAL* to require repetition; but the answer to the query, "Does prevention prevent?"—could not well be given more conclusively than in the simple historical fact that this institution—until within the last two years the greatest clinical field in the world for the study of measles and diphtheria, which had literally raged as epidemics within its walls for more than a quarter of a century causing a frightful mortality—is now deserted by the students of these diseases because they no longer occur among its inmates. Granted the employment of the preventive, there can be no doubt that prevention does prevent what sanitarians call "the preventable diseases."

An International Bureau of Hygiene.—Dr. Zauni, of Constantinople, has submitted to the editor of the *Medical Press* a series of suggestions for the creation of a Central International Bureau of Hygiene with national branches—each branch to be provided with the necessary appliances and

personnel for studying the sources of disease, its development and spread, with especial reference to the prevention of epidemics; the funds necessary for the maintenance of the Central Bureau to be raised by fees for sanitary passports for travelers and by taxes on transport companies and on cattle in transit. The functions of the Bureau, which it is proposed to locate permanently at Berne or Brussels, include the execution of the resolutions adopted by the successive Congresses of Hygiene and the bringing of "the sanitary authorities of the various countries in close and constant communication, its proceedings being embodied in a monthly journal *ad hoc*." At this distance the scheme seems very vague if not visionary. It is not apparent, from the summary of suggestions as published, what authority the Central Bureau or any of the national branches would have to compel travelers to take its sanitary passports or to exact fees therefor, or to levy taxes as indicated; still less what power it could exert to enforce the resolutions adopted by the International Congress. Nor does the *Press* seem at all sanguine of the realization of Dr. Zanni's project, although it has a motive for desiring it which sanitarians in this country can, happily, only partly appreciate. That motive is sufficiently indicated in the following comment: "One of the first steps [of the Central International Bureau] would be to compile rules for the organization of sanitary congresses, international and national, with a view to restricting membership to persons duly qualified to take part in the deliberations and to shut out the troublesome contingent of picnic members whose idea of hygiene is 'high jinks.' Then, and only then, will the decisions arrived at by the members in solemn conclave assembled have weight and value. A sanitary congress must be a meeting of experts and not an aggregation of faddists and rank outsiders, if it is to command the respect of governments and peoples, and the first duty of the International Bureau, if ever it comes into existence, will be to legislate accordingly."

Epidemic Contagious Diseases.—Diphtheria and scarlet fever have both markedly increased during the past week; isolation hospitals have been opened in many localities in consequence and some are already overcrowded; this has been the case for some time in Boston, where it is reported that three or four cots are placed in the private rooms intended for only one patient each and new admissions are refused daily. The first shipment of antitoxin, manufactured in this country, was recently made by Dr. Paul Gibier, Director of the Pasteur Institute in New York, to the Board of Health of New Orleans, where diphtheria has been "raging" for more than a month; a subsequent shipment was made to Toronto. A public subscription has been started by the press of New Orleans for the purchase of the serum and the establishment of a laboratory for its production. Consul-General Charles DeKay reports from Berlin that the demand for the remedy is so great that the hospitals could not be supplied recently, notwithstanding forty horses are used for its production in one establishment alone; as a result the hospital mortality of children under 4, which had been reduced to 11 per cent. in September, rose to 60 per cent. in October.—After repeated contradictory statements in the newspapers for and against the oyster industry, Dr. C. A. Lindsley, Secretary of the Connecticut State Board of Health, reports as the result of his investigation of the recent outbreak of illness among the students of the Wesleyan College at Middletown, that the disease is unquestionably typhoid fever, caused by eating oysters taken near the outlet of a sewer in the Quinnipiac River; twenty cases resulted among those who partook of these infected oysters, including a student from Yale and one from Amherst; two of the Wesleyan students are dead and three of the surviving eighteen are critically ill.—The anticipated recrudescence of smallpox to epidemic proportions with the advent of cold weather has not thus far materialized; the number of cases in Milwaukee

and Chicago remains about stationary; on the 20th inst. there were 106 cases in the former city as against 107 one week previous and 58 in Chicago as against 57 one week previous. The cases traced to the concealed case in the grocer's shop in New York, reported in last week's *JOURNAL*, have given some trouble, by causing a second crop, but the health authorities believe they have now run them all down and that further spread from this source is unlikely. The situation at present speaks well for our municipal sanitary administrations in dealing with this disease under the many handicaps of concealment of cases, opposition to vaccination and resistance to necessary measures of restriction and suppression. An object-lesson in these difficulties is furnished in the story of a recent introduction of the disease into the town of Deerfield, Ohio. A "faith-curer," named Hazzard, while in New York, visited a smallpox patient and treated the case by the "faith cure" methods; returning to Deerfield he promptly developed a well-marked attack of variola, but concealed his condition and refused medical attendance until an unknown number of persons had been exposed.

MISCELLANY.

Change of Address.—Dr. H. A. Kelly has removed to 1406 Eutaw Place, Baltimore, Md.

Progressive Astigmatism.—By an inadvertence which we regret, the Table of Contents last week failed to include the excellent paper of Dr. W. T. Montgomery, of Chicago, on "Progressive Astigmatism."

Appointments.—Dr. A. M. Hurd, for the past year First Assistant Physician of the Buffalo State Hospital has been appointed Superintendent of that institution.

Dr. Augustus H. Buckmaster, has accepted the Chair of Practice of Medicine in the University of Virginia.

New Antidote for Prussic Acid.—M. Johann Antal, a Hungarian chemist, has produced a new compound—the nitrate of cobalt—which is claimed to be a very efficacious antidote in cases of poisoning by cyanid of potash or prussic acid. Used first experimentally with animals, it has been since employed in upward of forty cases of accidental poisoning by the cyanid, and always with success.

Another "Gold Cure" Victim.—An inquest, resulting in a verdict of "death from alcoholism," was held in Chicago on the 12th inst. The victim—a commercial traveler named Dresser—was discharged "cured" from a Keeley Institute about three years since and, for a time, was one of the "star" cures. This makes the sixth or seventh "post" held in that city, within a few months, on "graduates of the gold cure." It might be worth while to gather up the statistics of this kind for the country at large.

Cigarette-Roller's Cramp.—To the already long list of professional palsies—the writers', pianists', typists', milkers', *et al.*,—is now to be added the cigarette-rollers' cramp. It is reported to be very frequent in Spain and to be appearing in France. After a few months work the girls, who roll the cigarettes in those countries, are obliged to cease their occupation—sometimes permanently. They experience intense pain in the joints of their hands and fingers and are often unable for some time to approximate the thumb and index finger.

Honors for Dr. Yersin.—The nomination of Dr. Yersin, Colonial Medical Officer of the second class, to the rank of Chevalier of the Legion of Honor is announced in the official journal of France. After acting as Professor Roux's assistant at the Pasteur Institute for four years, Dr. Yersin proceeded to Hong Kong under a commission from the Minister for the Colonies. His labors there during the plague and in connection with the discovery of the microbe of the pest are well known.

Bequests to Hospitals.—Under the will of the late Edwin J. Leisenring the following named institutions have been remembered with special bequests: The Pennsylvania Hospital of Philadelphia and St. Luke's Hospital of South Bethlehem. They will each receive \$10,000.

Leprosy among African Natives.—A writer in the *Illustrated Africa* states that he has had experience with one hundred cases of leprosy among African negroes, and they were all among males with one exception. The greater degree of cleanliness among African women than among the males is a point of marked difference. The men are too busy to go to the stream and wash. The women need to go to the water daily for their culinary and other purposes, so that it is easy for them to step into the stream before filling their waterpots. Hence at the expense of large average outlay of time in bathing the female is comparatively exempt. The writer finds that fish is an article of diet with many of these African races. The element of heredity does not appear to prevail in their etiology, but the testimony on nice points of this nature is not always accessible, and much that is attempted to be given is unintelligent and unreliable.

Deaver Home for Consumptives.—Under the auspices of the Bishop and Chapter of the Episcopal diocese of Colorado, a home for consumptives is in a fair way to be established in Denver, to which physicians may send their patients in modest circumstances who would be benefited by residence in that climate. The establishment will consist of three separate buildings, one to be occupied exclusively by men, one exclusively by women and the third by mothers with their sons, husbands with their wives and brothers with their sisters, at a cost of \$5 per week for each person—this charge covering board, lodging and medical attendance. It is hoped by this semi-charity to make the climatic advantages of Colorado available to a class of consumptives who are now debarred by reason of the cost of living in Denver and vicinity. There will be accommodations for 216 patients; the medical attendant will be Dr. Samuel A. Fisk, a graduate of Yale and of the Harvard Medical School; the Rev. Frederick W. Oates, rector of All Saints' Church in Denver, will have the direct management and is now in New York securing the necessary funds—to which one lady has subscribed the entire amount requisite to erect the main central building and another lady and a gentlemen have contributed the sum necessary for one of the two other buildings.

Domestic Medicine in the Tennessee Mountains.—A writer in the *Independent*, recruiting in Cloudland, Eastern Tennessee, gives a sketch of the indigenous resources of the hardy mountaineers of that section, when they happen to think that they are not so robust as usual. There is a great paucity of medical diplomas in that section, and principally for the very good reasons that there are neither ill-health or filthy lucre in paying quantities. The writer is a clergyman, and seems to be greatly amused at the many uses to which the ground-hog is put *post-mortem* by the mountain-people. The reference to phthisis, in the paragraph given below, must be held to refer to the few imported cases that reach that country, and not to cases originating therein; the latter are almost, if not entirely, unknown.

In the helplessness of cultivated communities the family doctor is indispensable. But the natural man finds it easy to doctor himself. With 'balsam juice,' the resinous deposit on the bark of *Abies Fraseri*, he cures nearly everything, both outside and inside. The virtues of sarsaparilla and ginseng (the *Aralias*) are understood. Said a mighty Nimrod: 'Ef er hev side pleurisy, an' yer side is swole up es big es yer and, put ground-hog ile on it three nights right hand-unnin.' (And here is *Actomys montan* once more.) Slippery elm (*Ulmus fulva*) helps a bad throat. 'Ramp' (*Allium tricoccum*), though fatal to milk and butter, relieves phthisis. The woods are full of poultices and bitter tonics. Armed with his knife, our mountaineer is capable of heroic surgery, both for his neighbors and himself. Unfortunately, he is apt to have an exaggerated estimate of the medical virtues of 'corn juice,' which too frequently flows from a moonlight ill."

Hospital Notes.

THE CHAMBERS STREET HOSPITAL, NEW YORK.—This emergency institution in New York City is no more. The last patients were discharged or removed on the 7th inst. A new House of Relief has been established at Nos. 67 and 69 Hudson Street, and is now conducted as a branch of the New York Hospital. It is appointed and equipped with all the best modern improvements and is the equal of any institution of its kind in the world, inclusive of an ambulance station especially designed for emergency work.

Washington Notes.

THE DISTRICT MEDICAL SOCIETY.—At the regular meeting of the Society held on the 14th inst., Dr. Henry A. Robbins read a very elaborate essay on syphilis, and Dr. J. W. Bovee presented the specimens and read the history of a case of dermoid cyst, pyosalpinx and double ovarian abscess.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The two hundred and seventeenth meeting of the Society was held on the 16th inst. Dr. H. D. Fry gave the history of a successful case of Cæsarean section and presented the mother and child. He also gave the history of a case of symphyseotomy, and presented the patient who has made a perfect recovery. The regular paper of the evening was read by Dr. Wm. M. Sprigg, entitled a "Case of Double Vagina and Uterus." Dr. W. P. Carr related the history of a case of double uterus with unilateral pregnancy and removal of decomposed fetus and secundines. A very full discussion followed on the different subjects and was participated in by a large number of the members.

SMALLPOX.—There are five new cases of smallpox in the District this week—all traced to the first case (the Coston child). One of the five was not detected until it had recovered and infected three persons in the family in which it occurred and the convalescent had left the city, visited Gainsville, Nacooche, Winder and Athens, Ga. The patient is now believed to be on the return trip home. A lady friend after exposure in the same family is visiting Augusta, Ga. The health officer there has been notified by telegraph. A volunteer nurse at the hospital contracted the disease and died on the 19th inst.

DEATH FROM HYDROPHOBIA.—The four-year-old daughter of F. G. McDermatt residing in Georgetown, D. C., was bitten by a strange dog, about nine weeks ago. The wound was treated by a regular physician and healed promptly. All fears of hydrophobia were at rest until the 11th inst., when she was taken violently ill with rabies, and died in agony on the 14th. A dog which was bitten at the same time has since developed the disease.

THE HOME FOR INCURABLES.—This worthy institution which is more of a necessity than a hospital, and as usual with charitable institutions is very short of funds, has decided to hold a tea in the near future. After years of usefulness they find themselves possessed of forty inmates to cure and \$2.48 in the treasury. Congress makes no appropriation for this hospital and they care for helpless and hopelessly diseased persons hailing from every section of the United States.

Louisville Notes.

FALLS CITY MEDICAL SOCIETY.—Dr. Frank reported the case of a woman upon whom a double ovariectomy had been done, and in whom there developed a fecal fistula seven weeks after the operation. Through this fistula only a few particles of fecal matter passed, but a great deal of gas, and later, seven lumbricoides worms made their exit from the bowel through the fistula. Four months after the operation a subsequent operation was done for the closure of the fistula. The case was reported because of the unusual interest attached to it on account of the passage of the worms from the bowel through the fistula.

ACADEMY OF MEDICINE.—As previously reported through these columns, a society of this name was formed at the meeting held on the evening of the 10th inst. The former effort proved unsuccessful on account of the financial question. After much discussion it was decided that it would not be successful if the Academy met in rented quarters, so the only plan which suggested itself as feasible was to procure from thirty doctors \$300 each, in \$100 yearly payments, with which the building suitable for the purpose was to be purchased and furnished. Many meetings looking to an organization were held, and all but one or two of the requisite number of subscribers secured; a constitution was adopted and all seemed well until the advent of summer, when the enthusiasm died out and the matter was dropped. The meeting held on the 10th inst. was for the purpose of endeavoring to rescue the Academy, and as the other efforts had failed it was decided to raise only sufficient funds to rent a suitable hall and to furnish it. Temporary officers were elected to serve until January 1, as follows: President, Dr. T. L. McDermott; Vice-President, Dr. F. C. Simpson; Secretary, Dr. J. L. Howard; Treasurer, Dr. J. M. Ray. A commodious hall has been rented in the Columbia Building on the sixth floor; it will soon be furnished, and it is to be hoped that the profession at large will take an active interest in the movement.

VACCINATION LAW.—The following is a copy of the letter sent by the Health Officer to the superintendents and teachers of the schools of the city:

"Your attention is called to Sec. 42, P. 673 of the City Code, viz: No principal of any school, and no principal or teacher of any private, sectarian or other school, shall admit to any such school such child or minor who shall not have been vaccinated, etc." and "That every person being the guardian or having the care, custody or control of any minor or other individual, except such as have had smallpox or varioloid, shall cause and procure such minor or individual to be so promptly, frequently and effectively vaccinated that such minor or individual shall not take or be liable to take the smallpox. Any person violating this section shall be liable to a fine in the city court of not less than \$10 nor more than \$20, and shall also be liable to a like fine for every ten days thereafter they shall delay having the operation of vaccination performed."

FOOTBALL.—A serious accident occurred in a game between the Louisville Male High School and the Manual Training School last week. One of the players on the former team sustained a fracture of both bones of one of his legs while on the bottom of a pile of players in a scrimmage. He was removed from the field and a substitute played in his place. The other injuries sustained by the players were trivial.

JOHN N. NORTON MEMORIAL INFIRMARY.—One of the most valuable as well as deserving institutions of this city is the John N. Norton Memorial Infirmary. This infirmary (or hospital) owes its name to a former and much beloved clergyman of the Protestant Episcopal Church in this city, whose widow made a large contribution to it, and by means of this and other but smaller contributions, sufficient means were accumulated to justify the erection of the handsome and spacious four-story building upon the purchased lot at the corner of Third and Oak Streets, one of the most beautiful and quiet residence locations in the city.

The infirmary was first opened for business in the month of December, 1885, since which period it has been liberally patronized by the sick and afflicted, not only of this city and State, but its influence for good has been felt in several other States from which many patients have been sent to the infirmary for treatment.

The furnishings of apartments, laundry, kitchen, offices and operating rooms have been thorough and in the best manner, and these details of arrangement have been made with a completeness that compares most favorably with older and richer establishments; the appointment of the patients' rooms is even luxurious.

The skilful architecture of the building secures perfect ventilation in all its parts and affords ample light to every department. Each has an attractive outlook, and a cheerful view of agreeable surroundings. There is electric communication between all parts of the house and speaking tubes on each floor. There is also a fire alarm in the building. Open fires are used in the patients' rooms and the halls are thoroughly warmed by an approved heating apparatus.

The managers have been most fortunate in securing the

services of Miss N. Gillette, of New York, as Superintendent. Her training and experience have been in the best schools and hospitals, and she has sustained the reputation of her former employments. Attached to the infirmary is an efficient corps of trained nurses. In addition to their usual duties at the infirmary, nurses have from time to time been supplied to patients at their homes. In connection with the infirmary the management maintains a training school for nurses; the pupils are under the instruction of the superintendent and have the advantage of practical experience in all the details of nursing the sick, and in addition to this have a regular course of lectures delivered to them by a staff of physicians and surgeons of the city.

The infirmary is conducted by a board of lady managers duly elected by the vestries of the various Protestant Episcopal Churches of the city, but it is non-sectarian in its management, its doors are open equally alike to persons of all creeds or of no creed whatever, and it is the privilege of patients to employ whatever physician or clergyman they may prefer, uninfluenced by the managers.

The prices for board and rooms are considered low as compared with similar institutions in other cities.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Nov. 10, 1894, to Nov. 16, 1894.

Capt. BENJAMIN L. TEN EYCK, Asst. Surgeon, granted leave of absence for one month.

First Lieut. FRANCIS A. WINTER, Asst. Surgeon, leave of absence granted in S. O. 71, Dept. of Texas, July 25, 1894, is extended one month. By direction of the Secretary of War.

Capt. EUGENE L. SWIFT, Asst. Surgeon, leave of absence granted in S. O. 147, Dept. of Dakota, Oct. 11, 1894, is extended one month. By direction of the Secretary of War.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Nov. 17, 1894.

Medical Inspector J. M. FLINT, detached from the U. S. S. "Baltimore," home and three months' leave.

Surgeon C. U. GRAVATT, ordered to the U. S. S. "Charleston," per steamer Dec. 4, 1894.

Surgeon J. A. HAWKE, detached from the U. S. S. "Charleston," and to the U. S. S. "Baltimore."

Asst. Surgeon J. S. HOPE, ordered to the U. S. R. S. "Franklin."

Asst. Surgeon W. H. BARNUM, detached from U. S. R. S. "Franklin," and to the New York Navy Yard.

P. A. Surgeon M. F. GATES, ordered to the U. S. R. S. "Richmond."

Medical Inspector G. R. BRUSH, ordered before Retiring Board at New York, Nov. 17, 1894.

Surgeon L. G. HENBERGER, detached from Marine Rendezvous, and continue special duty in New York.

Surgeon J. M. STEELE, detached from League Island Navy Yard, and to Marine Rendezvous, New York.

P. A. Surgeon W. H. RUSH, detached from Naval Academy, and to the League Island Navy Yard.

P. A. Surgeon A. M. D. MCCORMICK, ordered to the Naval Academy, Annapolis, Md.

LETTERS RECEIVED.

Alford, J. M., New Orleans, La.; Allport, Frank, (2) Minneapolis, Minn. Allen, E. P., Athens, Pa.

Bailey, C. William, Georgetown, S. C.; Barnes, J. Steele, Milwaukee, Wis.; Breaux, T. W., New Orleans, La.

Cokenower, J. W., Des Moines, Iowa; Crockett, A. R., Boston, Mass.

Chambers, J. H. & Co., St. Louis, Mo.; Coates, Truman, Russellville, Pa.

Cockey, Chas. H., Baltimore, Md.; Chaddock, C. G., (2) St. Louis, Mo.

Caldwell, J. J., Baltimore, Md.; Cutter John A., New York, N. Y.

Detroit Metric Granule Co., (2) Detroit, Mich.; Damrell & Upham Boston, Mass.; Daggett Table Co., Buffalo, N. Y.

Ewing, F. C., New Orleans, La.; Evans, B. D., Morris Plains, N. J.; Emley, G. H., Hillsborough, N. H.; Evans, W. A., Chicago, Ill.

Fougere, E. & Co., New York, N. Y.

Guild, C. H., & Co., Boston, Mass.; Gardner, R. W., New York, N. Y.;

Givens, Jno. W., Blackfoot, Idaho.

Hartwig, C. W., Baltimore, Md.; Hummel, A. L., Philadelphia, Pa.

Jeffery, Alida F., Denver, Col.; Jungblut, H. C., Tripoli, Iowa; Jasbre, J. T., Smlthsburg, Md.

Kidder, Jerome Mfg. Co., New York, N. Y.

Lehn & Pink, New York, N. Y.; Lowdermilk, W. H. & Co., Washington D. C.; Lea Brothers & Co., Philadelphia, Pa.

Murphy, Garrett, Garden City, Minn.; McArthur Hypophosphite Co., Ansonia, Conn.; Martin, F. H., Chicago, Ill.; Monmonier, John N., Baltimore, Md.; Mills, H. R., Port Huron, Mich.; MacMonagle, B., San Francisco, Cal.

Newman, H. P., Chicago, Ill.; Nicholson, W. T., Pittsburg, Pa.

Ottile, Chas., La Crosse, Wis.; Osler William, Baltimore, Md.; Powers, M. I., Iowa Falls, Iowa; Pantagraph Ptg. & Sty. Co., Bloomington, Ill.

Pennington, John L., Baltimore, Md.; Parsons, O. M., Rosby's Rock, W. Va.

Reed, R. C., Stockton, Santa Fe Springs, Cal.; Rudy, Martin, Lancaster, Pa.; Raymer, C. D. Co., Minneapolis, Minn.; Rumford Chemical Works Providence, R. I.

Thompson, May Harris, Chicago, Ill.

Steele, D. A. K., Chicago, Ill.; Scott, T. A., Baker City, Ore.; Stearns Frederick & Co., Detroit, Mich.; Shank, Abram, Clearspring, Md.; Starr, J. N., Snobomish, Wash.; Sellman, W. A. B., Baltimore, Md.

Vetter, J. C., & Co., New York, N. Y.

Waite & Bartlett Mfg. Co., New York, N. Y.; Wyckoff, R. M., Brooklyn, N. Y.; Wandles, H. W., Dallas, Texas; Wescott, C. D., Chicago, Ill.

Yost, W. M. McLean, Baltimore, Md.

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ORIGINAL ARTICLES.

THE DEFECTIVE CLASSES AND LEGISLATION FOR THE PREVENTION OF BLINDNESS.

Read before the Bureau County (Ill.) Medical Society.

BY BOERNE BETTMAN, M.D.

Professor of Ophthalmology in the Chicago Post-Graduate Medical School; Oculist and Aurist to the Michael Reese and German Hospitals; Attending Surgeon to the Illinois Charity Eye and Ear Infirmary; Professor of Ophthalmology and Otology in the College of Physicians and Surgeons, Chicago; President Illinois State Board of Charities.

I do not intend to enter into a discussion of some abstruse medical problem, neither do I contemplate engaging your attention with a learned dissertation on any particular subject. I desire merely to touch upon the A, B, C, of sociology, as far as it pertains to the care and improvement of the so-called defective classes. Later on, I will deal more at length with the subject which lies nearest my heart, the blind, and determine why there are so many of these afflicted beings in the world and how we can prevent this sad misfortune. Under the term, "defective classes," we commonly understand all those individuals who, either owing to some physical infirmity or mental defect, are rendered unable to take up the battle of life on an equal footing with the remainder of mankind. They are handicapped in the struggle for existence. Under this category we must place the deaf and dumb, the blind, the feeble-minded, the insane, the epileptics, and the decrepit paupers. Again, we possess in our midst an ever-increasing set of individuals whose minds are so warped that they have lost all regard for law and order, who will not follow the path of rectitude, to whom the sense of right and wrong is a minus quantity. I refer to the criminal classes commonly termed prisoners. As civilization progresses and the demands and ambitions of society increase, so does the struggle for bread and the luxuries of this world. It is a question of the "survival of the fittest." We are governed by the same laws which control plant and lower animal life. The stronger succeed and come to the top, the weaker succumb and are pushed to the wall. But we differ from the animal in recognizing the debilities, the weaknesses of our fellow-men, and in founding for them institutions where the necessary provisions are made to better their condition. Thus we erect asylums or rather hospitals for the care and treatment of the insane, build schools for the education of the deaf, dumb and blind. We care for our paupers in county almshouses, and we place the offenders of society behind lock and bars. Thus society performs its duty by providing for those who owing to their defects either can not keep apace with it, or who attempt to overthrow its organization or sap at its foundations by preying upon it.

It is well my friends that we always have the poor with us. Their very presence and the demands made

upon us by the weak are in one respect a blessing to mankind. They assist in educating the better nature of man, in lessening the innate selfishness and in one word, in developing and broadening those nobler instincts which we term human. They are constantly teaching us another lesson by which we should profit. Their very existence is the result of violations of the laws of nature, the results of moral wrongs and lethargy of society at large. Their number is constantly increasing owing partly to lack of education, partly to lack of proper State legislation, partly to immigration and last but not least to the lax manner in which our laws are enforced, or rather not carried into execution. You will be surprised to learn what a tale of woe our eleventh census recites in relation to crime and pauperism. One of its disclosures is the disproportionate increase of these classes. In 1850 there was one criminal to 3,500 of the population; in 1890 we have the appalling figures presented to us of 1 to 786.5 of the inhabitants of our country. Just think of this alarming and menacing increase—445 per cent. in forty years, while the population has increased but 170 per cent. If this rate of development continues will there soon be any honest people residing in this, our glorious prosperous country?

Henry M. Boies, in his recent book on "Prisoners and Paupers" shows that this alarming state of affairs does not exist in the other civilized nations. We are a prosperous nation in every respect, not only in the production of wheat, corn and cotton, but even in the raising of criminals. Again, I repeat, what a wonderful booming people we are! In England, criminal convictions have fallen from 15,033 in 1868 to 9,348 in 1889. In Scotland, from 2,490 to 1,723 for the same years, and in Ireland from 3,084 in 1870 to 1,225 in 1890. The population has fairly increased in these countries during the periods mentioned. The number of imprisonments in France has increased but threefold in half a century, but we beat them all. Let us be happy; we always lead in everything. To be just, it is not more than fair to state that exceptional conditions exist in our midst, to account for this excessive disproportion between what Mr. Boies calls the worthy and the unworthy in our citizenship. I have briefly stated the causes of our affliction, but will still add another factor enumerated by the author just quoted: Our colored population numbering 7,470,040 souls (one-eighth or 1.35 per cent. of our total population) contribute one-third of the convict class. Freed from the burdens of slavery and ignorance, subjected to degradations, hemmed in by prejudice, they have been placed at a terrible disadvantage which, to a certain extent, will account for a large percentage of defectives found among them. We must not lose sight of the unrestricted immigration. Twenty per cent. of our population is composed of foreigners of the first and sec-

ond generation. They furnish more than half of the inmates of our reformatories, over one-third of our convicts and nearly three-fifths of all the paupers in our almshouses. Do not these facts verify what I have stated before? Do they not demonstrate that our educational facilities are faulty? Do they not verify beyond a shadow of a doubt that we have entered into a condition of repose and tranquillity akin to the twenty years' slumber of Rip Van Winkle? Do they not indicate that we have closed our eyes to the dangers of unrestricted immigration? Are we going to uphold this glorious Union; will we continue to welcome with open arms into "the land of the free and home of the brave" a horde of foreign, pauperized, benighted individuals? Or will we open our eyes to the calamities which threaten us? Will we endeavor to profit by the experiences of recent years? Will we heed in time the lessons these statistics teach, and enact and enforce wise laws which will result in the establishment of a better humanity, of a higher civilization?

Now, what is the State of Illinois doing to control the class of individuals we are discussing? The census of 1890 shows that we are taking care of, educating and controlling:

| | |
|-------------------------|--------|
| Insane | 6,638 |
| Idiots | 5,249 |
| Deaf and dumb | 2,564 |
| Blind | 2,834 |
| Paupers | 5,395 |
| Prisoners | 3,936 |
| Total | 26,616 |

I have not enumerated the epileptics, the inmates of reformatory and industrial schools, but the above numbers will suffice to show that we are burdened with a heavy load. Besides the abnormal numbers of our community we minister to the care of our worthy brethren, the old soldiers and their orphans. Their fair name must not be tarnished by classifying them at all, except for statistical purposes. To them we owe a debt of gratitude. We are their debtors a thousand times over. It is our bounden duty to mitigate the sufferings of our noble veterans, to lavish comforts upon them, to free them from cares and to surround them with the comforts and luxuries of life. These services we perform with a feeling of pleasure. The children of the dead heroes are our wards. How grateful is the State to bestow a loving and watchful care over their lives.

To provide for this large diversified class of beings intrusted to its care, the State has erected and conducts a great number of institutions. Five insane asylums with over five thousand inmates, patients, are found in various sections of our prairie State; one at Kankakee, one at Elgin, one at Jacksonville, another at Anna and the fifth for insane criminals at Chester. A home for feeble-minded children accomodating over five hundred children is located at Lincoln. The soldiers' orphans' home having, possibly, four hundred inmates was built at Normal in 1867, and the soldiers' and sailors' home at Quincy in 1885. Since 1892, a home for juvenile female offenders was organized, and it is temporarily located in Chicago. A similar institution for boys, the State reform school, has its home in Pontiac. Two more worthy institutions, the institution for the blind and that for the deaf and dumb are carrying on their noble work at Jacksonville. The evil-doers and offenders of our laws are confined in two peniten-

tiaries, the Southern and Joliet prisons. All these institutions are taken care of by the State; the almshouses, jails and numerous reformatories by the counties and private corporations. All these State charitable institutions, conducted by superintendents with an army of employes, and controlled by boards of trustees, are under the absolute supervision of a board of commissioners appointed by the Governor, and called the State Board of Charities. This board consists of five members, whose duties are to audit the accounts of these numerous charities four times a year; to sign orders on the treasury for all moneys expended by them, to exercise an ever watchful control on the welfare and treatment of the State's wards; to suggest innovations and improvements in the running of the institutions; to plan a wise policy for the solution of social problems which are constantly confronting us; to educate themselves through reading and attendance at conventions of national boards, in order to be enabled to give the State the best services it can demand from conscientious, honorable human beings. And how large an appropriation do you think the last Legislature assigned to this Board for expenses it incurs to perform its multitudinous duties? The magnificent sum of \$3,000! Just think of it! Three thousand dollars for the secretary's and clerk's salary, for office expenses and for the traveling expenses of its commissioners.

The State demands that these institutions be visited a certain number of times a year and appropriates a beggarly sum of \$3,000. The State Board of Health, which is to control and look after the health of the entire community; to keep out smallpox, cholera, scarlet fever; to perfect our water supply, and prevent typhoid fever, and perform a thousand and one duties is also richly compensated. Its appropriation is \$9,000, but it also has a contingent fund of \$10,000 to draw on, in case some terrible epidemic should attack us. The Board of Live Stock Commissioners receive \$15,000 per annum and a contingent fund of \$25,000. But you must remember it is far more important to raise a fine herd of sheep or cattle than a brood of children. It is far wiser to show fat, sleek oxen and cows at the State Fair than to save men and women from the ravages of cholera, smallpox and typhoid fever, to prevent crime, to restore lunatics to their normal condition. The Fish Commissioners receive \$10,000 a year, so that our ponds and rivers may be well filled with the finny tribe to induce boys to play "hookey" and break the Sabbath. I will not mention what the warehouse commission and the geological museum and other organizations receive. It will suffice to say that two bodies, the Board of Charities and the Board of Health, probably, if I do say it myself, the two most important boards in the State, get for this reason the smallest appropriation of all. Is it not strange that in this, the nineteenth century, the breeding of cattle and fish is regarded as of greater value than the education and reform of human beings and the preservation of good health? Does this not indicate the trend of human effort, especially marked in our country, the scramble after the almighty dollar? Every effort, all our energies are devoted to the accumulation of gold at the expense of vitality. Our legislators having more knowledge and inclination for strictly commercial pursuits are ready to sustain and richly endow such organizations, which stimulate and

improve trade, while movements which tend toward research and investigation, the objects of which are entirely beneficiary, and which enrich society at large, which make the life we live more beautiful and refreshing, are either ignored or provided for with such scanty means that work of real value can not be undertaken.

I do not wish to convey the idea that the State does not expend large sums of money for the care of its defective classes, but what I do mean to say, and that emphatically is, that after the institutions are built and manned, the State does not provide sufficient funds for the organization of a capable board of supervisors, whose duties it should be to introduce ways and means by which a large part of this wealth could be saved or expended for wiser purposes, who could introduce methods by which much of the misery now housed in our institutes could be prevented. I hear you say to yourselves, Can insanity be prevented? Can pauperism be avoided? Can you put a "for rent" sign on our prisons? Do you mean to say that children need not become deaf and dumb, and can you prevent blindness? To all these questions I answer, yes, to a large degree. But it would take too long to enter into a detailed description of this immense subject, the study of prevention. I will, however, as an example of preventive methods, indicate to you how a large percentage of blindness can be avoided. I will inform you how from 25 to 40 per cent. of the inmates of our blind asylums would at the present day be useful and contented individuals, would be in possession of an important sense, if the matter had been seriously considered by our law-makers years ago. In order to discuss this question intelligently, let us first discover to what percentage blindness exists in this country, and then what leads to this affliction. By turning to the last census, that of 1890, we learn that there were in that year, 50,411 blind in the United States—806 blind to every 1,000,000 of the population. In 1850 there were but 9,794—422 to every 1,000,000 of the population, which was then 23,194,896, and in 1890 62,622,250. So that although the total population in forty years has not increased threefold, the number of blind is more than five times greater. The State of Illinois in 1850 contained only 264 sightless beings, 310 to 1,000,000. In 1890 the number was swelled to 2,834—741 to 1,000,000 inhabitants. Our blind asylum at Jacksonville has cost the State up to 1892, \$1,156,690.25. A great deal of money you will say. I agree with you. It was well spent, however. For a number of years we have been taking excellent care of those who, literally speaking, grope their way in darkness. But would it not have been more humane to have saved for 25 per cent. of them their vision? How much better they could have paddled their own canoe and selected a path more suitable and genial. And one-quarter of the total sum, almost three hundred thousand dollars could have been expended for some other necessary object, and the 25 per cent. of blind would now be useful citizens, earning livelihoods tilling the soil and assisting in the work of the world. Before trying to prevent blindness we must know what produces it, otherwise our efforts will be unavailing.

It has taken us years and years to discover the cause of diphtheria, and it is only a few years ago that we succeeded, and only recently the papers were

proclaiming to the world the cure and possible prevention of this dreaded malady. You all have heard by this time of Professor Behring and his wonderful antitoxin.

For years and years, oculists have noted down those diseases which produce or are followed by destruction of vision. They have been tabulated under various headings. That inventory of misery has been most perfectly arranged by Professor Magnus. In an examination of 2,528 cases of double-sided blindness he found that 3.77 per cent. were born thus; 66.5 per cent. lost their eyes through primary diseases of these organs; 10.7 per cent. were caused by injuries, and 19 per cent. were due to diseases of the body as, for instance, affections of the brain which secondarily destroyed the sight. In looking over these accurate tables we will come to the conclusion that a certain amount of blindness will always exist. We probably will not be able to prevent children from being born blind. Possibly, if human beings could be subjected to the same routine of breeding we employ with cattle, a certain percentage even of these cases, congenital blind, would not occur. We can not prevent all accidents, although safeguards can be taken to reduce the percentage of loss of vision due to these causes. Thus working men engaged in factories and foundries have been advised to guard their eyes against flying bits of iron and steel, by wearing protective mica goggles. Neither can we as yet entirely insure the eyes against the ravages of small-pox, meningitis, etc. The best field, therefore, for the introduction of preventive measures is offered by that chapter dealing with so-called idiopathic diseases of the eyeball, that class of diseases which produce 66 per cent. of blindness. Let us give it closer attention and we will discover that there exist two ailments which are largely responsible for the malady we want to prevent. I refer to granulated lids and ophthalmia of new-born babes. Granulated lids can be prevented by exercising proper care and precautions against infection, and even when present can readily be cured without causing serious results, if such cases are properly handled.

I will, however, speak only of the second category of cases, ophthalmia of new-born children. Different authorities claim from 25 to 50 per cent. of blindness is due to this disease alone. Thus Reinhardt found 30.33 per cent. in a material of 2,165 individual inmates of twenty-two blind asylums. Claisse, of Paris, 46 per cent.; Katz, of Berlin, 41 per cent., and Magnus, of Breslau, 34 per cent. What is ophthalmia neonatorum, which means purulent eye affection of new-born children? It is an inflammation of the inner surface of the lids of babes, coming on two or three days after birth and is caused by infectious matter lodging in the eyes while the newcomer is being ushered into this world. Can this be prevented, and if so, how? Every physician has heard of the prophylactic measures of Hausmann and Credé. The first aims to render the tract through which the child passes absolutely clean (aseptic) by ordering antiseptic douches. The latter, Credé, makes the germs which have lodged between the lids of the child's eyes innocuous, destroys them, by dropping into the conjunctival sac a 2 per cent. solution of nitrate of silver. Statistics gleaned from the largest hospitals in the world have proved effectually that these methods will abort, check or rather positively prevent the disease in nearly all cases. Before Credé's

method was introduced in Leipsic the disease appeared in over 6 per cent. of all obstetrical cases; after its thorough introduction the percentage was reduced to a fraction of 1 per cent. Here is a simple remedy which, if carried out, will prevent at least 25 per cent. of blindness. Professor Fuchs in his work on "Prevention of Blindness" tabulates a list of thousands of cases of births, illustrating the prophylactic effects of various remedies, but he finds none so efficacious to prevent blennorrhœa neonatorum as Credé's method. Dr. Lucien Howe, of Buffalo, collected two groups of cases; in the one 8,798 cases, no precautions were employed; in the second group, 8,574 cases, a single drop of a 2 per cent. solution of nitrate of silver was instilled between the lids. In the former the cases of blennorrhœa reached 8.66 per cent.; in the latter it was reduced to 0.656 per cent.

I could, if necessary, multiply these statistics of the preventive powers of a 2 per cent. solution of nitrate of silver, but those I have already mentioned will answer to impress upon you its usefulness, and the necessity of its general introduction. Now that I have shown its great importance it may be well to dwell, if only for a moment, upon its method of application. Immediately after birth the infant's eyes are cleansed with a dry cloth and all secretions adherent to the face and eyebrows are carefully removed. The lids are then separated and a single drop of a 2 per cent. solution of nitrate of silver, that is ten grains to the ounce, is instilled into the eye. In order to obtain a single drop only, Credé advises the employment of a glass rod which is to be dipped into the silver solution and only one drop allowed to adhere to its end. If, however, these safeguards should fail in some cases, or perhaps have not been employed and the ophthalmia should make its appearance, it can be cured in fully 99 per cent. of all cases, if the proper remedies are immediately applied. This disease calls for prompt and immediate action; delay of a few hours is often dangerous and may result in ulceration of the front of the eye and subsequent loss of vision. The physician has at his command powerful and adequate remedies to guard against complications and insure a cure in the great majority of cases.

But what has all this to do with legislation for the prevention of blindness, you will say. If these methods are so efficient, as you assert, and are practiced by all conscientious physicians, why does the disease still occur? What need to introduce laws when physicians graduated from reputable schools of medicine have it in their power to eliminate from our records all traces of this malady? Your questions are timely and pertinent and they can be readily answered by in turn putting a question to you. Are all obstetrical cases conducted by physicians? No. Unfortunately, no. Of the 28,743 births recorded in Cook County last year more than half were reported by midwives. The last official register of midwives of this State contains a list of 1,152. Of these, 700 are located in the city of Chicago. They are not acquainted with the latest researches in medicine. How should they be? The majority of them are ignorant. Their services are ordinarily called for by the poor and benighted. Their very existence is a reminder of olden times when physicians were scarce and the population scattered. In those days it was necessary to have at hand individuals who at least could attend to emergencies, quasi physicians who, owing to a limited experience could perform certain duties better

at least than the laity. In Germany to this very day, the barber acts as dentist in many villages. But as the science of dentistry increases, people are not so willing to have their teeth jerked out by the barber, but prefer to consult educated physicians, dentists, who frequently fill and save teeth which the knight of the razor would have unfeelingly sacrificed. The same is true of the midwife. Her services are no longer essential as formerly. But it would be difficult to convince the community at large of her indispensability, and as long as we must have her with us, let us at least educate her or place such restrictions upon her that she can not do any harm. We practitioners, and especially we oculists, are acquainted with her ministrations to the poor afflicted infants. The usual popular remedies such as milk, camomile tea, and other worthless noxious remedies are applied to the suppurating lids of the inflamed eyes, and only after valuable time has been lost the physician is called in; usually he finds that the disease which has been sadly neglected has made such serious inroads on the eyes of the infants that all hope of restoring vision has vanished. Again, if their education were sufficiently advanced to enforce antiseptic measures before parturition the results might not be so sad.

This State does not exercise sufficient control over midwives. It should demand a stringent examination on the points just elucidated, before a certificate is issued. I have learned on inquiry at the office of the State Board of Health that such questions, having a bearing on the subject under discussion, have up to the present time never been asked. I requested that the matter be brought to the attention of the Commissioners of Health, and have the satisfaction of knowing that this defect, at least, will soon be remedied. But a stronger action than this should be taken; we should subject the midwife to the action of the law if she does not perform her duty. We must insist that inflammation of the child's eyes be treated by a competent physician, by a man versed in sciences, by an individual who by virtue of his education and studies is the only reliable one to perform such services. A carpenter is not an architect, a bookseller is not necessarily a writer of prose and poetry. A blacksmith is not a veterinary surgeon, a midwife is not an oculist. We often make the barber, blacksmith, and carpenter act as doctors when we put them in a jury box and let them decide the mental condition of a person said to be insane. Do not regard these words as an attack against the midwife personally. It is not her fault if the State does not give her the opportunity of perfecting herself in her business. I can hardly call it a profession. It is not her fault if she is not instructed properly and makes use of the opportunities afforded her to earn an honest penny. It is the system I attack, a system which permits ignorance and superficiality to strut unhindered throughout the land. This indifference to high requirements is met with in nearly all branches of industry and learning. The days of apprenticeship have unfortunately passed. Would that they would soon return and with them the feeling of security and of labor honestly performed. In not all cases is the loss of the child's eyes due to the attendant midwife; often ignorance and penury of the parents is the promoting cause. Frequently they will not listen to the nurse, but will insist upon the use of home remedies, or anxious to save the doctor's

fee defer calling him until the chances of curing the disease and saving the eyes have passed. Sometimes, although I am happy to say rarely, the physician himself is to blame in not calling to his assistance the aid of an expert. How can we save the innocent child from the dangers which threaten it at the very outset of its career? Or, as Dr. Howe in his address, read at the forty-fourth annual meeting of the AMERICAN MEDICAL ASSOCIATION, says: "What means can be adopted to bring these children as soon as possible to the notice of a competent physician? Education of the laity is useless; urging the nurses, professional or others, is equally insufficient. It remains only to place the responsibility at once where it belongs by imposing upon such persons a severe penalty. The surest and best means of accomplishing this is undoubtedly by legislation."

Again, he says: "A question might arise as to what advantage it is to oblige nurses and midwives to report a disease of which a certain class of so-called doctors are almost as ignorant as the nurses themselves. The answer to this is threefold:

"1. The nurse is made to appreciate her responsibility, not only in that case, but in others, and to know that the condition indicated by redness and discharge is not anything to be trifled with.

"2. The parents also become alarmed when they know the disease is sufficiently serious to be the subject of special legislation, so that in choosing a practitioner they select with more than ordinary care. Finally, as for the physician himself, if he accepts the case he feels that he must understand it thoroughly, and he will be apt to look it up with considerable care in text-books, and treat it intelligently. Above all, if he fails to do that, the parents have a responsible individual against whom they can with perfect justice enter a suit for malpractice, and if he has proved himself incompetent he not only suffers the penalty which a law has provided for him, but one such case would be an example to him and to other practitioners in the community in which it occurred."

The older European countries have long ago recognized the seriousness of ophthalmia of the new-born and have adopted measures which have borne bountiful fruit. Switzerland, as early as 1865, made it obligatory on the part of the nurse to call the parent's attention to the necessity of calling in a physician in case ophthalmia made its appearance. If the parents refuse, it is her duty to immediately inform the authorities. In that country, parents are forced to meet their obligations to their innocent children. When parents are so ignorant that they know not how to provide for their offspring, the State should be given authority to supply the brain material they lack. If the child becomes blind it is a burden to society, and society has the same right individuals have, to enforce the first law of nature, and that is self-protection. The working of this law in Switzerland is exemplified by the statement of Professor Horner, made some years ago, to the fact that not a single case of blindness due to ophthalmia of the newborn had applied for admission in the blind asylum of Zurich since 1865. In Havre, France, every case of birth must be immediately registered at the city hall and the parents are handed or sent a small pamphlet informing them of the dangers of the disease we are discussing, and containing a brief summary of the methods to be enforced for the pre-

vention and cure of this disease. Other communities of France take still greater pains to imbue the public with their humanitarian ideas. When applicants for matrimony receive a license they are at the same time presented with a pamphlet similar to the one just referred to. These references will indicate to you the importance European nations attach to this subject. Prussia, Bavaria, Saxony, Wurtemberg, Austria, France, and other countries have, years ago, recognized the value of prophylactic measures and have, through proper legislation, bettered the condition of mankind and saved the State millions upon millions of dollars. What have we done in America in this regard? We did not profit by the experience of older nations until 1890. Twenty-five years after the little republic of Switzerland enacted its law, the great State of New York passed through both houses of the Legislature an Act for the Prevention of Blindness, which reads as follows:

SECTION 1.—Should any midwife or nurse having charge of an infant in this State, notice that one or both eyes of such infant are inflamed or reddened at any time within two weeks after its birth, it shall be the duty of such midwife or nurse having charge of such infant, to report the fact in writing, within six hours, to the Health Officer or some legally qualified practitioner of medicine of the city, town or district, in which the parents of the infant reside.

SEC. 2.—Any failure to comply with the provisions of this act, shall be punishable by a fine not to exceed one hundred dollars, or imprisonment not to exceed six months or both.

SEC. 3.—This act shall take effect on the first of September, eighteen hundred and ninety.

Maine followed suit in 1891, and omitted in its law the word, *notice*, in Section 1, in order to defeat any evasion of the spirit of the law which the word, *notice*, might give rise to.

Last year, in 1893, the State of Rhode Island also came into the line of States who have an eye to the welfare of its citizens. Maryland only lately, a few months ago if I am correctly informed, adopted the measures we hope to enact at the next meeting of the Legislature. The attempt was made two years ago but failed. I have in my hands a copy of the bill presented in February, 1893. It reads as follows:

28th Assembly. SENATE—No. 140. February, 1893.

A BILL

For an Act for the Prevention of Blindness.

SECTION 1.—Be it enacted by the People of the State of Illinois represented in the General Assembly, Should any accoucheur, midwife or nurse having charge of an infant in this State notice that one or both eyes of such infant are inflamed or reddened at any time within two weeks after its birth, it shall be the duty of such accoucheur, midwife or nurse, so having charge of such infant to report the fact in writing within six hours to the Health Officer of the city, town, village, district or precinct or some legally qualified available practitioner of medicine.

SEC. 2.—Any failure to comply with the provisions of this act shall be punished by a fine not to exceed one hundred dollars, or imprisonment in the county jail not to exceed six months, or both.

SEC. 3.—It shall be the duty of the State's Attorney of the county in which the parents of such infant reside, to institute and conduct such prosecutions in the name of the people of the State of Illinois upon complaint made to him by any person interested.

The bill must not be ignored a second time. The great State of Illinois which has been the champion of so many worthy enterprises can not afford to disgrace itself in the eyes of the civilized world.

There is no political question at issue here; it should appeal to the democrat as well as to the republican; to the populist as well as to the prohibitionist. Possibly it will find especial favor with the lat-

ter, because it is a prohibitive measure. There is no money in it for the doctor, because no physician exists who is not willing at all times to answer the call of charity. And if the parents live in larger cities, their babe can always demand the service of the county physician or others engaged in hospitals and dispensaries. The midwife is not affected by the contemplated law, at least not in a monetary way. It is entirely and absolutely humanitarian in its effect. Nobody but the child and society are to derive profit through its passage.

Let me call your attention to an argument for its passage which will appeal to many. If one-third of the blindness in this country which is due to blennorrhoea neonatorum could have been prevented, we would now count among our normal wage-earners 17,000 more individuals. Suppose the daily earning of each amounted to \$2 per day or \$600 per year, for the entire number the sum total would be \$10,200,000. In other words the country loses \$10,200,000 yearly by the affliction of 17,000 citizens, and the country would also save one-third the amount now expended for their maintenance. I am not able to describe the happiness, the untold pleasures and joys these 17,000 would experience if their vision were restored.

You, as physicians, assembled here, must utilize your knowledge of a noble science by spreading useful information among the people at large. You know that "an ounce of prevention is worth more than a pound of cure." You know that the science of hygiene has made enormous progress during the last twenty years. You know that we are now able to resist the inroads of epidemics and many contagious diseases. By your teachings and your influence in the community you can do much to popularize this one branch of hygiene. You, citizens, by the power of the ballot can send to the assembly halls such representatives as will carry out the duties you impose upon them. You, legislators and senators, if you are broad-minded and abreast of the times, if you are willing to study and improve social conditions, will not fail at the next meeting of our legislative body to pass an Act for the Prevention of Blindness.

NEEDED SANITARY LEGISLATION.

Read before the Illinois State Board of Health Auxillary Association at Springfield, Ill., Nov. 13, 1894.

BY ARTHUR R REYNOLDS, M.D.
HEALTH COMMISSIONER OF CHICAGO.

In offering these remarks as to needed legislation in the interests of the public health, I follow some indications suggested as much by observation in my practice as by experience in my official position. In Chicago, where is concentrated more than one-third of the population of the State of Illinois, many of the defects and inadequacies of existing health laws are more apparent than in smaller communities; evils that are scarcely felt in the rural districts, and only slightly in smaller municipalities, strongly impress themselves upon us.

I shall, however, confine myself to a few subjects in regard to which it seems to me some general legislation, applicable to the whole State, is needed or would, at least, be advisable. Even if the necessity therefor seems the greater in such a center of population as Chicago and is hardly felt in many other localities, it does not follow that these latter would

not be greatly benefited by a reform in some particulars.

VITAL STATISTICS.

Among the more important of these subjects is the question of vital statistics. For many reasons the desirability of a correct registration of deaths and their causes and of births is obvious and, to some extent, has been recognized. Illinois has in its statutes certain provisions for the securing of reports of births and deaths; but in practice these are far from being satisfactorily obeyed.

In the city of Chicago and in other Illinois towns of considerable size, deaths are probably more fully reported than they are in the State generally, and the same may, presumably, be said as to the registration of births. The completeness of the latter, however, is not so easily guaranteed, and evasions of the law are undoubtedly more numerous than in the case of deaths. The causes of this defect are recognized in the legislation of some States where the registration is more accurate and elaborate than with us, and where it may be considered a measurable success; for example, in Connecticut—one of the few States of the Union whose statistics are quoted as of some value in this respect. There, no penalty is imposed upon the physician who fails to report a death, for the reason that no burial or disposal of a body can take place without the certificate of the attending physician or that of the official medical examiner. A penalty is, however, attached to the failure to report a birth within a certain specified time while, on the other hand, a small fee is paid by the town for every such report. The town clerk is the registrar, and this insures a fairly correct return in the rural districts, since the territory is usually small, the population not dense and the concealment of a birth hardly a possibility.

Under our system of deputizing this duty to the county clerks, without even a nominal compensation to the reporting physician or midwife, there is no possibility of so immediate an oversight, and the chances for defects in the records are multiplied. There is no doubt that births go unreported to a very large extent in all parts of the State, and this is also true as to deaths, except in the cities and towns which enforce the burial permit ordinance of the State Board of Health or its equivalent.

The advantages and needs of accurate birth registration are daily demonstrated in the experience of the Health Department of the city of Chicago; questions are constantly arising which can not always be answered for the lack of it. This is not a matter of merely scientific interest; it is a practical one, and I think it should be impressed upon our legislators that what we ask in this direction is not solely in the interests of State medicine or of sanitary administration. As a matter of fact, while these interests are of importance to us, the full and authentic record of births is of greater and growing importance to the public.

There is hardly a relation in life, from the cradle to the grave, in which such a record may not prove to be of the greatest value. For example, in the matter of descent; in the relations of guardians and wards; in the disabilities of minors; in the administration of estates; the settlement of insurance and pensions; the requirements of foreign countries in matters of residence, marriage and legacies; in marriage in our own country; in voting and in jury and

militia service; in the right to admission and practice in the professions and to many public offices; in the enforcement of laws relating to education and to child labor, as well as to various matters in the criminal code—the irresponsibility of children under 10 for crime or misdemeanor, the determination of the “age of consent,” etc. As the country becomes more densely settled and the struggle for existence sharper, many of these matters, which have hitherto been of minor significance, will take on a deeper meaning and acquire greater importance.

To illustrate some of these points I may cite an instance or two under my own observation as Commissioner of Health. A German woman, who had recently lost her husband, applied at the office for a certificate of the birth of one of her children; her brother in Breslau, also recently deceased, had left her youngest child, named after the uncle, a remembrance in his will. A certificate of the child's birth was necessary. Records of births are not kept in the Health Department, but in the office of the county clerk to which the woman was directed. Fortunately, the birth had been recorded and a certificate of the record, duly attested by the German consul, was prepared, forwarded to Breslau and in due time the poor woman received the amount of the legacy, \$360—no doubt a godsend to her. In another case a Frenchman applied for similar evidence of a birth several years previously—exact date not known; the first search proved fruitless, and the man then endeavored to find the midwife who had attended, but she had removed to Kankakee soon after the birth and had been dead two years. Another application and search unearthed a volume of records antedating the present Registrar's term and the record was found. Other cases have come to my knowledge in which the record of birth had been neglected and other evidence had to be procured; protracted delay was caused and some of these cases are not yet settled, because of inability to comply with the legal requirements as to proof of birth. The United States pension office is especially strict as to this proof in the case of a pensioner's children—payments to whom cease at 16 years of age, which makes the date of birth important.

It is true that in this country the “best attainable evidence” is accepted in the absence of the official record. But in foreign countries they are much more exacting than we are as to the “best attainable evidence,” and to obtain such evidence, outside the official records, entails delay, labor and expense.

The best evidence, the most accessible and the most uniformly accepted, is that furnished by the registry of birth in the records of the officer legally authorized to make and keep such records. Dr. Neely, the Registrar of Vital Statistics for Cook County, tells me he furnishes an average of about one thousand certificates a year based upon his records, and these certificates are final and conclusive as to the facts. But a very large number of applications for these certificates can not be supplied because the birth was not recorded and other evidence must be hunted up.

Efforts to secure the registration of births in this State have thus far met with very little success. Thus, in the Report on the Vital Statistics of Illinois for 1886—which I believe is the latest on the subject published by the State Board of Health—the birth-rate for the whole State figures out, according to the

tables, only 17 per 1,000 and it was only 25 per 1,000 for Cook County and 31 for Chicago.

I may be allowed to dwell a little in detail upon Cook County since I am more familiar with it than with any other county of the State, and also because its vital statistics strikingly illustrate the defective birth registration outside the larger cities.

In 1886 the population of Cook County—assuming it to have been the mean of the figures of the Federal census of 1880 and of that of 1890—was 899,700, and the births registered in the county clerk's office numbered 22,779—a birthrate of 25 for every 1,000 of the population. (For convenience I use generally the nearest full figures, omitting the decimals; the exact figures of the birthrate just cited would be 25.31, but 25 is near enough for practical purposes; if it were 26.60 we should call it 26). The birthrate for the whole county, Chicago included, was as I have just said, 25 for every 1,000. But 703,817 of the total population resided within the Chicago city limits, and of the total 22,779 all but 940, or 21,839, belonged to Chicago—making the birthrate of the city for 1886, 31 for every 1,000, while that of the rest of the county was less than half of 1 for every 1,000.

Although this birthrate for the city was undoubtedly too low it apparently fell off still more in the census year 1890. For that year the population of the county was 1,191,922 (United States census) and the number of births registered was 24,217, giving a birth rate of a fraction less than 13 per 1,000. The population of the city was 1,008,576 and the registered births 23,219—a rate of 23 per 1,000 as against 31 per 1,000 in 1886. In the rest of the county, with a population of 183,346, the number of births registered was 998—a gain of nearly 30 per cent. over 1886, as compared with the population, but still giving the absurd birthrate of less than 1 in 1,000.

It should be explained that the apparent loss of population in the rest of the county outside of Chicago—195,900 in 1886, and only 183,346 four years later, is due to the fact that considerable territory was annexed to Chicago during the period. The population was not lost; it was only transferred to Chicago. This transfer unquestionably had much to do with the apparent reduction of the Chicago birthrate, since it is not likely that the mere change of boundary lines effected any change in the customs of the doctors and midwives or of the people; if they failed to report births before, they would be apt to continue to do so after annexation, at least for a time. As the area thus annexed embraced nearly 140 square miles with a population in 1890 of more than 250,000 of those who, in 1886, returned births at a rate of less than one half of 1 per 1,000, this fact is quite sufficient to account for the apparent falling off in the Chicago rate in 1890.

Dr. Neely tells me that in his opinion about 40 per cent. of the births in the whole county—Chicago included—are not reported. On this estimate of deficiency the birthrate would be about 34 per 1,000 for the county in 1890. But this is assuredly too low. Dr. John S. Billings fixes the true birthrate of the whole country at 36 per 1,000, and there is no reason to believe that the mothers of the great State of Illinois fall below the general average of mothers in other States.

Dr. Neely is probably more nearly correct when he estimates the deficiency in the county outside of Chicago at 75 per cent. which would make the Chi-

Chicago deficiency that much proportionately less. If we deduct this excess of deficiency from the Chicago returns, it would enable us to fix the true birthrate of the city at 38.7 per 1,000. When we take into consideration the fact that the average birthrate of a number of representative foreign cities, including those of Great Britain, Germany, Russia and other continental countries, is a little more than 39 per 1,000; that the birthrate of Moscow is 41.5, of Berlin 42.6, of Alexandria in Egypt 45, and of Montreal 47.6 per 1,000; and that Dr. Tracy, Registrar of Vital Statistics for New York City, basing his estimate on the marriage ratio, fixes the birthrate of that city at nearly 38 per 1,000, it will be seen that Dr. Neely's long experience and observation have enabled him to approximate very closely to the standard of deficiency in the returns.

The composite of the foreign cities referred to may be taken as fairly representative of the cosmopolitan character of the population of Chicago, and there is no obvious reason why the Chicago birthrate should not be at least as high as their average, when we take into account the virile character of its population, the large proportion of the nubile age period and the conditions of living—comfort, food, habitations, clothing, etc.

Let me return for a moment to the contrast between the birth returns of a large city and those of the rural districts as illustrated in Chicago and Cook County. The rates per thousand have already shown this in the mass, but Dr. Neely tells me there are localities in the county, outside of the city, in which, according to his records, there can be no children living under 8 years of age, unless they have been brought in after birth; even in the town of Evanston, with 12,000 population, there has been no baby born to his official knowledge within the past three years—if we exclude the volunteer statement of a woman who recently visited the Registrar's office to secure the record of the births of her four children in that seat of learning and abode of the virtues.

What is true of Cook County is true, also, of the other counties of the State—differing only in degree. Thus, referring again to the 1886 tables of the State Board of Health, we find that Jersey, Pulaski, Putnam, Stark and Wayne Counties reported 60 births or less in each county, which would indicate about 4 births to every 1,000 of population. In Wayne County, according to this report, they have only two babies and a little piece of one every year among every thousand people living in that otherwise fertile and prolific region.

On the other hand, in some counties, such as Adams, Kane, LaSalle, McLean, Madison, Peoria, St. Clair, Sangamon and Will, which contain large towns and are pretty well settled, a much better proportion is reported. This group had, in the year of the report, 1886, an aggregate of 546,000 population and returned 7,629 births, giving a rate of 14 per 1,000. In St. Clair County the rate was 19; in McLean, 18; in LaSalle, 16; in Kane, 16; in Adams, 14; and in Peoria 13 per 1,000. Only in Madison, where the rate was 11, in Sangamon with a rate of 10, and in Will with a rate of only 7 per 1,000, did the returns from this group fall below those of Cook, in 1890, when it was less than 13.

If we were to take these figures as representing the actual facts we should have to look forward to the speedy extinction of our rural population, the

stock to which we look to make up for the degenerative influences of urban life and tendencies. The natural and inevitable interpretation of these figures is that applied to the boy's historic conundrum,—“they haven't the truth in them.”

What is the use of depending for accurate statistics of births on a penalty applied only to the physician for non-reporting them, when in some sections half, and in all regions an appreciable proportion of them, never come under his professional observation? The only way to make the penalty effective would be to apply it to the parents and to the householders where the birth occurs, and to make it still more effective in the rural districts the first and direct registration should be one of the duties of the town clerk or supervisor, he to report to the county clerk, or directly to the State Board of Health, thus securing a narrowed responsibility and a more practicable supervision as well as facilitating the detection and location of errors. Some such provisions as these have often been advocated by the State Board of Health but have not yet become laws.

In the registration of deaths the results are much more satisfactory. In one of the recent reports of the State Board of Health it is estimated that 80 per cent. of all physicians in the State now report deaths and their causes, which would imply that at least 80 per cent. of the total deaths in the State are recorded. In towns and cities where the burial permit ordinance is in force, substantially all deaths are accounted for, and the only suggestions of amendment in the registration of deaths and their causes which I have to offer are: 1, the enactment of a law extending the provisions of this ordinance to all cemeteries and burial places throughout the State; 2, that such law should require that the certificate of the cause of death, on which the permit is based, should be examined by a medical man competent to judge of the sufficiency of the cause specified; and, lastly, the adoption of a uniform classification and nomenclature of the causes of death.

With these amendments the medical profession, health officers and the public at large would, in a short time, be able to determine whether a given deathrate in a community was excessive or not, and what disease or diseases caused such excess. With this knowledge the health officer could intelligently investigate the causes and if found to be due to insanitary conditions it would be more easy to enlist the interest and coöperation of the public to secure their correction. It is not enough to preach sanitation in the abstract—to talk about the importance of good drainage, pure water, ventilation and the rest of it. To get the public to understand these matters we must be able to give them object lessons, to furnish facts and figures in the same way we would do in any other business in which we desired their attention and interest. When we can put our fingers on an excess of deaths from consumption, or typhoid fever, or diphtheria, or among infants and children in a given locality, as compared with other places, and show that the excess is caused by defective drainage, or polluted water, or imperfect or improper disposal of filth, or a bad milk supply, we will have gone far toward securing a correction of the defects and evils, and thus reducing the deathrate—which means protecting both the health and the pockets of the people.

To do this, we must have as nearly perfect a regis-

tration of deaths and their causes as possible—a system covering the whole State and a classification and nomenclature uniform in every locality.

CONTAGIOUS DISEASES.

I confess that I am somewhat at a loss what to say, or rather what to recommend—there is so much that could be said—on the subject of the notification of contagious diseases. It is of the first importance that the health officer should be promptly informed of the occurrence of any disease that is liable to spread by contagion, or whose extension may be prevented by sanitary measures. Without such information, cases of contagious disease may exist uncontrolled until they have sown the seeds of an epidemic; when, if the earliest cases were brought to the attention of the health officer, the outbreak might be limited to them or to those already exposed. Where such notification is made, there is overwhelming evidence of the efficiency of recognized measures of restriction and suppression, in averting epidemics and in confining cases of contagious disease to those first attacked or to the premises first infected. That the suppression of such information vastly increases the difficulties of the health officer is well known to all of us, but most seriously to those who are called on to administer the sanitary affairs of large communities, where it is a physical impossibility to have personal and direct cognizance of every one who is sick and the character of the sickness. And yet the health officer—whose first information of the existence of a contagious disease is, only too frequently, the receipt of a certificate of death from such disease—is held responsible by the press and the public for every epidemic outbreak.

I do not mean to say that this is not to some extent justifiable. I suppose that is what the health officer is for—to prevent epidemics and to reduce the volume of preventable sickness and the number of premature deaths. But we should not be asked to make bricks without straw, nor to perform the impossible—for that is what it amounts to when we are expected to prevent an epidemic, while the baser elements of the community conspire to suppress the knowledge of cases until these have multiplied so much that their concealment is no longer possible, and then the outbreak is beyond speedy control.

There is nothing, as I understand, in the statutes requiring physicians to give notice of cases of contagious disease in their practice. It is true that, under the authority conferred on the State Board of Health in the second section of the Act of 1877,—"to make such rules and regulations . . . as they may from time to time deem necessary for the preservation or improvement of public health"—the Board has promulgated its School Vaccination Orders and its Rules and Regulations for the Prevention and Suppression of the Epidemic and Malignant Diseases, which rules and regulations require physicians to give such notice and which, we are told by the Board, "have the weight and authority of law." That is to say, they have the weight and authority of the law on which they are based but no more; and as here is no penalty provided in that law for its neglect or violation, the notification of cases and enforcement of the rules and regulations depend on the sense of duty and the personal influence of the health officer—his tact, energy, courage and ability to persuade the people of his community to help him

to protect them from contagion and infection, or at least to allow him to do so.

In some cities and towns there are ordinances requiring attending physicians to report to the health authorities all cases of these diseases occurring in their practice, and penalties are provided for neglect to report. But neither are such ordinances effective in securing the necessary notification. In my report for 1893 I have touched upon this subject in the following passage:

"Section 2029, of the Municipal Code of Chicago, directs that 'every physician shall report to the Commissioner of Health, in writing, every person having a contagious or infectious disease that he has prescribed for or attended for the first time since having such disease, during any part of the preceding twenty-four hours.' The object of this requirement is, obviously, to secure prompt notification of the existence of contagious or infectious diseases, to the end that the Department may take the necessary action to prevent any spread of contagion or infection, and to remedy any conditions upon which such diseases may depend.

"But it is a requirement directly in the interest of the public, and not at all, or only remotely, in the interest of the physician, who is called upon to fill out a blank with date, disease, location of case by number, street and ward, name of patient, age, nativity, color, sex, date of attack, length of time in the city, his own name and address, and a statement as to whether the patient attends a school or kindergarten. He is not only required to do this without compensation for the time spent in ascertaining facts of personal and social history, etc., that have no bearing on his treatment of the case—with which alone he is concerned—but he frequently incurs the hostility of the family and friends, who object to the publicity which follows the report, and thereby suffers in his practice.

"That there should be some opposition to the requirement is only natural, and it can not be said to be unreasonable; the Commissioner has, therefore, modified the previous practice of the Department, which has been to prosecute physicians failing to comply. But in order to secure without friction the information so necessary to the usefulness of the Department and to the public welfare, the following appeal to the profession was made:

CITY OF CHICAGO, DEPARTMENT OF HEALTH.

May 16, 1893.

Dear Doctor:—As Commissioner of Health, I realize that the only persons in the community who give intelligent and systematic attention to the prevention of disease are the medical practitioners. Physicians devote from one-eighth to one-third of their time, their strength and their talent to charity, in caring for those who are unable to pay, and I sympathize with them when a law requires from them a service without remuneration, in reporting to the Health Department all contagious diseases occurring in their practice. Being unable to offer any remedy at present, I must appeal to the self-sacrificial spirit of the profession to be faithful in this particular, and to aid in the important work of isolating all such cases, and as far as possible, destroying the germs of infection.

In contagious diseases where warning cards are posted, the Department will lend every aid possible as to their prompt removal, when the physician in attendance guarantees that all danger of contagion is passed.

In addition to reporting the usual contagious diseases, I

desire you to report cases of typhoid fever, so that our inspectors can investigate the sanitary surroundings. Cards will not be posted in typhoid fever.

If I can receive the needed aid from the medical profession, this Department of the city government will be enabled to give to the profession and the public important facts concerning the large mortality from diseases that are, in a great measure, preventable.

ARTHUR R. REYNOLDS, M.D.,
Commissioner of Health.

Before occupying my present position I was engaged in active practice, and I know from experience both sides of this question and appreciate its difficulties. It is argued that the physician—in the interest of the public welfare—should perform this labor without compensation and incur the risks of the odium which attaches to the informer in any shape, because “he holds a license to practice medicine from the State, which, in a measure, protects him from unlawful competition.” The lawyer holds a similar license and is similarly protected from unlawful competition. But what would be said of the proposition to enact a law or ordinance requiring that every lawyer—in the interest of the public welfare—shall report to the Superintendent of Police, in writing, every criminal that he has advised in his professional capacity within twenty-four hours after having given such advice, under penalty of a fine of \$10 for each and every failure to so report? The one proposition is as reasonable and defensible as the other. The ordinance should either be amended so that the physician might receive proper compensation for his time and labor in making these reports; or it should be repealed, so that the profession might be relieved of the constructive charge that many of its members are chronic violators and defiers of the law.

I see no good reason why the householder, in whose family or upon whose premises a case of the dangerous contagious diseases occurs, should not be required to make this report. The notification is in his interest and in that of his neighbors, and it seems only common justice that the responsibility should be placed where the benefit accrues.

This is a subject to which I hope the delegates to the Convention will give their serious consideration.

NEEDED LEGISLATION FOR COUNTY CHARITIES.

I shall touch briefly on only two other points that have occurred to me. And first concerning the legislation which seems necessary for a decent, humane and economical administration of our county charities.

From the various biennial reports of our State Board of Charities, and from some of the annuals of the State Board of Health, a record could be compiled of mismanagement, wasteful and fraudulent expenditure, of cruelties, abuses and scandals in the county treatment of paupers and those most pitiable of God's creatures—the indigent insane. I speak now more particularly of Cook County, whereof I know personally; but, according to these reports, similar conditions exist, only in lesser degree, in many other parts of the State. Cook County maintains a hospital for the insane, second in point of magnitude to but one of the State institutions for similar purposes and ranking, in that respect, with the larger asylums of the whole country. If these reports referred to be true, its history, from its inception, has been a series

of scandals covering every manner of corrupt jobs and jobberies in construction, repairs and maintenance and in the purchase of supplies of every description; these scandals embracing medical and surgical incompetence, brutality of nurses and attendants, and immoralities of employes. The cause is not far to seek. As has been repeatedly pointed out by investigating committees, by State officers, and by the medical profession, it is the system which is at fault. It is a system which has set at naught the best efforts of the few competent and self-sacrificing individuals who have, from time to time, been connected with the institution and who have sought in vain to correct its abuses and to carry out reforms. The county poor-house, the insane asylum and the county hospital are all under the immediate control of the board of county commissioners. If the commissioners were of the best material in the community—as they sometimes are—the term of office is too short (it is now but two years and recently was only one year) to enable a board, so frequently changed, to effect any reform or to establish the principles upon which the administration of the county institutions should be conducted.

The remedy for these abuses would seem to lie in legislation, vesting the supervision and control of such charities in a board of trustees, appointed by the courts, or by the Governor on the recommendation of the courts, or in any other manner which should secure a representative non-political body of citizens, recognized as interested and versed in charitable and penological administration—the functions of the county commissioners to be limited to the fiscal affairs of the institutions, the making of appropriations, the auditing of accounts, fixing of salaries, etc., in the same manner as they are now related to the coroner's and other county offices. It is needless to say that the composition of this board should be continuous and permanent, the term of appointment long, and the yearly changes limited in number, so as to profit by the accumulated experience of members.

While I have treated specifically of the needs of Cook County such legislation would be applicable to the whole State, and in this connection the Wisconsin system of county provision for the insane may be profitably considered. In that State, I understand that insane asylums of a certain capacity may be established by any county or by two or more counties acting jointly, and receive a certain proportion of their support from the State. They are under the supervision of a board of trustees appointed in part by the county board and in part by the Governor; there is a medical superintendent in charge, and the institution is subject to direct State oversight, either through the State Board of Charities or the Lunacy Commission. Under a similar provision in this State, such asylums might be established by the larger counties or those containing the larger centers of population to which the waifs and public charges naturally gravitate, and which now are, in fact, bearing the burdens shirked by smaller communities. They would not be so expensive to maintain as the present institutions, while in every other respect they would certainly be far more desirable.

It should be said that the strictures upon the management of the Cook County insane asylum and the poor farm do not apply in the same degree to the county hospital—thanks to the influence exerted by

the medical profession of the city and county through the medical and surgical staffs of that institution. There is, however, great room for improvement even in the hospital management; but I do not feel sure of the remedy other than through the creation of a permanent responsible board of trustees to supersede the control of its administration by a frequently changing political body.

THE CORONER SYSTEM.

As to my final point, it may be aptly noted that New York has now an opportunity of getting rid of her antiquated coroner system which, like our own, is a survival of the old English form when the coroner or "crownor" was, as the name implies, a royal officer, with many and incongruous functions. Efforts to abolish "crownor's quest law" in that State have been hitherto frustrated by its recognition in the constitution. The amendments to that instrument which were adopted at the recent election include one which strikes out all reference to the office and the officer, and there is little doubt that the forthcoming session of the General Assembly of that State will enact legislation divorcing the medical functions of the office from its other uses—political or what not.

The duties of the coroner as an inquisitor into the causes of death, where death is the result of violence or where there is reason to suspect that death is due to other than natural causes, demand the qualifications of an expert anatomist, pathologist and toxicologist; while his other functions require an expert knowledge of law—a combination which may be found in one and the same person about as often as one meets with a white blackbird. Judging from the Report of Coroners' Inquests for 1885, in the Eighth Annual of the State Board of Health, there was once such an ideal coroner in Illinois—Dr. Alexander Woods, of St. Clair County, and there may have been others; but none of them seems to have been able to secure any needed changes in the legislation concerning this office.

It is not necessary to dwell on the defects and abuses of the present system. The incumbent is frequently neither physician nor lawyer; too often only a cheap politician, readily approachable by employers and corporations—railroad, mining and other—seeking to evade responsibility for deaths due to their negligence. It is a fortunate chance and not a necessary result of the system when the office is as acceptably filled, both as to coroner and coroner's physician, as it is at present in Cook County and, I have no doubt, in other counties of the State. But even where the integrity of the elective coroner and his general intelligence are admitted, he is handicapped in many ways under the present system. The average coroner's jury is proverbially ignorant—a facile tool for any unscrupulous limb-o'-the-law; and its verdict has without doubt allowed many a criminal to go unwhipt of justice, or defrauded the widow and orphan of righteous compensation for the death of the bread-winner. Then, too, cases often occur where prolonged and costly criminal trials ending, not unfrequently in a miscarriage of justice, could have been avoided had the inquest been conducted and the autopsy performed with the necessary skill and intelligence.

To sum up in a single sentence: The present coroner system in this State does not adequately defend

the interests of the poorer classes in particular, against negligence, nor properly protect the public in general, as against crime.

I think this Convention should not adjourn until it has provided some means, either through a committee or otherwise, by which a suitable bill may be presented to the next Legislature, framed substantially on the lines of the Massachusetts Medical Examiner law of 1877 and its subsequent amendments. It is possible that some defects have been disclosed in the practical operation of the Massachusetts law and that there are improvements in the analogous legislation of Connecticut and New Jersey, as well as in the proposed New York bill. But Dr. Samuel W. Abbott, the able Secretary of the Massachusetts State Board of Health, writing in 1893, says the system "has now been in successful operation nearly sixteen years, and it is safe to say that no return to the coroner system will ever be made in Massachusetts. . . . It is a sufficient comment upon this law that more than eighteen thousand cases of sudden, suspicious and violent deaths have been investigated under its authority in a far more satisfactory, intelligent and economical manner than could have been possible under the old régime."

One fact alone should have great weight with our legislators, as it undoubtedly will with the tax-paying public, to-wit, that a careful comparison of the cost of the coroner system in Massachusetts during the three years prior to the Act of 1877, with the cost of the Medical Examiner system during the next three years showed a decided reduction in expenses, and recent statistics show a lessening cost of about 2 per cent. per annum for each case under the new system. The tax-payer at least will appreciate this.

And after all, it is, as I have previously intimated, the tax-payer and the general public who will settle the question of what and how much legislation we shall have. If we can show them that what we ask is really in their interest and for their benefit, and will base our arguments on sound business principles, put forth in plain English, I doubt not that their representatives in the General Assembly will be prompt to embody their wishes in practical, common-sense and efficient legislation for the further protection of the lives and health of the citizens of a State which is destined to be, in the near future, the foremost in the Union.

Is it too much to claim that the work of this Convention here assembled, and of the individual delegates, each in his own locality, may be no insignificant factors in the realization of that destiny?

THE DISEASE OF INEBRIETY.

ITS STUDY FROM THE STANDPOINT OF THE EXPERIENCE OF AMERICAN PHYSICIANS OF EMINENCE WHO HAVE WORKED IN THIS FIELD OF RESEARCH.

BY EDWARD C. MANN, M.D.
NEW YORK CITY.

Dr. Wm. C. Wey, of Elmira, N. Y., the President of the New York State Medical Society in 1871 thus expressed himself in a paper on "Inebriety by Inheritance:" "Latterly, as men of science have more closely interrogated the antecedents of inebriety, it has been found to bear such a striking resemblance to the characteristics of mental disease as to possess

a claim to be regarded as influenced and governed by the same general laws that bear upon the 'art and mystery' of insanity, to use a phrase employed by Dr. Blandford in his recent lecture on that subject. The transmitted tendency to inebriety has been observed by every intelligent physician of experience in the practice of his profession. As individuals are oftentimes unwilling to acknowledge the existence of insanity in the family line, so is the occurrence of inebriety equally concealed or positively denied. The impression is well-nigh universal, that inebriety is a voluntary surrender of the mind and body to the gratifying of sensual indulgence and that a determined effort to reform must of necessity lead to the abandonment of the habit of drinking. This is the belief as well as the language of the temperance lecturer, who holds up the pledge as the sign and seal of redemption from a self-imposed propensity. It is also the stereotyped teaching of the pulpit, which inveighs against inebriety as a crime akin to arson and perjury, which should not be excused or palliated or compromised, but punished by rigid enactments of law. It is the theory of another class that inebriety is simply "inefficiency of the intellectual force," to be charged to weakened will power, which resolution, strength and sincere desire of improvement may at any time elevate into healthy and well ordered exercise.

Higher authority than any mentioned, even the authority of the law, declares the commission of offenses while under the influence of liquor to be properly punishable, because the offender, though rendered temporarily insane by indulgence, voluntarily suffered himself to be brought to that state. In the eye of the law one view is taken of inebriety, and in the judgment of science another. We should consider that at one period the law, not as discriminating as now, assumed the entire custody of the insane, whose restraint and confinement, even in cages and with chains was considered necessary, not for improvement and restoration to mental health, but as a means of punishment and for the protection of society. Pathology, in the day alluded to, laid no claim to correct knowledge of mental maladies. They were grouped under a strong but virtually meaningless expression, "visitation of God." This phrase, while it is to be commended as acknowledging the dignity and attributes of the Creator and Judge of men, served for centuries as a means of begging the question of insanity, precisely as in our day the theory of self-imposed indulgence in alcoholic and other stimulants is stubbornly believed by the people.

The special treatment of the inebriate, through the accessories of hospitals and modern appliances, though no longer new and untried as an experiment, is far from being generally appreciated or understood. This statement applies to the profession in part and to the people at large. It applies to the profession because the study of inebriety as a disease and not as a moral lapse, has been superficially considered. In the all-absorbing duties in which we are engaged from day to day, it is difficult to bring the mind to consider a new and unfamiliar principle in medical science, especially if all our previous mental training, influenced by the traditions of the past, conspires to cast distrust and unbelief on the proposed system. A few in our profession share the impression to which I have referred, of antagonism to the doctrine of restoration of the inebriate through the

agencies of isolation and treatment. The question is asked, What do you treat? A habit independent of control; a disordered mind and a perverted will; or a diseased body, whose crowning honor, the brain, is the seat and center of pathologic change? The proper and successful treatment of inebriety includes all these conditions and much besides. The habit of indulgence in stimulants, as we view inebriety, is only the fruit or development of a series of morbid physical phenomena, in which the mind as well as the corporeal structure is implicated. I expect to be understood as referring to confirmed inebriety, whether leading to habitual intemperance or to occasional and prolonged drunkenness.

Inebriety being accepted as a physical disorder, many of whose forms and features are no longer equivocal but well settled and understood, it becomes us to look back on the train of morbid phenomena by which it has been fostered and developed, and endeavor to analyze its near and remote causes. Conspicuously in this connection comes the consideration of inherited tendency, etc.

Dr. Wey says, in speaking of statistical detail: "I would like to dwell upon the influence of nationality in conducing to inebriety, and show the effects of mixed and unmixed races in conspiring to its production. Our population is of such a composite character that this feature of the subject is in itself a vast study. A significant feature in this connection, which I am not prepared to explain, refers to the exemption of the Jews in this country, and perhaps in other countries, from the influences of inebriety. This is not an accidental circumstance; facts appertaining to vital science can never be reckoned accidental. It is doubtless in accordance with some fixed and immutable law, such as illustrates the entire history of that wonderful people. Information so minute, should be obtained in every case of inebriety admitted to public and private institutions for treatment, as it will show the nativity not only of the patient but of his ancestors, as far as that information can be procured. In this manner, after a time, such deductions may be made as will reveal an interesting chapter in the history yet to be compiled of inebriety in the United States. Information of this character may exercise an important influence in ultimate legislation affecting the welfare of the inebriate, when efforts are made to induce State aid in establishing asylums for their cure, and laws are modified or enacted to secure to them additional advantages and protection. Having faith in statistics, I would cause them to tend to the enlightenment of this whole subject with cumulative and effective power.

"I would interrogate facts and indications in one connection after another, so as to compel them to reveal all that can be told of the special bearings of mental, physical and moral agencies on inebriety. This involves a wide range of inquiry. It extends beyond the dogma of inherited tendency and embraces the entire field of physiologic, pathologic and psychologic investigation. The importance of such particular scrutiny is shown, if proof were necessary, in the declaration lately made from a reliable source: 'In America, considerably more than one-half of the adult population use either tea, coffee or tobacco. A majority of the remainder use alcohol in one or more of its various preparations. Most of the small remaining minority are included among the

not inconsiderable number of those who use opium habitually, and few of us can not count on our fingers all the persons we know to be total abstainers from each one of the stimuli we have named.¹

"The question of the successful treatment of inebriety hinges on the simple fact of *re-formation*—re-formation of the mind and will as well as of the corporeal man generally. It requires a nice and delicate, even a minute analysis of the nearly innumerable cases that incline to the production of inebriety, to be able to perfect a system for its radical treatment. It can not be successfully, that is scientifically treated, until it is thoroughly understood. Inebriety in its component parts needs to be so nicely fitted and adjusted, before it can be put together and perfected into a system of scientific proportions, that its sharp angles and obliquities must be toned down and subjected to the proof and trial of unflinching and convincing tests. Less than this, neither the profession nor intelligent people will indorse or accept. This minute and exhaustive investigation of the subject I heartily commend to the specialists before me, whose lives are devoted to its consideration. You will pardon me for speaking thus plainly. I have a desire which is shared by the best men in the profession to witness the history and management of inebriety placed on the footing of scientific truth and accuracy which illustrates the principles and treatment of insanity. This latter position is one of authoritative science.

"May we not trace a parallel between the early and specific treatment of insanity and inebriety, and show that equally favorable results may be expected in the latter infirmity, when subjected to prompt and intelligent oversight and care in a place provided for that purpose? It is waste of time and opportunity, as we have been forced so many times to confess, to treat inebriety as we would treat a self-limited disease, in the seclusion of the patient's home. To be successfully, that is radically reached and overcome, alcoholism or drunkenness must be brought under hospital restraint and supervision in the forming stages of the disease. The truth of this declaration may seem so apparent that it is trite and commonplace to allude to it. And yet, because it is not heeded and observed by inebriates and their friends, the former are held longer under the dominion of alcohol, and are in danger of reaching an irremediable stage of the affection, while the latter become disappointed and discouraged and are disposed to condemn a system which gives so little hope of relief, etc. Inherited inebriety particularly, and acquired inebriety in special instances, which goes on rapidly or slowly to death from ordinary physical disorganization or from self-imposition, does not necessarily, and I speak reverently on the subject, bring the victims within the limits of moral accountability, any more than the acts of those who are clearly and incontestably declared to be wholly insane."

Dr. Willard Parker, of New York, in an address in 1871 on "What Science and the Inebriate Asylums have taught us," spoke as follows: "In the last half of the nineteenth century, the attention of the medical profession has been directed to the inebriate; it has sought to determine his true status, to decide whether he is a moral delinquent or the subject of disease, or both, and if his case, like insanity, be curable. In order to answer the question, nine or ten institutions or asylums, public or private, have

been established in five of the States, and for the last thirteen years the case of the inebriate has been studied with scientific care. As it was with the insane, so now it is with the inebriate; the asylum is the school in which knowledge is to be acquired for the enlightenment of the medical profession, the information of the public mind, and for the guidance to a better system of legal enactments upon the subject, with these results: 1, the nature of alcohol has been examined, in order to determine its true character; and 2, its influences upon the animal economy have been studied.

"What, then, is alcohol? Is it food? Food is that which repairs some waste of the system. We can repair that only which exists. New in the human system there are water, fat, starch and sugar, nitrogenous substances, iron, sulphur, phosphorus, animal quinin, as claimed by Bence Jones, sodium, potassium, chlorin, etc.; but no alcohol is found. It has no analogue in the system, hence there is nothing which it can repair, and it can not therefore be ranked as food of any kind, but it is, out and out, a *foreign substance*.

"Is alcohol a poison? I reply, yes; it answers to the description of poison. It possesses an inherent deleterious property, which, when introduced into the system, destroys life, and it has its place with arsenic, prussic acid, opium, etc. Like these, it is to be employed as a medicine and has its true position in works on materia medica. It is, therefore, both a poison and a medicine. In this last capacity it has, like opium or arsenic, its definite characteristics and in some cases as a medicine it is indispensable. But has it no place at the table or in our bills of fare, either in distilled or fermented liquors? In certain cases these are useful, but it is when they are used by the feeble or aged, and then they should be taken as condiments and only *with* the food, and in such measure as not to be felt beyond the stomach. In small quantities, wines, etc., *stimulate*, and if not enough be taken to coagulate the pepsin and the albumen in the food, they in proper cases promote digestion and thus help to repair the system. But whenever more is taken into the stomach with the food than is demanded, it passes into the circulation, disturbs the action of the heart, flushes the face, and confuses the brain. When so much fermented or distilled liquor is taken into the system that the functions of the organism are disturbed, then positive harm has been produced; in one word the system has been so far *poisoned*. An irritation has been set up in place of the desired healthful stimulation of the stomach.

"There are appetites implanted in the system, and when wisely managed they help to keep the system in a healthful condition. They express themselves in hunger and thirst, while the cravings of the system for alcohol, opium, hasheesh, etc., are the result of disease in the organism, more or less marked, depending upon the gravity of the lesion of nerve and tissue. The condition of the inebriate is abnormal; he is in a state of unrest throughout the whole system, and the urgency for relief is so great that the will has not the power to resist. What is denominated appetite, therefore, is a state of suffering dependent upon disease, as in colic or pleurisy, and the craving and demand for relief are beyond the power of the will. These, then, are the effects of alcohol beyond the point where it is useful:

¹ The Nation.

"1. To induce a diseased condition of the nerves, which is manifested by the general symptoms of depraved appetite.

"2. Entering the circulation unchanged, it impairs the vitality of the blood. Careful examinations of the blood have been made, to determine what becomes of alcohol when taken into the system. When more is taken than can be employed as a condiment or tonic, it passes into the blood and circulates in all parts of the body, deranging the action of the heart and capillaries, confusing the brain and impairing the vital force. It has been settled also by science that alcohol undergoes no change in the blood, but that it exists there as a foreign substance, like a mote in the eye. And what is denominated stimulation is irritation; and the excitement caused by the effort to throw off the irritating substance wastes the energy and life of the system. After alcohol has produced disease of the stomach and the depraved appetite it next expends its force upon the neighboring organs, inducing disease of the liver and dropsy or Bright's disease, both of which are fatal to health if not to life. The brain, also, although farther from the stomach, is often diseased in function and at a later period, in structure.

"There are those who boast of the amount they can drink, if the spirit only be *pure*, without suffering from inebriation. Such persons do not understand that alcohol, however pure, is in itself a poison, and that they are in much greater danger than those who complain that when they drink it 'flies to the head.' This last class are more likely to be restrained from the indulgence, when the consequences may be so serious or disgraceful. Not only do special organs become involved through the effects of the poison, but the whole living organism is impaired and life is cut short. It has been demonstrated on all sides, at the forge, in the workshop, in the field, on the march, in the Arctic region and in the torrid zone, in physical and in intellectual labor, that the spirit drinker fails to cope with the temperate man. It has been ascertained that a young man at 20, who is strictly temperate, has before him as his average of life, forty-four years and two months. On the other hand, the young man who poisons his system by drink, can look for an average of life of only fifteen years and six months.

"Lastly, in referring to the action of alcohol, we must not omit to speak of the condition of the offspring of the inebriate. The inheritance is a bad one; a tendency to the disease of the parent is induced, as strong, if not stronger, than that of consumption, cancer or gout. And with this tendency he must wage perpetual war or he becomes a drunkard. The tendency referred to has its origin in the nervous system. The unfortunate children of the inebriate come into the world with a defective organization of the nerves, which ranges from the inherited tendency, through all grades to idiocy.

"Such are some of the effects of alcohol upon man. We have stated that the inebriate asylum is a school in which drunkenness is studied and treated. It is now proved to be a *disease* and to be curable. We have learned that there are different classes of patients, whose condition varies like their family history. There is one class composed of those who had healthy and temperate parents, and who have had the advantages of education. They first began drinking socially, and have indulged more and more fre-

quently, until disease, as manifested by the depraved appetite, is established in the system. This class, incurred guilt, or in other words, sinned in the beginning, by violating the laws of the system, just as the over-eater sins against his stomach and suffers from dyspepsia; or the over-worker sins against his brain and induces paralysis or insanity. A large proportion of this class can be cured at an asylum and the time required for that cure will depend upon the duration of the disease and the amount of organic lesion which exists.

"The second class is made up of those who are descended from a drinking stock. They have inherited a tendency or predisposition, have less guilt to answer for than the first class; are less curable, or if apparently cured, are in more danger of a relapse. With this class an irresistible craving occurs in paroxysms, and if they can be shielded for the time from the means of indulgence, they are safe until the occurrence of another paroxysm. There are nations or large communities with whom this fearful tendency to drink is an inheritance, as we have seen, to the perversion of their whole character.

"The third class is composed mostly of young persons who are depraved in all their instincts, and who do not desire either reformation or improvement. They are not subjects for the ordinary asylum, and in time wise legislation will cause provision to be made for them that the community may be protected against their irresponsibility and lawlessness. Asylums have taught us that inebriety is curable; that the depraved appetite is overcome, as the diseased condition on which it depends is removed, and in many cases the cure is radical and permanent. When this whole subject shall be better understood, it will be a wise provision that the children in our schools be taught the character of alcohol and kindred poisons, that they may learn the danger of indulgence and the wisdom of resisting the first temptation as their only sure protection. Thus in time would grow up a public sentiment which would banish from common use the worst of all scourges of the human race."

Dr. Joseph Parrish, President of the American Association for the Cure of Inebriates, in speaking of intemperance as a disease, said: "The testimony has been so profuse and authoritative on the subject during the past few years that I need not repeat it. I must be allowed, however, to refer to the recent action of the British Medical Association at its meeting in 1875 at Edinburgh, as the latest declaration of a public character that has come to my notice. The subject was introduced by Dr. Alex. Peddie, whose name and distinguished position are recognized here as elsewhere. He has drawn the line so distinctly that I prefer to quote his own language as transmitted to me by a friend who participated in the discussion. Dr. Peddie said, in speaking of that class of inebriates who are popularly recognized as "habitual drunkards."

"1. They were those who inherited the propensity for drink.

"2. Those who evinced it as the chief manifestation of some form of cerebral disease.

"3. Those who were affected with it as the result of injury to the head, severe fever or other wasting bodily ailment, mental shock, heavy grief or reverse of fortune, and, indeed, causes similar to those antecedent some other insanities.

"4. Those who acquired it through a course of vicious indulgences in stimulants.

"The distinguishing features of the malady,' continues Dr. Peddie, 'are total loss of self-respect and self-control, under an overwhelming craving for alcoholic drinks, with little or no palatal relish, which must be gratified at any cost, utterly regardless of honor or truth, and in fact unaffected by appeals to reason, self-interest, tears of affection or any suggestions of duty to God or man.'"

Dr. J. P. Boddington also read a paper on the same subject, and said: "That the medical opinion of Great Britain was in favor of legislation providing for the medical care of inebriates." Sir Robert Christison, who has occupied, as you know, the Chairs of Medical Jurisprudence and *Materia Medica* in the University of Edinburgh, as well as other distinguished positions, spoke at length and said, "that the professors of metaphysics, of moral philosophy, of political economy and of what he considered of more importance, the professor of Scotch law, and the Dean of the Faculty of Advocates, had joined with him and others in a representation to the Home Secretary in favor of Parliamentary action in behalf of this class of persons."

You will be gratified to learn, also, that Dr. Lyon Playfair, so widely and favorably known, participated in this discussion and said, that as a member of the House of Commons, he had gone into the "Committee on Habitual Drunkards" in an extremely doubtful state of mind, his feelings, indeed, being hostile to the proposition to legislate in favor of inebriate asylums, but on listening to the testimony before the Committee and referring especially to the evidence offered by the members of this Association, he "was led to a different conclusion, and signed the Report," which was presented to the Commons in this behalf. The result of this debate was the adoption by acclamation of a resolution, which reads thus:

"That excessive intemperance is, in many cases, a symptom of a special form of insanity which requires special treatment, with a view, first to the recovery of those affected, and second, to the protection and advantage of them, and of society. That in the present state of the law such treatment is not attainable, and that it is desirable that equal provision should be made to render it attainable."

Intemperance is evidently diminishing with the advance of the amenities of civilized life. Like other survivals of the ages of animalism it is gradually disappearing. There are several reasons for this. With the culture of the aesthetic tastes—the love of the refined and beautiful—comes the appreciation of these qualities in each other. Men affiliate and combine on the grounds of a common taste, and as the culture of art and refinement in general advances, vulgarity and excess are disallowed; the inferior passions being remanded to their proper places. Religious obligations and the conventional sentiment of refined society, all move side by side with the aesthetic qualities, and men grow into moderation and self-control by the civilizing forces which multiply as we advance. This is one reason. Another may be found in a wonderful physical fact, which has its basis in the law of heredity, and by which we are enabled to obtain more positive knowledge concerning the disease we are considering, and act with more intelligence toward preventing it. It is known that that form of drunkenness which is commonly called periodical, but more properly paroxysmal, is almost always the result of a peculiar inherited pre-

disposition. I might quote authority upon authority in confirmation of this now generally accepted doctrine; but the quotation already made from Dr. Peddie is typical of medical sentiment generally, and is sufficient. The point to which I wish to call your attention specially, is that this form of drunkenness has its period of termination, as well as of recurrence. It either discharges itself, or is deflected from its course into a different mode of manifestation. It has its climacteric period also, and I ask my brethren to note this period. In my experience it is somewhere between 40 and 50 years of age, and I believe more people recover from this form of inebriety at this period of life than any other. They recover by the discharge or exhaustion of the propensity to drink. If, however, there is simply a deflection of the impulse, they may degenerate into some form of chronic alcoholism, and in consequence, fail in the offices of progeniture, and thus save the future from the degree of blight that might otherwise be inflicted.

It may be asked, Why has not this law been operative in the past, and why are not its effects visible in the present generation? The answer is, that there can be no doubt we are realizing the effect of it, and that one of the effects is the peculiarity of this particular paroxysmal form of drunkenness. *Delirium tremens* and *mania-a-potu* were much more common a generation back than now. Indeed, they may almost be said, at this day, to be rare, in comparison with their former frequency. The tendency to them appears to have deviated into what is nowadays called dipsomania, and from this defection there seem to be divergences into the various forms of chronic alcoholism, which, after a while, may so far lose their course and be divested of their characteristics as to be undistinguishable, except in the general features of paralysis, apoplexy, dementia and so on.

I do not know that this feature of the subject has been observed by you, but I can not but believe there is force in it, and I commend it to you as at least worthy of thought and investigation. Let me re-state it: Dipsomania is a comparatively new form of disease, a deviation from *mania-a-potu*, taking a more chronic and obstinate form. It has increased and the former diminished. The tendency of dipsomania is to chronic alcoholism, as manifested in permanent lesions of brain and ganglionic structure, and resulting in incurable nervous disorders. The modification of nervous susceptibility in persons inheriting this tendency, predisposes them when under the influence of liquor, to more positive damage, although it may not appear in such acute and violent forms. If it be admitted that there has been a decided modification of the vice of drunkenness by the improving influence of intelligence, refinement and virtue—and that the criminal view of the subject is being better understood and distinguished from its other aspects, and we have to do with it more as a disease, is there not good reason to hope for better results in the future?

Sanitary boards, as they are constituted in our chief cities, tell us not a little about preventable diseases, and propose various means of prevention, and success seems to attend their efforts in proportion as the people appreciate and apply the recommendations of such boards. When inebriety shall be classified with other diseases, and boards of health and commissioners of hospitals and charities shall act upon this fact, in the same spirit and with the same

efficiency that they do with regard to other disorders, there will doubtless be a corresponding improvement in the habits and lives of the people. Did it ever occur to you that one of the strongest reasons why the people should turn their attention to the disease—aspect of intemperance—is found in the fact that temperance societies, churches, laws, family warnings and all the social and domestic influences that have been brought to bear on the inebriate have failed to accomplish the good that has been expected of them? Surely, if this was a question merely of repentance and reform, the multiplied and influential means of the family, the church, and the pledge—the watchings, the followings, the beseechings, the prayers, the warnings, all would have produced much more fruit than yet has been gathered from these sources.

Can there be such a force in a mere habit, such allurements in a single vice, as to be able to withstand all the earnest and persistent labor that has been organized against it? For it must be remembered that the efforts in this matter have been specific. The counteractions against intemperance have been direct, positive, continued and well-organized. The pulpit, the press, the platform, the school, the family, have each represented organized forces against this evil, and yet the testimony is that it has increased. What a libel this fact would be upon the heart-lore of domestic life, upon the verity and earnestness of Christian doctrine, upon the better instincts of humanity itself, but for the fact that these well-meant and honest efforts have not been directed in the proper line of approach to the evil. A poison that lurks in the blood has no antidote in appeals to the moral sense. A neurosis that inheres in the being can not be driven away by rhetoric. A proclivity that is enfibred with human structure, can not be untwined by argument. These are facts which may not have been admitted, because not thought of, but nevertheless, they are just the facts which have obstructed the progress of what men call the temperance reform. It is said that the well-known John B. Gough declared in a public lecture that out of 500,000 persons who up to that time had signed the total abstinence pledge in America, 300,000 had violated it, and that Dr. Chambers on hearing it exclaimed: "Truly, what an outburst of nature!" While Mr. Gough on this occasion exhibited his candor, it is certain that his distinguished listener gave evidence of his deep knowledge of mankind.

In an address on "The Classification and Treatment of Inebriates," Dr. Parrish said: "I think none of us, who have given careful thought to the specialty we represent, can have failed to observe three classes of inebriates, each of which is capable of an extended and common sub-division, as follows: 1, professional debauchees, whose purposes in life seem to be limited to the gratification of appetites or passions; and who, yielding to such gratification, have not only become confirmed inebriates, but have fallen into other excesses of a more vicious character; 2, those, who without a decided intention to do wrong, and without any abiding purpose to do right, are the victims of their own moral weakness, or of the cupidity or recklessness of others; 3, those who are earnest in their desire to live soberly and righteously, and anxious to avail themselves of every means offered by others for their recovery; who are

capable of estimating their danger and possess the courage to confront and antagonize it."

(To be continued.)

TURKISH BATH IN AMERICA.

An Anniversary Address on Baths, Delivered at the Sanitarium
Oct. 6, 1894.

BY CHARLES H. SHEPARD, M.D.
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It is with no small measure of gratification that I greet you upon this, the thirtieth anniversary of the opening of the Turkish bath in this country. The old song had it that, "We are living in a grand and awful time!" These words were never more true than they are now. Between 1861, the beginning of our civil war, and 1893, the epoch of the Columbian Exposition, what a revelation the years have brought! The wonderful development of every department of knowledge, of all the resources of the country, have given a continual impetus to every element of progress, and all the refinements of civilization. Pre-eminent among these stands the Turkish bath. It is ennobled by a history which reaches back of records into tradition. During all that time the perfection of the bath was in exact proportion to the civilization of the country in which it was used. Throughout antiquity, moral purity was signified by purification of the body; even baptism is symbolic of the bath. Cleanliness was made a virtue among the pagans, but because great license of manners prevailed at the public baths, many historical Christians condemned cleanliness of person, and taught that the longer one went without washing the fitter one was for the kingdom of heaven. St. Athanasius relates with enthusiasm how St. Anthony, the patriarch of monachism, had never, in extreme old age, been guilty of washing his feet.

In primitive ages, superstition readily centered about thermal springs, as if they were the manifestations of some supernatural power, and through the teachings of their priest physicians, they came to be considered sacred, as though presided over by some particular divinity, and later came temples, erected beside or inclosing the springs. The prevailing habit of thought was to attribute all bodily infirmities to the malign influence of some divinity, so for relief, the people sought the interposition of supernatural power; hence thermal springs were dedicated to some god, principally to Hercules, as the god of strength. The Romans also consecrated their thermal springs to some deity, and their priest physicians introduced a ritual to be observed in making use of the waters. Homer relates that the hot bath was used among the Greeks more than three thousand years ago, and it was in all essentials similar to that now popularly known as the Turkish bath. The baths were common throughout Rome and her colonies, for wherever Rome bore her civilization the bath accompanied her. In time a lavish luxury prevailed in the erection and embellishment of the Roman baths, which increased with the growing wealth of the city. To immortalize themselves the emperors built baths which were the grandest constructions that architectural genius ever created. The Augustan age was an epoch conspicuous for the development of sanitary measures for the promotion of public health; and officers of high dignity were appointed

for the management of the baths. The area embraced by one of these immense establishments was equal to the space included in twenty-five ordinary city blocks, or about one mile in circumference. The largest was constructed by Diocletian, and capable of accommodating 18,000 bathers at one time. The Pantheon, now serving as a church of modern Rome, was originally built as a vestibule to the baths of Agrippa.

Ample opportunities have been afforded for acquiring a thorough knowledge of Roman customs in this respect, notably through the excavations at Pompeii, between the years 1824 and 1825, wherein complete sets of public baths in a good state of preservation, were laid open. In the historical novel, "The Last Days of Pompeii," Glaucus is made to exclaim: "Well! Let us to the baths! Blest be he who invented baths!" "But tell me, Glaucus, are the baths at Rome really so magnificent?" Glaucus turned and recognized Diomed and, suppressing a smile, replied: "Imagine all Pompeii converted into baths, and then you will form some notion of the size of the Imperial Thermae of Rome, but a notion of the size only. Imagine every entertainment for mind and body, enumerate all the gymnastic games that our fathers have invented, repeat all the books that Italy and Greece have produced, suppose places for these games, admirers for all these works; add to these baths of the vastest size, the most complicated construction; intersperse the whole with gardens, theaters, porticos and schools; suppose in one word, a city of the gods, composed of but palaces and public edifices, and you may form some faint idea of the glories of the great Thermae of Imperial Rome."

In the reign of Tiberius there were nearly nine hundred public and private baths in Rome alone, while the villas and the homes of the rich were provided with costly bathing apartments. Previous to his time the diseases of civilization were scarcely known among this people, but after the conquests of the Romans extended beyond Greece and over Asia and Africa, sources of unbounded wealth and luxury were opened to them, and the refinements and corruptions of a higher civilization changed the aspects of Roman life. In the seventh century Alexandria rivaled Rome in the splendor of its public edifices as well as in the number of its magnificent baths, of which there were 4,000 when the city was taken by the Moslems. The Turk having a keen relish for all that could minister to tasteful enjoyment, adopted the baths, and it is reported that when the great library was burned the books supplied the baths with fuel for six months.

Sources of the decline of the baths are traced to the establishment of Christianity at Rome, because the baths were looked upon as heathen temples, and the thermal springs being dedicated to heathen deities they were abandoned by the Christians and the use of the waters held to be sinful. The removal of the seat of empire from Rome to Constantinople, which followed the conversion of Constantine, deprived the baths of the imperial patronage necessary to sustain them; and the irruptions of the Northern nations are partly responsible for the destruction of many of the baths. Throughout Western Europe the very knowledge of them was obliterated for some fourteen hundred years, though the baths survived in other lands. At Constantinople the Greeks preserved them, and the Turks, after acquiring that

city, soon learned to appreciate them as an invaluable sanitary institution, whence comes the present name, Turkish bath.

Through the energy and perseverance of David Urquhart the Turkish bath was introduced to modern civilization. While a member of the British embassy at Constantinople he became enamored with Turkish life and customs. Already the author of several books, he then wrote one entitled, "The Pillars of Hercules," in which was embodied a chapter dilating upon the virtues of the Turkish bath, and relating the advantages that would accrue to his own countrymen by the adoption of the bath as a habit. Some years afterward he came in contact with Dr. Richard Barter, who was conducting a water cure in the south of Ireland. Mr. Urquhart gave Dr. Barter his book, the perusal of which convinced the Doctor that it was the one thing needed to make his institution complete, and soon these men constructed the first Turkish bath of modern times at St. Anne's hill, within a mile of Blarney Castle. After that Dr. Barter established several baths in different parts of Ireland, and Mr. Urquhart promoted the erection of a bath in Jermyn Street, London, which is to-day a monument to his ability and foresight. Charles Bartholomew was also an early friend of the bath, and, by Mr. Urquhart's encouragement was instrumental in establishing a number of baths in England. To-day the Turkish bath is an established and popular institution throughout great Britain.

Erasmus Wilson highly indorsed the bath in a book published more than twenty-five years ago. Sir John Fife, Senior Surgeon to the Newcastle Infirmary, introduced the bath to that institution, and edited the *Turkish Bath Manual*, an authority on the bath. Sir Benjamin W. Richardson testified to the importance of the bath, and the broad field that was open to the practitioner in the treatment of disease, particularly of rheumatism. Sir Edwin Chadwick, the greatest sanitarian that England has produced, personally gave me his hearty indorsement of the bath in 1865.

About the year 1860, Christopher Oscanyon, a representative Turk, attempted to introduce the bath in New York City and obtained the support of a number of prominent New Yorkers, but for some reason the enterprise was never developed. Soon after a small hot air bathroom was opened in Boston. It was called a Turkish bath, but never outgrew its original limits and had but a short existence. It was reserved for the home city of Brooklyn to make manifest the possibilities and luxuries of the genuine Turkish bath.

My attention was directed to the bath through the kindness of Samuel R. Wells who, in 1861 was traveling through Great Britain. He forwarded to me a number of pamphlets upon the subject, among them the chapter upon the bath from the "Pillars of Hercules." These immediately aroused my enthusiasm for a Turkish bath. I had long held in favor the hygienic method of treating disease, and this way of accomplishing the result seemed the very perfection of all treatment. With the practical knowledge of the virtues of the bath came a constantly increasing desire to be able to demonstrate to the world the power of the Turkish bath as a remedial agent, as well as the immense benefits to be derived from its adoption as a habit of the people, fully recognizing the fact that its most desirable and useful depart-

ment of service would be that of preventive medicine. In May 1863, I began on a small scale, and under many discouragements from my friends, the construction of the first Turkish bath. Not having any model from which to work, the process was necessarily slow, and much time was consumed in experiments, not alone with the bath itself, but also upon myself, friends and patients, in testing its practical workings. It was not until October 6 of that year that it was opened to the public. On that day but one bather came and he had left his home, without letting his wife know where he had gone. It was not till four days after that four bathers came. One of those I had waylaid in the street and brought in by dint of persuasion. To the credit of the bath, however, it may be said that he and his whole family were frequent bathers thereafter. After an interval of six days two bathers appeared, both ladies. Two days after came one gentleman, and so on, for about a month before there was a uniformity of daily baths.

The first month we gave about 50 baths, the second 100, the third 150, the fourth nearly 200, thus gaining ground by slow degrees. The first year we gave over 2,000 baths, the second year about 4,000, the third year nearly 6,000. About the middle of the fourth year our facilities were increased and we gave over 10,000 baths, the fifth year over 15,000. At present, in spite of the many large baths that have been constructed in Brooklyn, New York and many other cities, we are giving over 20,000 baths yearly.

One naturally would suppose that the medical profession would be among the first to welcome such a powerful aid as the Turkish bath, but such has not been the fact. This profession, as a body, has never given it much encouragement. Individuals alone excepted, they have waited for the people to demonstrate its value and to commend its use. Years ago an English physician said: "The public in this matter, is far ahead of the medical profession." As none but those who had traveled abroad knew anything about the bath, or had even taken one, it was sometimes very difficult to induce a person to enter its precincts. One professor in a medical college said he would not go inside the hot room for \$50. Another on entering said he hoped he would not be incapacitated from calling on his patients the next day. Such was the nervous dread of the process by those who knew nothing of it. In fact it has been more difficult to convince the physicians than the layman of the value of the bath. With a few highly honorable exceptions, and in spite of a multitude of witnesses, those who control medical teaching and practice go on in the same old fashion, and are likely so to continue until an enlightened public opinion shall command the new and better way. To the people at large we are indebted for the success of the bath. While physicians believe too little, among the laymen there is sometimes the most unbounded faith in its power, as was shown by a man coming all the way from Chicago expecting to be cured of a severe attack of rheumatism by one bath.

The universal use of the bath during thousands of years in every part of the civilized world furnishes a stronger proof of its value than would any mere reasoning. If we would have our people powerful and progressive as a nation, we must necessarily look first to their physical welfare. We should at least in this nineteenth century be as wise as were the Romans. It is an encouraging fact that preven-

tive medicine is constantly growing in the estimation of the medical world. The prevention of disease is a thousandfold more desirable than its cure. It will need but a generation to blot out many diseases and, through sanitary science, put a new and cleaner face upon mother earth herself. The dawn of the era of cleanliness has set in. Unfortunate is the person who can not enjoy a Turkish bath, for it evidences an abnormal condition of the system. With most such cases the shortest road to restoration would be through a wise and persistent use of the bath. Daily I see persons borne down by unnecessary suffering who, by a timely use of the bath and a slight deviation in their habits, would not only be saved this suffering, but they would place themselves upon a higher plane of health. Every man, woman and child would be the better for a Turkish bath once a week during his or her entire life. The young would develop more perfectly, growing straight, strong and handsome, the middle-aged would have less sickness and suffering, and increase in years imperceptibly, while the aged would grow old gracefully, because saved many of the discomforts of advanced years. There is no more important factor in personal hygiene. With complete external cleanliness come purity and perfect circulation of the blood, and the best conditions of health follow as a natural sequence. Thus prolonged life and a larger degree of comfort during life are secured. This desirable habit should be concomitant with obedience to physiologic laws. Indulgence in stimulants and narcotics, or any form of what is called high living, can never be made compatible with a clean life. A few generations living in the better way would bring about a higher standard of health and a new order of life. Twenty-six years ago to-day, upon a similar occasion in this room, I made a short address and closed with this wish: "May Brooklyn, one of the pleasantest cities in which to live, soon have the most magnificent Turkish bath in the world." By no means shall any exertions on my part be relaxed until this is an accomplished fact.

A CASE OF PRIMARY (?) LARYNGEAL DIPHTHERIA, TREATED WITH BEHRING'S ANTITOXIN.

BY EDWIN J. KUH, M.D.

CHICAGO.

Freda H., a robust girl, aged 7 years, complained of hoarseness on November 6, and remained indoors without symptoms of fever until November 11. On that day she took to her bed, and Dr. F. W. Mercer saw her for the first time. On the same afternoon I saw her in consultation with Dr. Mercer. During the day the temperature had ranged at slightly over 102 degrees. The fauces were entirely free, with the exception of a small, white, loose deposit on both tonsils, which was easily brushed away with cotton mounted on a probe. The child was hoarse and the larynx somewhat stenotic. No retraction of chest upon inspiration. Bronchitis in larger tubes. Examination of the larynx was very unsatisfactory, because of an unusually depressed epiglottis, and the child's intolerance of laryngoscopic examination.

The next morning, November 12, she coughed up a piece of membrane two inches in length, one-half an inch in width, and one millimeter in thickness. Laryngeal respiration was but slightly improved, and shortly after became very difficult. Temperature about as before, but pulse rate as high as 165. I saw her the same afternoon with Dr. Mercer, and injected ten cubic centimeters of Behring's antitoxin No. 2. A few hours afterward Dr. W. K. Jaques intubated. Cultures taken from the larynx showed the presence of Löffler's bacilli.

On the morning of November 13 the temperature reached 104½, the pulse rate was not lower, and the lungs were covered with fine crepitant râles.

This rapid inception of broncho-pneumonia led to a fatal issue at midnight of the same day. We could not observe that the injection of antitoxin had made any impression whatsoever on pulse or temperature of the child.

This unfortunate case must, however, not be considered as evidence against the efficacy of Behring's remedy, as the result was evidently clouded by the complication. The child did not die of diphtheria but of broncho-pneumonia.

1104 Columbus Memorial Building.

SOME OF THE CAUSES OF THERAPEUTIC UNCERTAINTY IN THE TREATMENT OF CHILDREN.

Read in the Section on Diseases of Children at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY A. C. COTTON, M.D.
CHICAGO.

The limited time for the presentation of this subject prevents more than passing mention of a few of the many causes that tend to increase the uncertainty of our results in the treatment of sick children.

One frequent cause of failure, faulty diagnosis, whether due to a lack of appreciation of the physiologic peculiarities incident to this stage of development, or to insufficient care in ascertaining the pathologic condition and history, we will dismiss with the mere mention; and, although in the practice of medicine, two negatives *may* make an affirmative, we will relegate the use of wrong remedial agents to the company of wrong diagnoses.

A most common cause of therapeutic uncertainty is our forgetfulness of the difference between the actions of remedies in infant and adult organisms; or rather, shall I say, because we have never learned those physiologic actions in children. As students of materia medica we have learned some few facts and theories concerning the physiologic action of certain remedies in such and such doses in adults. As practitioners of medicine we attempt to apply this knowledge, after subjecting it to a sort of mathematical shrinking and crimping process, to the relief of diseased conditions in children. Are we not guilty of studying backwards? The age \div (age + 12) = a suit of clothes made for the man, with the pants and sleeves turned up to fit the boy. "Rules for determining dose for age," "relative toleration of drugs by adults and children," are expressions that must cause the thoughtful practitioner to blush, unless he admits that he treats a woman not as a woman but as a she man. If we must have a standard of physiologic action of drugs and remedial agents and a standard posologic table, by all means let us adopt the infant; and in accordance with the mathematical idea use the sign of multiplication rather than that of division. However, the absurdity of applying our knowledge of the action of remedies in the adult organism to a physiologic entity so totally different as that of the child, is as apparent as the practice is common. Wrong habits of thought lead to wrong methods of practice. We administer larger doses of calomel, castor oil, etc., as evacuants or eliminants, for the reason that a largely over-worked glandular system is at fault, not because the patient is a child. We recognize an unstable nervous system as easily affected by neurotics and narcotics, and exhibit strychnia, and opium, with caution, but not

because it is a child. The mydriatics as respiratory sustainers may be indicated in full doses in enfeebled respiration, not because children tolerate well belladonna, hyoscyamus and stramonium.

Rapid changes in the histologic structure of the digestive tube cause extreme susceptibility to gastrointestinal irritants, too large doses of medicine producing shock, irritation or over-stimulation followed by depression. Hence small doses at short intervals are advised, or some other route to the interstitial circulation is sought, as, by medicated inunctions, etc. "Age and weight," forsooth! It is the *condition* that should determine our posology. No "royal road" is found or "therapeutics made easy" by such attempts at classification. Let us discard all such "rule of thumb" methods and dignify, not cheapen, our great art by careful painstaking application of our treatment to the especial requirements of each individual case.

Perhaps the most prevalent cause of uncertainty in our therapeutics is the almost universal ignorance or indifference as to *what the patient actually takes in the guise of medicine*. The physician may be never so careful in his diagnosis, unremitting and self-sacrificing in his attendance upon the little sufferer, elaborately scientific in his therapy as expressed in his written order for remedial agents, and then—what? Indolence, ignorance, or habit? What strange apathy, what paresis has chained the faculties and judgment of this erstwhile astute practitioner? Like the ambitious marksman with years of training and finished weapon, who, facing the target, its center the goal of his ambition, shoots into the empty air and trusts to—luck. Is it strange that he marvels at the uncertainty of therapeutics and perhaps joins the popular throng of those who descant loudly upon the inefficacy of drugs? "Throw physic to the dogs," aye, as you throw it to your little patients and the canine mortality will be greatly increased.

What avails care in diagnosis and skill in prescribing, if the prescription is left to the druggist whose shelves are filled with preparations, respectable in name to be sure, but in fact rendered inert or positively harmful from adulteration, decomposition, degeneration, contamination or which, by chemic changes and bacteriologic cultures, produce substances totally different from the active principle of the drug from which the preparation derives its name? With this in mind enter some pharmacy (?) and interrogate the shelves, and tell me if you do not find tincture of belladonna from leaves which vary 200 per cent. in atropin, tinctures of nux vomica of uncertain strength, lactucarium absolutely inert from want of care or knowledge in the gathering or preparing, lacto-peptin which is but a poor saccharated pepsin, wines of colchicum and ipecac inert from age because unstable, cascara adulterated with aloes, rhubarb with turmeric, santonin with boric acid, potassium bromid with sodium chlorid, aqua calcis showing film and precipitate, ergot inert, old spirits of nitre which has become something else, spirits of mindererus which absorbing ammonia from the air, has become alkalin and inert, oilum morrhue with cotton-seed oil, and old unstable emulsions of no one knows what? Do you not also find agents rendered dangerous because irritating or poisonous to the digestive tract? as, cream of tartar adulterated with gypsum, chalk or alum; ginger with cayenne pepper; bismuth sub-nitrate containing arsenic; sulphurous

acid, kept too long exposed to air, oxidized to sulphuric acid; dilute phosphoric acid developing fungi; Fowler's solution with fungi, oxidizing and precipitating arsenic; syrup of the iodid of iron brown with oxidation and the liberated iodine; the same irritating free iodine in old syrup of hydroiodic acid; and everywhere syrups; and again more syrups, medicinal syrups, the enshrined idol of the pharmacist, the *bete noire* of the therapist. Unstable, fermenting from sub-saturation, re-crystallizing and precipitating from super-saturation. Frequently incompatible with its medicinal agent as syrup of ipecac, and frequently rendered innocent of the medicinal agent by the fermentation process or the subsequent boiling to which the druggist resorts rather than throw the stuff away. But in whatever form, medicated or unmedicated, fermenting or sterilized, always unfit for the stomachs of our little patients.

A reconstructive as lacto-phosphate of calcium, defeats its purpose by interfering with digestion when given in the popular syrups; and the use of syrup of calcium as an antacid needs no comment.

Now you have come to the shelves of large bottles, half filled with the sheet-anchors of pediatric pharmacology. Are they not carminative, antispasmodic, anodyne, analgesic, astringent, calmative, antipyretic and stable because antizymotic? You look closely at those fragrant, pleasant aromatic waters. Old are they and filled with algæ and fungi, and rapidly becoming inert or even dangerous. Now with your microscope can you distinguish these bacteria, with which the aqua cinnamoni swarms, from Koch's comma bacilli? and do they not almost always induce choleraic diarrhea? and was not this same aqua cinnamoni a leading ingredient in the *mistura cretæ* with which you dosed your little patients for whom you wrote so many certificates of death from "cholera infantum?" Therapeutic uncertainties indeed!

This interrogation might be continued indefinitely; but for want of space I have mentioned only a few of the preparations most commonly employed in the treatment of children. Omitting the uncleanness of the clerk, the mortar, pestle, graduate, tile, spatula, bottle, stopper and vehicle; in fact, in the entire prescription nothing submitted to any sterilizing agency excepting, perhaps, the sealing wax which graces the outside of the cork. Likewise the absence of care at the bedside; the medicine glass, the spoon, the diluent, no thought of sterilization. The operative surgeon tells us that up to the last decade he killed a large percentage of his patients by introducing poisons into their systems, although his pharmacopœia contained but one principal agent, viz., cold steel. Those were the days, aye, centuries of surgical uncertainties. Now he boils his steel and, presto, an era of precision and certainty.

Let us go back to the drug-store. Ask the soda-water artist if he keeps in stock surgical supplies. What is the inventory? Sponges, catheters, bougies, bandages, lint, sutures, ligatures, drainage tubing, poultices, plush-lined cases of ebony-handled instruments, adhesive and court plasters and pots upon pots of ointments, salves, cerates and lotions. Yes, he keeps them all. Why? No surgeon will buy them. The surgeon who now introduces poisonous microbes with his trocar frankly calls it man-slaughter. The physician employing a teaspoon calls it "therapeutic uncertainties." To the tearful, despairing parent, "your child is in the hands of God," says the phy-

sician. "The patient is in *my* hands," says the surgeon. Shall we wonder if the surgeon is deified?

Wherein lies this difference? Scientific knowledge is common property, but the courage of the surgeon first rose to meet the demand for results. With one stroke he swept from the shelves of pharmacy all the rancid pots of unguents, cerates, salves and embrocations, substituting cosmolin. To the further demand for certainties he rose and took a mighty oath, before which that of Hippocrates pales into insignificance: "I will introduce into the system of my patient nothing but what I know to be innocuous." "Surgical cleanliness" became the watchword, and he made it his religion. If conventionalities and the wisdom of the ages stood in the way, so much the worse for the conventionalities. All the old and much admired stock of instruments, appliances and dressings had to go. Hospitals were torn down, operating rooms constructed, time-honored customs abandoned, nursing sisterhoods ignored, politics and sectarian bigotry defied, in the name of "surgical cleanliness." To secure this, the surgeon prepared his dressings, cleansed his patient, and sterilized his instruments with his own hands. "Let me have control of everything that touches this patient and I will assume all responsibility." The king himself may not approach the operating table. "Here, I am king." And what are the results? Surgical certainties.

Now what do we, as therapists, lack? The knowledge, the courage or the energy? We have the knowledge. "But," says a struggling practitioner, "we are not paid for this work." Nor was the surgeon until he did it; and the splendid results made rational the magnificent fee. Two operations a day are enough for any surgeon; the physician is never satisfied with fewer patients than a score. Many patients, smaller fee, poorer work. Is a life more valuable saved by surgical than by therapeutic skill? Is relief from pain less grateful when obtained through the physician's anodyne rather than the surgeon's knife?

The time is ripe for a long stride forward in pediatric therapeutics. The prevailing belief that the physician can do but little to control the course of disease in children must be positively and emphatically refuted by definite results. The physician must compel respect for his art, and compliance with his requirements, by painstaking, exhaustive diagnosis and elaborate care in the details of his management and treatment of every case. Parents must be shown the wicked folly of using the doctor and his "nasty medicine" as a bugbear with which to coerce refractory children in health, and taught that in sickness he must be allowed absolute control of the patient and every detail of the treatment. A trained and experienced nurse must be made an important factor in every possible instance. The plea of lack of time to attend to details must be regarded as an admission on the part of the physician that he has no right to undertake the case. The objection to expense must be considered an admission that the life is of little value to the parent. Absolute certainty as to what is administered, how and when, based upon an accurate diagnosis, is the only road to certainty in therapeutics, even if we have to prepare and carry our remedies to the bedside and administer with our own hands. Have we the energy to carry out our convictions? Have we the *courage*?

PERSISTENT VITALITY.

Read in the Section on Dental and Oral Surgery, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY F. O. JACOBS, M.D.
SAN FRANCISCO, CAL.

The interest that has lately been created in the operations of replantation, transplantation, etc., has raised the question among dentists as to whether a tissue will survive after having been removed from its natural position and again replaced, or after having been removed, can it again be transplanted to another individual without suffering death? And if so what time may elapse between the two operations? And if it should be determined that such operations were possible, what tissues are the most favorable to such operations? Or, in other words, and more briefly, is there such a thing as persistent vitality?

In surgical operations, just as in every other department of science, we are constantly meeting with surprises. What had been classed with the impossible yesterday is the practicable operation of to-day, and we are constantly being driven back to first principles to account for some unexpected results.

This subject involved the broad question, What are the conditions which produce death, and what conditions are required to support life? Can we lay down any law or rules that will hold good in all cases? At first we meet with so many seeming contradictions that we are discouraged in the attempt. We are prone to think that one form of life is something entirely different from another, and the rules that would apply to one will not apply to another. While we find, in general, that living organisms may exist only in an atmosphere or medium containing more or less free oxygen, some one comes along and tells you he knows of certain forms of life that can exist in an atmosphere of carbonic acid, drawing all its oxygen from its food. Another must have a medium of salt water; another must exist in fresh water; others still can not be immersed in water, but for a few moments without suffering death. Some organisms are able to withstand extreme changes of moisture or temperature. Some animal forms and also plants may be deprived entirely of their moisture; completely dried up, so that vital functions are entirely suspended until moisture is again restored. Some may be frozen in cakes of ice or raised to a temperature near the boiling point of water, without any other effect than to suspend functional activity for the time being.

Among the more highly specialized organisms the amputation of a member or organ generally produces death in the parts so treated, or in the entire organism, owing to which organ or part is separated from the body. But in the more simple forms amputation of a part only produces a new animal. A remarkable example of this is found in the fresh water hydra. This animal consists of a tube, one end of which is modified into a foot, the other is furnished with arms. The entire animal is of but one tissue. If an arm is amputated it immediately grows into a new hydra. The animal may be cut into several pieces, with the result of producing as many animals instead of death. One might think it was possessed of remarkable tenacity of life, but these animals are as easily killed as any. Turn the animal inside out, it immediately makes an effort to right itself. Should

it fail, it dies. Deprive it of moisture and it dies.

Why should the cutting of an animal in pieces only have the effect of multiplication and simply depriving it of moisture produce death? Exactly the reverse of some other plants or animals. The explanation is probably this: Its stricture is that of large delicate cells, very soft, which are easily broken up by desiccation, so that by depriving it of moisture its structure is destroyed; death is naturally the result. Cutting it in pieces only multiplies it, because it is composed of but one tissue throughout, capable of performing the same functions. Hence a piece, if separated from the remainder of the animal, is not dependent upon it to perform any of the functions necessary to support life. Reversing destroys its life because the cells on the inside of the tube are so modified as to perform the functions of assimilating food; while the outer cells are for the protection of the inner. When the animal is reversed neither of these sets of cells are in a position to perform their natural functions, therefore death is the result.

Now, there are other plants and animals of which the reverse is true, which if deprived of their moisture simply remain inactive until the proper quantity of moisture is restored, when they resume their normal functions. In their case the cell structure is a strong firm tissue, which is not broken up by desiccation. Depriving the living matter or protoplasm within of its moisture is not a chemical, but a physical change. Chemical action, oxidation, etc., goes on extremely slow, if at all, until the proper conditions are again restored for the performance of its natural functions. The living matter within the cells is a chemic compound, the exact chemic nature of which is not known, but its constituent elements are known. It is extremely unstable, being constantly acted upon by free oxygen; on the one hand it must be constantly taking up the proper material, on the other to preserve the equilibrium in its chemic nature. Its affinity for water is great and its activity depends upon the presence of water; the more water it is able to absorb the more active it becomes. In the absence of that element activity ceases until moisture is restored unless some chemic change takes place, when it is no longer protoplasm. As it does not form compounds with other substances without losing its identity, differing in the least from itself in chemic nature a living tissue is never attached to a dead one or to other substances. Hence, when a living tissue is found attached to another, supposed to be a dead one, it must be considered evidence that the tissue supposed to be dead is at least possessed of a low degree of vitality.

What has been said of protoplasm is true of it wherever found, for living matter is the same thing wherever found. The different modes of death cited above are due to the difference in the structure of the tissue it inhabits. Where the tissue is composed of firm hard cell walls it is much more able to endure desiccation. Where an organ is composed of a similar tissue throughout its entire body, separating it into pieces only multiplies it.

One of the present methods of skin grafting, scraping the epithelial cells from the surface of the skin on to the part to be engrafted, is a case where a tissue or cells of formed tissue is engrafted on to another tissue, forming a union and a new tissue; transplanting.

Now, if a tissue can be transplanted from one

place or location to another, some time must elapse between the two operations. It then becomes a question how long will a tissue endure between the two operations, and what tissues are most favorable to such operations? How long could the scrapings of epithelial cells be preserved before transplanting, or how much time might elapse between the operation of extracting and of transplanting a tooth? The evidence furnished by such operations is conclusive that it is much greater than any of us have supposed. Bone may be engrafted from one animal to another, even chips of bone may be placed in the wound and a new tissue formed around it.—("American Text-Book of Surgery.")

Why may not a tooth be successfully transplanted? Its structure is not changed by extracting, and decomposition is less likely to set in than in any other tissue of the body.

The above illustration may seem to be far-fetched, but not so. Much of what we have yet to learn in physiology must be drawn from the study of minute and simply formed organisms. The facts to which I have called your attention will show that death implies a chemic change, and without that there is no death.

It also shows that the tissues that are best suited to transplanting, replanting, etc., are hard, firm and simple structured tissues, like the skin, the teeth and bone. Those less suited for such operations are of delicate cell walls and soft loose structure that will easily collapse when removed from its normal position and by loss of moisture.

The success that has been met with in transplanting such tissues fully confirms the above conclusion.

DISCUSSION.

DR. YOUNGER—I am glad that so able a microscopist as Dr. Jacobs is able to substantiate opinions which I have held and advocated for years. Although they were at first denied they are now, I believe, being looked upon with more favor. Dr. Barrett has confessed that he is a convert; Professor Wyeth and Professor Leconte have expressed their belief in persistent vitality; and now we have Dr. Jacobs, who was formerly opposed to the idea, testifying to its truth. He has stated the doctrine better than I can. I told Professor Garetson that the operation of implantation was a success, and that he would have to acknowledge it some time or other.

DR. DUNBAR—Like many others, I am waiting for more definite proofs on the point, though I think Dr. Younger is entitled to credit for the manner in which he has stood up for this theory. I don't think I can add anything to the presentation of the subject which has been made.

DR. JACOBS—The subject has not been sufficiently discussed for me to say much in reply. What I intended to show was that living matter, no matter in what form it is found, acts the same under similar conditions. If a bone or a tooth persists longer than muscle, it is because of the difference in structure. I attempted to show by plants and other animal tissues that where they withstood desiccation it was because of their strong cell structure. The resurrection plant, as is probably known to all of you may be laid away for years, for an indefinite period, and then if supplied with moisture it begins to grow. This is not because of a difference in its protoplasm, but because of its structure. It has been simply dormant; there has been no change in its living matter. Because the living matter in the tooth is found in a little thread protected by strong walls, it has not much chance of destructive changes; consequently why should it not be restored when placed where it can be nourished?

DR. YOUNGER—One of the best proofs of persistent vitality is the return of sensibility to an implanted tooth, even after it has been a long while out of the mouth before being implanted.

DR. DUNBAR—Is your confidence in persistent vitality such that you would leave a desiccated pulp in place in a tooth you intended to implant?

DR. YOUNGER—I remove the pulp as a rule, because I am not sure there is not some dead tissue in it, but the fibrilla

of the pulp in the dentinal canaliculi are left, and that is where the vitality may be re-awakened. (Dr. Younger here related the first instance in which he observed the principle which he calls persistent vitality.)

DR. TALBOT—I have reported a case which appeared to proceed on the same plan which Dr. Younger has demonstrated. It has already gone the rounds of the journals without a satisfactory explanation having been offered. It seems to substantiate Dr. Younger's idea.

DR. W. L. CAVELL, San Francisco—Related the case of a patient, now a lad of 16 who about two years ago, while playing at school had the two superior centrals knocked out. The teeth were replanted on the following day by a dentist with the ordinary antiseptic precautions, but the apical foramina were not closed, being left in the natural condition. During my senior term at the college, the patient was given to me to be treated for a cleft palate, when a medium-sized cavity was found on the mesial surface, midway between cutting edge and cervix of the left central. In preparing the cavity I opened into the pulp-chamber which I supposed had been filled. A hemorrhage sufficient to fill the cavity and allow of a drop to fall upon the dam followed the opening into the chamber by the bur. After assuaging the hemorrhage I capped the tissue in the ordinary way and inserted a gold filling. The tissue in the pulp-chamber was found on examination to be highly vascular, sensitive to the touch, but thermal changes caused no inconvenience. The tooth was not sensitive to the bur or on application of ice. The edges of the cavity were zigzag.

DR. DUNBAR—I gave it as my opinion that in the case of all replanted teeth there is an effort on the part of nature to remove the replanted tissue. I believed that ultimately all these teeth would be exfoliated with absorbed roots; and I gave it as my opinion that in those cases which were accounted successful probably one-half or more of the root was absorbed and the place of the absorbed structure filled with hypertrophied tissues. But I do not think that any harm is done by the treatment. Dr. Talbot's case was a very remarkable one. I was interested in a paper by Dr. Henry Chase many years ago on dental circulation. It would be interesting to know just where the exchange of pabulum took place in this case. I have taken the view that a tooth is doubly nourished,—from the pulp and from the pericementum. All dentists who have had experience in replantation or transplantation know that the tooth changes color in forty-eight hours, which is due to the moisture which it absorbs, as there is no circulation of blood in the tooth. I recall the case of a butcher who broke a bicuspid, in which the tubuli were injected; they were clearly colored by the hematin of the blood. Although there is no circulation of blood in the tooth, there is a movement of the blood plasma from the foramen and the pericementum, and by osmosis there is an interchange between the two, and I have had a theory that this interchange took place in the interglobular layer. I have had no demonstration of this, but it is a plausible explanation. With reference to Dr. Talbot's case, I can not see how a dead tooth would be affected in the way described, though in a case of immediate extirpation of the pulp it could readily occur; but that is contradicted by the fact that in all the cases of implantation I have had, the pericementum is dissolved away, and on percussion there is an absence of the springiness characteristic of normal teeth. If the pericementum is gone, where does the tooth get its nourishment from?

DR. YOUNGER—The tooth referred to by Dr. Jacobs split, and when I got another suitable tooth to take its place I attempted to extract it whole, but an implanted tooth is very difficult of extraction, as any one who has tried it will testify, and this one pulled apart. Dr. Jacobs, upon examining it under the microscope, said that it had true pericemental tissue clinging to it.

DR. JACOBS—I expected to read my paper yesterday, and I then had sections from these specimens with me. I will bring them to-morrow. I agree with Dr. Dunbar that there is no true circulation of the blood in teeth, except as he said where the apex is not so thoroughly calcified, but the circulation there is exactly the same as in plants. It is always up, never down. Osmotic action proceeds from above and below. In the absorption of implanted teeth I hold that the process is occasioned by lack of nourishment. Such a tooth has no pulp, from which the principal part of the nourishment of a tooth comes, and when the pulp is gone not enough pabulum is received to keep the tooth in health.

DR. TALBOT read a request for the members of the Section to assemble with the other delegates to-morrow at 1 o'clock in front of the Mint to have a photograph taken.

SOCIETY PROCEEDINGS.

Mississippi Valley Medical Association.

Abstract of the Proceedings of the Twentieth Annual Meeting, held at Hot Springs, Ark., Nov. 20-23, 1894.

FIRST DAY—MORNING SESSION.

The Association convened in the large dining room of the Eastman Hotel, and was called to order at 11 o'clock by the Chairman of the Committee of Arrangements, Dr. Thomas E. Holland, of Hot Springs.

Prayer was offered by Rev. Joseph A. Dickson.

An Address of Welcome on behalf of the State was delivered by Governor Geo. W. Fishback. Hon. W. H. Martin, of Hot Springs, followed with an Address of Welcome on behalf of the citizens of Hot Springs. These addresses were excellent, well delivered and warmly applauded.

After the reading of the reports of the Secretary and Treasurer, the President, Dr. X. C. Scott, of Cleveland, Ohio, delivered his Address.

PRESIDENT SCOTT referred to Hot Springs as a desirable place for the meeting. All medical associations should be founded and carried on for the purpose of elevating the profession, and producing a beneficial influence upon its members, and also that they may meet face to face and thus learn to know each other personally and better. They should elevate personal character, afford protection to professional interests and advance personal attainments. He urged upon the Association the importance of issuing, if possible, an annual volume of Transactions, which he thought could be easily done with the annual dues at \$3. To be successful, the financial affairs of the Association must be conducted with the same careful and rigid supervision that pertains to any private business. The membership was not as large as it should be. He urged that each member go home from the meeting determined to bring with him next year one or more members. If this was done there would be no longer a complaint of paucity of members.

The holding of the annual meetings in different parts of the Mississippi Valley was to be commended, for by so doing we increase our membership and spread wide the good work done by the Association. He thought the idea of reading all papers before the general body would afford larger audiences, create more interesting and better discussions, and consequently result in a maximum good to a larger number of members.

Since the last meeting some of the States have passed excellent laws governing the practice of medicine, surgery, and midwifery, but he was sorry to announce that in other States where it had been attempted to pass similar laws they had failed from the want of enactment.

At the conclusion of the President's Address, a committee of five was appointed to consider the suggestions contained therein and to report at a subsequent session. On motion, the Association adjourned until 2 P.M.

FIRST DAY—AFTERNOON SESSION.

The first paper read at this session was by the Hon. W. S. KERR, of Mansfield, Ohio, entitled

SOME OBSERVATIONS ON THE RIGHTS AND DUTIES OF MEDICAL WITNESSES.

The paper dealt with the rights of physicians and surgeons when subpoenaed as expert witnesses, and with the duties incumbent upon them as members of a learned and honorable profession when they are called upon to testify as medical experts. The weight of expert medical evidence depends upon two qualities: 1, the skill, learning and experience of the witness; and, 2, his honesty. The latter quality can be and should be alike in all. The former, in the

nature of things, must vary and differ in degrees almost infinite in number. A physician whose practice has been confined to the small towns or the country could not be an Ericsson, nor one of three years' experience an Agnew. But all are admitted to testify to those things which they have studied and practiced, and the course of truth and justice demands that, according to their lights, they should testify the truth, the whole truth and nothing but the truth. The evidence of an expert should be compensated for commensurate with its value. In criminal cases the amount should be fixed by the court; in civil, by agreement between the expert and the party calling him. The medical expert should never have his opinions for sale. Fidelity to his profession and its great principles should be his pole star. Medicine is the greatest of the professions. It deals with life and health, the dearest possessions of this sphere. Its members have ornamented the most exalted stations, and in its daily work, without herald or drum beat, it modestly performs its great task in life.

The author then quoted the opinions of several distinguished judges and lawyers regarding the importance of medical expert testimony.

DR. EMORY LANPHEAR, of St. Louis, followed with a paper entitled,

BONE AND JOINT TUBERCULOSIS THE FUTURE FIELD OF LITIGATION AGAINST RAILWAYS.

He submitted the following conclusions:

1. Pott's disease, hip joint disease, white swelling, and most chronic joint affections are tuberculous, and that "scrofula" has no existence, being an attenuated tuberculosis.

2. The family history is unimportant, as tuberculosis is always acquired—never inherited. The presence of tuberculosis in the family simply gives a better opportunity for infection.

3. Infection may occur in very early life. The germs lie dormant for many years in the lymph glands, and local tuberculosis only develops after an accident.

4. An injury to a bone or joint must be slight in order to cause tuberculosis. If severe, the resultant inflammation or hypernutrition is not favorable to the proliferation of the bacilli.

5. An injury *alone* can never produce tuberculosis. The bacillus must always be present in the system, or introduced into a wound at the site of injury.

6. *Per contra*, bone or joint tuberculosis would never develop without a slight local injury.

7. If, after the railroad accident, falls, wrenches or other accidents may possibly have occurred, the local trouble may be due to them as well as the railway injury. There must be a direct sequence to attribute the disease to the local injury.

Dr. ROBERT H. BABCOCK, of Chicago, made some remarks on "Enlargement of the Heart without Valvular Disease, with Especial Reference to Treatment."

The author said that idiopathic enlargement of the heart, as Fraentzel designates it, affecting primarily the left ventricle, is due primarily to prolonged high arterial tension, and this increase of arterial tension may be secondary to 1, cirrhosis of the kidneys; 2, chronic arterio-sclerosis; 3, congenital narrowing of the arterial system; and 4, some obscure condition probably dependent upon defective assimilation and elimination, which is not fully understood, connected probably with the circulation in the blood of toxins. The author wished to be understood as speaking of idiopathic enlargement of the heart without valvular lesions. Prolonged high arterial tension he considered the chief factor concerned in the production of this form of enlargement of the heart. The enlargement may involve either the right side or the left side of the heart or both. A case was reported in which the enlargement was primarily of the left ventricle, and the enlargement which existed on the right side of the heart was probably secondary to the dilatation which had taken place of the left ventricle. Prolonged high arterial tension, when independent of organic disease of the kidneys or blood vessels, seems to be due to what the Germans call *luxus consumption*. It is observed in

individuals who belong to the better class, who are more or less sedentary in occupation, who are hearty feeders, and oftentimes great diners-out. The treatment was divided into, first, the treatment of the stage of loss of compensation in which the heart is at first broken down in its resistance. Rest is the important factor along with cardiac stimulants and the administration of remedies calculated to decrease the high arterial tension. The patients usually present themselves with dyspnea, cough, and frothy expectoration, and an extremely rapid and feeble pulse, with all the evidences of cardiac dilatation. The first indication, therefore, is to relieve the over-distended left ventricle and to whip the heart on to increased vigor or contraction. Hydragogue cathartics are therefore indicated from the first, since their action is to lessen arterial tension, and by preference the author uses one of the mercurials, since the effect of calomel or blue mass is to lessen arterial tension even before its effects are manifested on the intestines, and this is followed by a saline. Digitalis, strophanthus, and their congeners are not suitable to the cases in the stage of loss of compensation, since the effect of digitalis, and to a less degree strophanthus, is to increase the resistance within the arterial system, and thereby increase the strain, already too much for the impaired right ventricle. It is preferable to administer an arterial stimulant rather than one of the so-called cardiac tonics. Under the effect of rest and cardiac stimulants, improvement in the condition is generally manifested speedily.

The author then referred to the Schott method of treating these cases, which consists of baths and gymnastic exercises. He stated that the treatment had been used in Germany for more than ten years. A combined course of baths and gymnastics is given for an interval of from perhaps seven or eight weeks. He considers this method of treatment suitable to all forms of chronic cardiac disease, excepting those in which heightened arterial tension would be disastrous, as in widespread and extreme chronic arterio-sclerosis, aneurism of the aorta or other large vessels, or cardiac aneurism.

DR. W. T. BAIRD, of Dallas, Texas, read a paper entitled "Oxygen as a Heart Tonic and Some of the Benefits which may be Derived from its Use as Such."

DR. W. H. DALY, of Pittsburg, Pennsylvania, followed with a paper entitled

MALARIA A WATER-BORNE DISEASE.

The author said in summing up the evidence in a given case of so-called malaria, it is important to remember that the water vehicles of malaria may include contaminated land water, taken into the stomach on the stalks of celery or on the leaves of lettuce, or it may find its vehicle in the rinsing of milk cans with malaria water or in the adulteration of milk with contaminated water containing the Laveran germ; the cistern water stored under the earth may be easily contaminated by the earth water containing the germ, if the cistern itself is cracked or otherwise inefficient. The fact that the patient has drunk at all of suspected water, even but once, ought to be taken into consideration, as the single draught of contaminated water may have contained all the necessary germs for the infection of the blood and the production of the fever. The author defined his position on this question by quoting from an article, published in the *Medical Record*, of Sept. 15, 1894, wherein he says: "Twenty years' observations and studies on this subject and investigations made in various districts from Manitoba to Louisiana, and all along the southern coast of the Atlantic Ocean, and of Cuba, Yucatan and other districts in Mexico, lead the writer to the conclusion, that so-called malarial disease is not easily, if at all, contracted by inhaling so-called malaria or bad air of the low, swampy or new lands, but it is distinctly, if not *almost exclusively* due to drinking the water that has come in contact with and become infected by the malarial germs or infusoria that exist in the earth and waters of the swamp and low lands. This germ does not ordinarily, if at all, float in the air during the day or does it easily find a vehicle in the fog or vapors of the night."

The author then quoted at length the contributions of Laveran and others, to show that malaria is a water-borne disease.

THE INFLUENCE OF EARLY TREATMENT ON THE LATE MANIFESTATIONS OF SYPHILIS.

This paper was read by DR. A. RAVOGLI, of Cincinnati. The author said that syphilis must be seriously treated, and the opinion of letting it take its own course is a heresy condemned by experience. Mercury is the true antitoxin

for this disease. It is necessary in instituting treatment to take under consideration the general condition of the patient, his habits, his general health, his surroundings, etc., which have great influence in the toleration of the medicine. The author believes that early, well-directed treatment of syphilis will prevent tertiary symptoms. Mercury can be administered either by the stomach, by subcutaneous injections, by inunctions or by baths. The selection of the method should rest on the good judgment of the physician.

SECOND DAY—MORNING SESSION.

DR. A. P. BUCHMAN, of Fort Wayne, Ind., read a paper on
INTESTINAL INDIGESTION.

Intestinal putrefaction is in its incipient stages not due to a pathologic condition of the tube below the stomach and duodenum, but is dependent solely upon errors of gastric and pyloric digestive processes. Excess of food ingested will universally induce such putrefactive processes, which in infancy and childhood are exhibited in the bowel diseases of early life and can with reasonable certainty be differentiated from deflections by other causes, by the odor and appearance of the dejecta. This phase of intestinal indigestion is due to the primary action of certain bacteria on albumen and albumenoid substances which have slipped past the duodenal gateway without receiving the vito-chemical touch necessary to render them harmless, is intermittent and transient and of little consequence until by constant repetition it becomes a menace to the general organism. The toxic elements generated in this process sooner or later render glandular and cell environments of the intestinal tube altogether unhealthful. The air patients breathe, the water they drink, and the food they eat are charged with a miasm which absolutely forbids a healthy reaction, hence most complicated and decidedly serious pathologic conditions arise. The author said another chief source of intestinal indigestion arises from the inability of the tube below the pylorus to successfully cope with the relatively enormous quantities of carbo-hydrates and hydro-carbons that are daily and continually ingested.

In the second stage of intestinal indigestion the whole lining membrane of the intestine is thoroughly catarrhal, its epithelial investment is no longer capable of performing its allotted work with any sort of regularity and normality. The villi are practically paralyzed and entirely cease selective absorption. The whole glandular structure is undergoing degenerative and thickening processes; the ileo-cecal valve is paralyzed, the cecal end of the colon now fails in its peristaltic movements, the valvular opening to the appendix is permanently relaxed, admitting into the tube whatever may be in the vicinity of its mouth, hence the frequency of appendicitis. The colon becomes thickened throughout its entire structure; the colonic valves become lengthened and thickened. The further changes that take place in intestinal indigestion were pointed out by the essayist. In the third stage we have a large grouping of diseases which, when studied from this point of view arrange themselves in most orderly sequence around their cause. They mainly consist in such forms of pathologic action as result in speedy dissolution, as, for instance, hasty consumption of the lungs, the forms of Bright's disease that run a rapid and fatal course and consumption of the mesenteric glands. Many, if not all, of the rapidly fatal diseases of the nervous system belong to this grouping. In conclusion, the author said that any form of treatment instituted for the relief and cure of intestinal indigestion must necessarily include a careful consideration of the stomach and colon; that very little, if any, amelioration of symptoms will result unless they are both rationally included. Inasmuch as the colon is within easy reach via the rectum, it is the author's experience that colonic baths properly medicated are immensely useful in the general treatment and care of patients suffering with intestinal indigestion.

DR. J. E. WOODBRIDGE, of Youngstown, Ohio, read a paper entitled "Typhoid Fever can be Aborted; another Year's Work with no Death and no Failure in Evidence."

This paper was in the nature of a supplement to the author's previous contributions on this subject which have been published in medical journals, and with which a great many members of the profession are familiar. It will appear in an early issue of this journal.

DR. HENRY SUMMA, of St. Louis, read a paper entitled "Ox-Gall in the Treatment of Typhoid Fever." The author highly recommended its use in this disease, and has obtained excellent results with it.

(To be continued.)

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SATURDAY, DECEMBER 1, 1894.

THE SCIENTIFIC DEPARTMENTS OF OUR DRUG
MANUFACTORIES.

The times have changed in America when the pharmacist was simply the importer, perhaps part owner of the ship which brought his cargoes to our shore. He has now become not only a merchant, but a manufacturer; not only a manufacturer, but a scientific producer, and in the particular realm of science to which he devotes himself, he has few superiors in practical chemistry. We might, however, say the same of many other leading industries. Indeed, it is the tendency of the time that directness, simplicity and economy govern all manufacturing establishments. Even the beer breweries now employ expert chemists who test the various productions, estimate the value of the hops, and malt, govern temperatures, and give directions as to the length of time to be occupied by given processes. The chemic laboratories attached to the establishments of manufacturing pharmacists, have grown to be very extensive, very complete, and give employment to the highest order of attainment. It is natural, then, that men engaged in such pursuits should seek some outlet through which the world must become familiar with their studies, investigations and results. This has led to somewhat irregular or rather desultory methods of establishing quasi-medical journals or tracts of uncertain publication, and various papers which, excellent in themselves, have fallen short of the mark and failed to reach those for whom they were intended by their being handicapped with the suspicion of commercial interest.

The time has come, however, when the vast stock of chemic and pharmaceutical knowledge stored in these great laboratories must be made available to the American medical profession.

DR. SQUIBB, of Brooklyn, New York, well known as a manufacturing chemist of note, several years ago pointed out the way whereby the experiments made in his laboratory could become the property of the profession. SQUIBB's Ephemeris was the result, and it at once took a high rank in the profession, and we have not learned that the sale of the products of the laboratory of DR. SQUIBB has been in any way hampered or lessened by his giving in scientific form not only the means whereby these different products can be tested and their purity established, but the formulæ whereby they were best prepared. Therein lies a lesson for other manufacturers who have large establishments and even greater facilities for work of the highest value to the dispensing pharmacist and practicing physician. Let us have more scientific productions from the great laboratories of our manufacturing chemists. Let them publish their methods, the scientific experiments which they make, and when they have attained clear and definite results let them be boldly stated. Not only will they gain in the opinion of the medical profession, but it is more than probable that the value of a scientific name will be appreciated by the profession in such a manner as to make it pecuniarily profitable not only to issue ephemerides, but regular working bulletins and monographs. Some of the manufacturing establishments in Europe have been pursuing this course for some time, and we understand that from time to time some of our own manufacturers have published occasional monographs or "working bulletins," but the systematic output, if we might term it, of the scientific investigations conducted under the direction of our leading firms has not, we believe, been at any time regularly or completely carried out.

This result, we trust, will shortly be accomplished, and it is probable that with its accomplishment there will come the end of that series of products classed under the name of "secret preparations," which have in the past given rise to so many controversies, and such wide differences of opinion between the medical profession which should be working for the common unity of the profession. If it be urged that a large number of these manufacturers are engaged in general trade, and that therefore they do not become personally responsible for the character and chemic purity of every product shipped from their establishments, it may be answered that the division of their establishments into general and scientific departments, so that any products bearing the label of the scientific department would at once be *prima facie* evidence of its purity, and in this case the objection would fall to the ground. There would be no question in the mind of any of the members of our profession if at the head of each scientific department so created, a well-known scientific man were placed, in order that there would be a definite responsibility for any statement made by him.

THE DEGREE OF D. P. H.

The JOURNAL is gratified to learn that at least one medical college has already taken steps looking to the establishment of a course leading to the degree of Doctor of Public Health—as suggested editorially in these pages last month.¹ The institution is prosperous, well equipped and ranks in the higher class of the four-year medical schools in one of the important centers of medical education. The JOURNAL will give publicity to its announcement as soon as the details of the course in sanitary science and State medicine are perfected.

Meanwhile, in order to facilitate the establishment of similar courses by other institutions, the following summary of the requirements for this degree exacted by the General Medical Council of the United Kingdom is offered. These requirements are based, as stated in the previous article, on the provisions of the Local Government Act of 1888—to-wit, that no person shall be appointed medical officer of health in any district unless he is legally qualified to practice medicine, surgery and midwifery; nor in any district of over fifty thousand inhabitants unless he is also the holder of a diploma in sanitary science, public health or State medicine. It is with the latter of these provisions that the General Medical Council is empowered to deal. In December, 1893, it declared with reference to those who begin the study of sanitary science after January 1 of the present year, that it will not consider the prescribed diploma deserving of recognition in the Medical Register—without which it is valueless as a qualification for the appointment—unless it has been granted “under such conditions of education and examination as to insure (in the judgment of the Council) the possession of a distinctively high proficiency, scientific and practical, in all the branches of study which concern the public health.”

The conditions of such education and examination required by the Council are in substance, as follows: 1, no candidate for the degree of Doctor of Public Health shall be eligible for examination in sanitary science, public health or State medicine until he has spent at least one year in the study of these subjects *after* he has become a legally qualified practitioner of medicine, surgery and midwifery; 2, six months of this period must have been spent in study in some approved laboratory in which is given practical instruction in chemistry, bacteriology and the pathology of the animal diseases transmissible to man; 3, another period of six months, or its equivalent, must have been spent in the practical study of out-door sanitary work; 4, satisfactory evidence of compliance with these conditions—as well, also, as evidence that he has attended the clinical practice of a hospital for infectious diseases—must be presented to the

examiners, who shall be men specially qualified to conduct such examinations. The examinations extend over not less than four days, one of which is devoted to practical laboratory work and one to the investigation of and report upon subjects within the special out-door duties of a medical officer of health.

The foregoing summary embraces only those points of the English system likely to be available for adoption in this country, but sufficiently indicates the essentials of a thoroughly practical course for an American degree of D. P. H.

A BROAD FIELD OF INQUIRY.

Some months ago two leading teachers of the faculty of the medical college at ——— refused to sign the diplomas of four medical students, because they were known to be beer drinkers, and had been intoxicated during the lecture term. They had passed all the examinations with credit, and fulfilled all other requirements, and two of them had been cautioned by a professor in regard to drinking, the previous year. The majority of the faculty were disposed to grant them diplomas, on their promises of change, and by signing the pledge. The minority refused stoutly, and the matter was deferred. Recently, this has become a serious question; some influential friends of two of these students demand a final decision by the faculty. Several exciting meetings have been held, and the authorities are almost equally divided. It is held that these students are still drinking, and will disgrace the college which grants them diplomas. On the other side the drinking is doubted, and the past drinking is affirmed to be only the reckless overflow of generous convivial spirits, that will subside when engaged in active life work.

The defenders of the students refer to several members of the faculty who are moderate drinkers, and urge that these students should not suffer because of the narrow, fanatical views of persons whose habits differ. The battle is still going on, and it is needless to add that several good men are greatly excited over the issue of this case.

In another part of the country the same questions recently came to public notice in this way: Two medical men appointed by the Legislature on a very important medical commission, were rejected by the Governor. The surprise and disappointment roused a bitter feeling, which since the late election has brought out an explanation concerning the reasons for this rejection. The capability and respectability of these men were affirmed, but their habits of moderate and occasional intoxication were considered dangerous weaknesses, of which designing men might take advantage. The Governor declared that as the report of this commission would decide very influential interests he was not willing to have any one whose judgment might be influenced by spirits.

¹ “A New Field for the College,” JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, NOV. 10, 1894; p. 529.

Still another bitter disappointment is made public in an Eastern college town. A young physician of superior talents who has been an assistant, and has been acting professor in an important chair that is vacant, finds himself put aside and another man placed above him. His superior endowments and training, with influential friends, are ignored, and an inferior man given the honors. The usual wild protests and indignation bring out the reason that he is a wine drinker and has been seen intoxicated at the club. This opens up a bitter field of personalities, and newspaper war of letters.

These incidents are significant of a change in public opinion, and a sharp tendency to make an issue of questions that would have been passed over in silence a few years ago. The capacity or incapacity of a moderate or excessive user of spirits attracts attention and is discussed seriously in cases where the question of brain vigor and health is involved. Business and practical men approach this question without any sentiment, and demand the facts sustained and confirmed by common experience.

The medical profession have a great duty here which they have much neglected. The disputed questions concerning alcohol are purely medical fields of study, and yet the profession has scarcely been heard as either pioneers, students or teachers along this line. In the place of scientific study, two great parties are battling each other; one of wild-eyed emotional reformers who denounce alcohol in every way, and the other party who support it and extol its value as a food, medicine, and beverage. The profession stand aloof—indifferent, or tacitly support either one side or the other. In reality, no topic in modern science is more vital and more intimately associated with disease and the sanitary interests of the community. The physician who is looking round for new fields of study and research will find vast undiscovered stretches of country awaiting the explorer along this line. The strangest and most significant fact of all is, that public opinion is far in advance of the physician in interest in this subject, and in some respects in knowledge concerning it.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

In a narrow valley at the southern extremity of the Ozark Mountains, the annual meeting of the Mississippi Valley Medical Association was held. The town of Hot Springs is now said to have about 17,000 inhabitants. It does not seem to contain one-half so many, because the valley turns and winds among the high hills in such a manner that but a small portion of it is visible at a time. The climate was all that an enthusiast of Hot Springs could desire; sunny sky, balmy air, and distant haze on the mountains; and the excellent hotel accommodations contributed to make the environment very pleasant.

Many professional men were attracted to this meeting in order to see the place to which they had often sent patients, that they might have a more intimate and personal knowledge of this great sanitarium of the Mississippi Valley. They found that its virtues had not been exaggerated, and here was a young city filled with energetic and enterprising citizens in marked contrast to the towns and villages the traveler passed through in order to reach it. The citizens with large-hearted hospitality threw open their doors to the incoming visitors, and endeavored to the best of their ability, and with great success, to convince them of the superior qualities of the Arkansas Hygeia.

The attendance at the meeting was larger than that of last year, and we learn the registration numbered about two hundred. The scientific character of the papers was all that could be desired from such an assemblage, and PRESIDENT SCOTT with excellent tact, kept them well at work. We shall have many of the papers printed in full in the JOURNAL, and of the others we will have, as appears elsewhere, a full abstract of the meeting.

The banquet on Thursday evening was held under the guidance of that inimitable Toastmaster, DR. I. N. LOVE, of St. Louis. It was elaborate and well attended; but if we were allowed to criticise we should say that its sweetness was too long drawn out, as it not only lasted into the "wee sma' hours," but also into the larger hours of the morning. Business over, the Association adjourned, but some of the members still lingered to refresh themselves with the pleasant waters of the springs, and to rest a little from the arduous character of their labors. Altogether it may be said that the visit to the Hot Springs, of the Mississippi Valley Medical Association is one long to be remembered, and marked in the history of the Association with a white stone. The next meeting will be held at Detroit under the presidency of DR. WISHART, of Indianapolis.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

The seventh annual meeting of this Association was held in Charleston, S. C., November 13-15, under the presidency of DR. C. KOLLOCK. There was an average attendance, and the program heretofore published in the JOURNAL was closely adhered to. The papers read were of a high character, and the discussions which followed were spirited. The JOURNAL will endeavor to publish a full abstract of the proceedings in a subsequent issue. The Association adjourned after having elected DR. L. McLANE TIFFANY, of Baltimore, as President, and DR. W. E. B. DAVIS, of Birmingham, Alabama, Secretary. The Association selected Washington, D. C., as its next place of meeting, and the time the second Tuesday in November, 1895.

CORRESPONDENCE.

LETTER FROM BERLIN.

BERLIN, Nov. 10, 1894.

To the Editor:—I arrived in Germany on the 24th ult., and stopped for a short time in Bremen and Hamburg before coming to this city.

Through the kindness of Dr. Dunbar, Director of the Hygienic Institute in Hamburg, formerly an American citizen but now a German subject, I was introduced to Dr. Schede, a pupil of Volkmann, and Oberorzh of the New Eppendorf General Hospital—a new hospital of 1,800 beds, constructed on the pavilion plan, situated in Eppendorf, a suburb of Hamburg. The operating room is well arranged as to light and all the conveniences for modern surgical operations.

Dr. Schede courteously showed me over the buildings and invited my attention to many of his cases, the number and variety of which gave evidence of the vast amount of material that might be utilized in clinics. And yet Hamburg, a city of more than half a million inhabitants, has no medical school to make good use of this abundant material for instruction.

I saw Dr. Schede do an operation, original with himself, for the radical cure of varicose veins of the lower extremity, which deserves notice. He makes an incision from four to six inches below the knee around the entire circumference of the leg, dividing skin, fascia and all the superficial veins down to the muscles—as if he were about to make a circular amputation of the leg. The cut ends of the veins are then picked up, both above and below, tied with catgut and the wound closed. He informed me that he had performed this operation thirty or forty times, and in every case, without exception, with a satisfactory result.

The antitoxin treatment of diphtheria still excites the greatest interest here, and it would seem to an impartial observer that the efficacy of the remedy has been established beyond controversy, both French and German authorities agreeing that the mortality has been reduced from 50 or 60 per cent. to 10 or 12 per cent., and it is claimed that the mortality would be even less were the remedy always resorted to in time. Opinion is divided as to whether Behring or Roux deserves the credit for the introduction of this remedy, but I am informed that the man who first established the principle of this particular line of treatment is a young man, little known, namely Dr. Nuttall, an American, formerly assistant to Professor Welch at Johns Hopkins, but now attached to the Hygienic Institute in this city. The results of his experiments and the principle thereby established were set forth in a thesis which was afterward published, presented when he applied for his degree at Göttingen University some four years ago.

The following is a short sketch of the method of preparing the antitoxin:

1. PREPARATION OF THE TOXIN.—A pure culture of the diphtheria bacillus is made in bouillon, its growth being forced or hastened by maintaining a temperature of 37 degrees C.,—in Germany for eight days, while in France they take three weeks and use Fernbach's flasks which expose a larger surface of the culture to the air. The strength of the toxin is increased by hastening the growth of the bacillus.

2. SEPARATION OF THE TOXIN.—The toxin is separated from the bacillus by means of a Pasteur or Chamberland filter. The unit of strength is obtained by experiments on guinea pigs—one-tenth of a cubic centimeter should kill a 500 gram guinea pig with diphtheritic paralysis in twenty-four or thirty-six hours.

3. IMMUNIZING THE ANIMAL.—Half a cubic centimeter of the toxin is injected subcutaneously into the horse selected

for the purpose and the effects carefully watched. The fever, edema, and loss of appetite which result, usually pass off in a week, when the second injection, one cubic centimeter is given and the same precautions observed as before. The injections are continued at intervals of about a week, depending on the reaction produced, increasing the quantity to 1½, 2½, 5, 10, 15, 20, 25, 30, 35, 45, 50, 60, 100 cubic centimeters, until, at the end of three months, usually, the animal can stand a dose of 250 cubic centimeters without reaction. He is then in proper condition for furnishing serum.

4. PREPARATION OF THE SERUM.—About six liters of blood are taken from the jugular vein of the horse about once a month. The blood is allowed to stand in a cool place till coagulation takes place and the serum is separated simply by siphoning. The serum will keep in sterilized flasks in a cool place six or eight months. Aronson, of this city, adds tri-cresol in the proportion of six-tenths of 1 per cent. in order to preserve it. The horse is kept immunized by injections of sixty cubic centimeters of the toxin every other day, but no injection is given for five days preceding a bleeding. In preparing the horse, if the first injection of toxin should prove too strong, the next dose is not diminished in quantity but its strength is weakened by the addition of Graw's solution, one-third, to the next two or three doses.

A strong serum is made by *intravenous* injection of 250 cubic centimeters to 300 cubic centimeters just after a bleeding, to be repeated as may be necessary until there is no longer reaction. This method is very dangerous to the horse.

5. ADMINISTRATION OF THE SERUM.—This is done by means of a large hypodermic syringe, inserting the needle beneath the skin of the abdomen, in doses of twenty to forty cubic centimeters to a child 5 or 6 years old, to be repeated if necessary in twenty-four to forty-eight hours or even in less time in severe cases. No bad effects have been observed from very large doses. The good effects are apparent usually in less than twelve hours, and consist in lowered temperature (when it has been elevated), improvement in the pulse, and in the general condition of the patient. It is said that every case of pure diphtheria can be cured if this remedy be used within two days after the onset of the disease.

I am indebted to Passed Assistant Surgeon J. J. Kinyoun, M. H. S., for material assistance in collecting these facts concerning this antitoxin, especially the French methods—Dr. Kinyoun having been with Roux in Paris where he had every opportunity for observing his methods.

Very respectfully,

GEORGE TULLY VAUGHAN,
Passed Assistant Surgeon M. H. S.

Private Homes for Old People.

HARTFORD, CONN., November, 1894.

To the Editor:—Some time ago I was asked to find a home for a worn-out physician who through death and changes was left alone in the world. He had a small income, and desired to go away among strangers where the past would be forgotten. I found the various old peoples' homes managed by churches and corporations, objectionable in many ways and lacking in the personality and sympathy so essential to many persons who have been active workers. The sanitariums and hospitals failed in this and other respects, and were neither cheerful or comfortable in their set rules and formalities. Private families who could furnish the proper accommodations could not receive single cases unless the prices paid were remunerative. This poor old physician was forced to enter a sanitarium, where he soon after died, neglected and alone.

The same question has occurred again, and I have found what appears to be a real want, that has not been recognized

practically. This is, briefly, an intermediate home for old people between the corporate and charity institutions and the private family. A suitable residence where all the comforts of rooms, surroundings, diet, seclusion, sympathetic personal care, and also medical attention when required, can be combined for a limited number of cases. Elderly people who from various causes are unable to command the quiet and seclusion of a home, and who would be better away from their former scenes, and have means to pay a moderate sum for this service, are to be found in almost every community. Old peoples' homes and other institutions bring them into a degree of prominence and subject to rules and regulations that are often irksome and unpleasant, such as the separation of a man and wife, and refusal to see friends except at stated times, and the imposing on them of certain perfunctory duties that break in on the cherished quiet and rest desired. Acting on my suggestion, a gentleman who has had several years' experience in the care of old people, has established a home of this character which will be opened January 1, at Ballston Springs, New York. Having made inquiries of the personal details of this work, I am sure it will be of interest to the profession and especially those who, like myself, have been advised concerning homes for old people, to give some of the facts.

Ballston Springs is a tree-embowered village in a valley five miles from Saratoga, and on the same mineral springs belt. Over fifty mineral springs of widely different values are located here. Invalids from all parts of the country live here for the sake of the waters which are free to all. The climate is very dry and bracing, being in the lower Adirondack snow belt, and mostly free from sleet storms and fogs. This town is nearly a hundred and fifty years old, and all the surroundings of good society and churches, with fine water supply and excellent drainage are exceptionally good. A large spacious residence near several springs is being fitted up for a small number of elderly people with the special object of furnishing a quiet congenial home, where personal interest and sympathy, with watchful care and attention are constantly at command. Medical supervision and nursing together with every other means, will be combined to make this a most delightful harbor for anchorage during the afternoon and sundown of life.

While I have no pecuniary interest in this home, I will answer with pleasure all inquiries relating to it, and give any information possible to any one who may be interested.

T. D. CROTHERS, M.D.

New and Important Pharmaceutic Product.

NEW YORK, November, 1894.

To the Editor:—On July 28, last, we presented to the members of the medical profession through the columns of the JOURNAL, a new brain and nerve tissue chemie food. The glycerio-acid phosphate, the formula of which is almost identical with that of the lecithin of the brain cell and nerve tissue, C₄₄ H₉₀ NPO₉; and which furnishes the proper chemie nerve cell and nerve tissue food to the vesicular neurine of the brain where nervous force is generated, and to the tubular or fibrous neurine which conducts it. In answer to numerous inquiries and requests for samples I have sent to all who requested it, a sample of this nerve food with the result that it is now in successful use in many of our hospitals with good clinical results.

For many years I have felt the necessity for a preparation of the hypophosphites, combined with iron, quinia and strychnia, which would not precipitate and which did not require to be kept in a cave or dark place during the warm months of the year. I desired a preparation which should be much richer in the hypophosphites than any I could obtain in the drug stores, and one which should also contain

a more decided dose of iron, quinia and strychnia, to act as a stimulant tonic and reconstructive in all tuberculous, strumous and wasting diseases and during convalescence from grippe and other infectious complaints, and which would be a powerful therapeutic agent to stimulate the general nutrition by means of its action on the nervous system. This, I think from my own experience clinically, I have perfectly succeeded in doing, as the glycerid of the hypophosphites comp. has a powerful stimulative action on the nutrition of all the organs, and this stimulant and tonic effect arises in a special stimulative action on the nervous system. It stimulates appetite and digestion, patients gain in weight and general appearance, and all report a feeling of invigoration from its use.

Each fluid ounce contains:

| | | |
|----------------------------------|----------------|-----|
| Hypophos. soda | | |
| Hypophos. lime | | |
| Hypophos. potass | ãã grs. iv ss. | 26 |
| Hypophos. iron | | |
| Hypophos. quinia, pure | ãã grs. iv. | 24 |
| Hypophos. strychnia | grs. 4-60. | 004 |

Dose from one to two teaspoonfuls in a wineglass of cold water before or with meals.

There is no possibility either of precipitation or of decomposition in this solution. It keeps indefinitely. A sample for physicians' use will be sent upon application to the author, at 305 West Eighty-sixth Street, near West End Avenue, New York.

Very respectfully,
E. C. MANN, M.D.

ASSOCIATION NEWS.

Photographs of Members.—Members of the ASSOCIATION are respectfully requested to send a recent photograph of themselves to the JOURNAL. In so doing please write plainly the name and age of sender and date of photograph.

The Department of Public Health.—The following circular has been issued by Chairman Cochran:

MONTGOMERY, ALA., Nov. 22, 1894.

Dear Doctor:—You are doubtless familiar with the effort which the AMERICAN MEDICAL ASSOCIATION is making to secure the enactment by the Congress of the United States of the bill now pending to create a Department and Secretary of Public Health. The great importance of the proposed legislation to the medical profession and to the people of the country is too evident to require argument. The only thing we need to discuss is how to secure for the bill the favorable consideration of the members of Congress. To this end this circular letter is addressed to the officers of State and other medical societies and associations with the urgent request that such officers will promptly appeal to the members of their societies and associations to write to their members of Congress, in both Houses, requesting them to give their support and their votes in aid of the passage of the bill referred to. If all the doctors in all the States take part in a movement of this sort, and would keep it up for a few years, there can be no doubt that success would soon crown our efforts. Let no one consider his influence of little consequence, but let every one write promptly. Such a storm of letters would batter down all opposition.

Every one who receives a copy of this letter will please enter into correspondence with the Chairman of the Committee. Very respectfully,

(Signed.) JEROME COCHRAN, M.D., Chairman.
C. G. COMEGYS, M.D.,
N. S. DAVIS, M.D.,
J. C. CULBERTSON, M.D.,
CHAS. DENISON, M.D.,
U. O. B. WINGATE, M.D.,
W. B. ATKINSON, M.D.,
LISTON H. MONTGOMERY, M.D., Committee.

SOCIETY NEWS.

Chicago Ophthalmological and Otolological Society.—The regular meeting of the Chicago Ophthalmological and Otolological Society was held at the Schiller Building, May 8, 1894, Dr. Hotz in chair. There were twenty-one members in attendance. On Dr. Gardiner's motion the reading of the minutes of the last meeting was omitted. Drs. Ada Phelps and F. H. Weir were elected members. On Dr. Colburn's motion the President was instructed to make arrangements with Dr. Meyer to read a paper before the Society on the "Relations of the Cranial Nerves to the Eye."

Dr. Horz reported a case of deep cupping of both nerves. Mr. M., aged 37, when 5 years old was struck in the O. S. with the end of a stick; the eye was red and painful for a few days only but the vision has never been as good as O. D. since. V. O. S. gradually grew worse and for several years there has been perception of light only. About three years ago he discovered a scotoma in O. D., one inch to right and one-half inch below fixation point at two feet distance. This blind spot has not changed since then but he thinks the V. O. S. has diminished in the last six months. Never any headache, or full feeling or dull pain about O. D.; no rainbow colors; no periodic obscurations. O. S. perception of light in lower temporal field only; tension normal; pupil dilated but responds feebly to light; normal anterior chamber; media clear; deep excavation amounting to 11 D.; size of vessels normal; no pulsation. O. D. V = 20-40 not improved by glasses; tension normal; pupil active; anterior chamber normal; excavation = 8.50 D.; vessels normal; no pulsation; field of vision for white normal; color fields much contracted.

Dr. FISHER showed a case similar to Dr. Hotz: Mrs. W., aged 55, has had no pain or headache; tension normal; V. O. D. = 20-120; V. O. S. = nil; excavation + 5 D. O. D., 6 D. O. S.; veins slightly enlarged; has had trachoma for many years.

Dr. COLEMAN reported: Mrs. C., aged 77, first noticed one month ago that she could not see to read with O. S.; could read ordinary type at that time c. O. D.; some discomfort of late in O. D.; V. O. D. = 6-12 c. + 1.50 D., V. O. S. fingers at eight feet; O. O. lens shows few opaque lines in lower third; tension normal; total deep cupping of disc; gray-white atrophy; O. S. tension normal; cupping and atrophy of disc; cornea, iris and pupil normal O. U.; fields contracted for color and form.

Dr. GRADLE reported a similar case, but the cupping only in one eye with the other normal. The tension was usually normal but was slightly + at times and Dr. Gradle made an iridectomy. The subjective symptoms disappeared but the vision was not improved.

Dr. BEARD thought that extra ocular pressure of the lids in Dr. Fisher's case might have caused the cupping. He had two patients with similar cupping which might be caused by the pressure of their lids trying to overcome an Hm. astig.

Dr. TILLEY mentioned two cases of deep physiologic cupping which resembled glaucomatous.

Dr. WILLIAMS thought the contraction of the color fields in Dr. Hotz's case quite characteristic of atrophy. He showed several beautiful sections and photographs of normal and glaucomatous nerves.

Dr. FAITH reported a case of purulent ophthalmia, caused by the discharge from a suppurating middle ear.

Dr. WILLIAMS said he had examined the discharge from many purulent eyes and sometimes found no gonococci.

Dr. WILDER said that sometimes some cases were caused by other bacteria than the gonococcus.

Dr. GRADLE spoke of three cases of paralysis of the cervical sympathetic, one-sided, that he had had in the past two years. There was incomplete ptosis and contracted pupil but no redness or sweating of the face. None of the cases improved or got worse.

Dr. COLEMAN reported a case of diplopia where the muscles balanced. It was due to the persistence of the perception of objects not in focus.

Dr. Hotz had a similar case.

On motion the Society adjourned.

C. P. PINCKARD, Secretary.

103 State Street.

NECROLOGY.

FRANK L. SIM, M.D., died at his residence in Memphis, Tenn., Nov. 23, 1894. He had been in failing health for several months and his death was probably due to malignant disease of the stomach and liver. Dr. Sim was born in Golconda, Ill., April 29, 1834. His literary education was received at Hanover College, Indiana. He graduated from the medical department of the University of Louisville in 1855, and a year later received an *ad eundem* degree in the Pennsylvania Medical College. Returning home in the spring of 1857, he practiced medicine with his father till 1861, when he left that part of the country and shortly afterward entered the Confederate service as a contract surgeon in the army, then stationed at Columbus, Ky. After a satisfactory examination he applied for a commission, but while awaiting the same he was ordered to Memphis with a boat-load of soldiers sick with measles. Circumstances induced him to locate in Memphis, where he has ever since devoted himself to the practice of his profession. He remained at his post of duty during the dark days of Memphis in the various epidemics of cholera and yellow fever. In 1882, Dr. Sim became the editor of the *Mississippi Valley Medical Monthly*, but afterward changed to the *Memphis Medical Monthly*, under which name he has continued its editor and publisher. Dr. Sim at the time of his death was Professor of the Principles and Practice of Medicine in the Memphis Hospital Medical College and was Dean of the Faculty. He was a member of the AMERICAN MEDICAL ASSOCIATION, British Medical Association, American Public Health Association, ex-President of American Medical Editors Association, Memphis Medical Society, and at the time of his death was President of the Tennessee State Medical Society, and also a member of the State Board of Health. As a teacher, Dr. Sim was painstaking and popular, as a writer clear and vigorous, as a man the soul of honor and integrity, and as a practitioner he stood well with his professional colleagues and enjoyed the confidence of a large clientele.

JOHN DEXHEIMER, M.D., of Brooklyn, died November 11, aged 36 years. He was of German family, but was himself born in this country. He was a graduate in medicine from the New York University, in the class of 1882. He was an inmate of St. Catharine's Hospital for a short time previous to his death. His fatal malady was multiple neuritis.

WILLIAM P. OVERTON, M.D., of Cold Spring Harbor, L. I., New York, died October 24, aged 74 years. He was a graduate from the New York University Medical School in 1841. He practiced in Brooklyn for a number of years, but in "the sixties" he removed to the above named town. He had been President of the County Medical Society and Coroner for three or more terms in Suffolk County. He leaves a widow and one son. His final ailment was Bright's disease of the kidneys.

PUBLIC HEALTH.

Sulphite Works from a Sanitary Standpoint.—Rodling has recently investigated the large sulphite works at Gysinge in Sweden and reports (*Rev. Int. de Bibl. Méd.*) that the waste products cause 12.09 milligrams of various substances per liter to be discharged into the canal below the works. Of these, sulphuric acid, free or combined with calcium, forms 0.18 mgm.; SO₂, 0.06 mgm.; SO₂ in organic combination, 1.83 mgms.; calcic oxid, 1.10 mgms.; and organic substances, 8.92 mgms. When the contents of the bake-ovens are emptied—three times a day—the SO₂ in the atmosphere is raised to about 0.04, but this causes no inconvenience to those accus-

tomed to it; a prolonged stay in the vicinity of the ovens, however, is insupportable, because the SO_2 in their vicinity is increased to 0.1. Traces of sulphurous acid were found in the snow which had laid about the works for four days. Neither the fish in the Dal below the point of discharge of the canal from the factory, nor the surrounding vegetation, seems to suffer from the sulphite works.

Increase of Smallpox.—Toward the close of November there was an increase of the number of cases of smallpox in localities previously infected, and a number of newly-infected localities were first reported. The disease, however, seems to be kept fairly well in hand wherever the health authorities are duly notified. On the 26th there were 106 cases in Milwaukee and 64 in Chicago. Infected persons escaping from these cities continue to carry the contagion into other localities; a passenger from Chicago on a Grand Trunk train was found on his arrival at Mitchell, Ontario, November 24, to be suffering from the disease; and a family which broke quarantine at Milwaukee and went to Sandwich, Ill., caused an outbreak at the latter place, resulting in a large number of cases and two deaths up to the 26th ult.

Microscopy of Factory Dust.—The noxious effects of factory dust are due—apart from bacilli—either to its chemie composition or to its structure. As to structure, the most injurious forms are those of irregular shape, and the smaller these are the farther they penetrate the bronchi and the more intense and disastrous their action. The following varieties of factory dust are, according to *Le Revue d'Hygiene*, to be considered very dangerous: 1, metallic; 2, some kinds of stone dust; 3, dust of animal origin, such as shell, horn and whale-bone; 4, all kinds of wood dust; 5, dust of vegetable origin—principally jute; 6, dust from animal fiber, except that of wool and silk factories; 7, dust of flouring mills and tanneries under certain conditions and for the workmen who are constantly exposed; and, lastly, 8, the dust of rag shops and that from carpet beating. The study of the effects of these various forms leads to the practical suggestions that fans should be employed to keep the air of shops and factories as free from dust as possible and that, in certain industries the workmen should be furnished with suitable ventilating masks.

A Dangerous Coloring Agent.—Chromate of lead is still largely used for coloring purposes, in spite of the discovery of numerous artificial yellows whose varied tints, as well as "fastness" on exposure to light, leave nothing to be desired in this respect. In the region around Lyons especially, great use is made of this agent and Roubaix and Rouen still use it to some extent. For some years past severe cases of plumbism have been observed in the spinning factories where cotton dyed while floating is wound. The Hygienic Council of the department of the Rhone instructed M. Cazeneuve to investigate the subject, and in his report he concludes that while lead chromate may still be tolerated for dyeing cotton cloth "in piece," for linings, etc., its use for dyeing thread for any purpose should be proscribed absolutely. On account of the "stiffening" and glazing to which it is subjected, piece cotton colored with the chromate gives off no dust, either in its preparation or in making up. M. Cazeneuve hopes that the prohibition, which has been ordered in the department of the Rhone, will be extended to the whole of France.

Cholera Precantions.—The recrudescence of cholera in some parts of Turkey and in Silesia in the early part of November—noted in the *JOURNAL* of the 10th ult.—seems to have convinced the health authorities of Europe that the dangers of the past season are to be repeated next year. At a recent meeting of the German Society of Public Health, Professor

Koch said: "I scarcely think that the cholera, extended as it is in Russia, will quite disappear from that country next year. It will probably last a few years more and again spread to other countries." Referring to the exposed condition of Germany, lying in the center of Europe, he said that its invasion by cholera, when the disease exists in other European countries, can not be prevented and that all efforts must be directed to making it harmless when it does appear. *Per contra*, disinfecting stations have been established on the Russo-German frontier at Bajohren, Edytkuhnen, Prostken, Illowa and Ottlotschin—through which all Russian emigrants must pass before entering German territory. While the direct effect will be to protect Germany their establishment is due to the immigration laws of this country; all Russian emigrants are examined at these stations, and those afflicted with contagious diseases, or who are found to be such as would be debarred from landing in the United States, are turned back and not allowed to pass. The stations have been established by the North German Lloyd and the Hamburg-American steamship lines.

Relations of Avian to Human Diphtheria.—Since 1888 diphtheria has sensibly diminished its ravages in Belgium, while measles and whooping-cough have increased; in 1892 the number of cases of diphtheria was less than at any time since 1856. M. Schrevens has studied the etiology of diphtheria for many years and has collected a large number of facts which, to him, demonstrate the necessity of certain prophylactic measures. In a recent issue of the *Presse Médicale Belge* he insists on the important part which the Italian hens and game-cocks take in the pathogeny of human diphtheria and seeks to define exactly the meaning of "avian origin of diphtheria." Diphtheritic germs, he says, preëxist in the avian diphtheria, *nifflet*; this is no more spontaneous than is human diphtheria; the hens and cocks are not creators—they only awake into activity the germs sown on the surface of the ground; the passage of the germs on to the mucous membrane of the fowl renders them more apt for later fixation on the mucous surfaces of human beings. The author then gives the results of an inquiry he made last May into the origin of an epidemic at Marcq, a small hamlet, in which he establishes the fact that the germs were transported by some hens, bought Oct. 11, 1892, in a neighboring market-town; four children died among those attacked. He also cites cases at Rumes, due to a cock affected with *nifflet*; the two children first attacked died, but in the meantime they had infected the school and soon ten or more other scholars presented diphtheritic symptoms. M. Schrevens' observations are confirmed by those of Dr. Bricoult at Res-sac in 1888, and of Dr. de Dinant at Falmagne in 1891. Both these practitioners agree that chickens affected with avian diphtheria were the starting points of the epidemics at these places.

Pandemic of Diphtheria.—Reports from all parts of the country, except the south Atlantic area, indicate a wider diffusion of diphtheria than ever before recorded in the United States. The mortality does not seem to be unusual, with occasional exceptions, and, in the absence of any general system of compulsory notification of the contagious diseases, the number of cases can only be inferred from the death returns, from the indications of popular alarm in the closing of schools, the enforcement of quarantine, etc., and from the overcrowded condition of the isolation hospitals. Importation of the antitoxin serum has been practically suspended, owing to the growing home demand in France and Germany, in which countries are the only establishments for its production on any considerable scale. Thus far the output of the British Institute of Preventive Medicine has been only sufficient to supply one of the London hospitals, and the

product in this country is even less. There is no abatement of the enthusiasm and interest of the profession and the public of the countries of Roux and Behring, and it is especially gratifying to note again the generosity and true scientific spirit with which each of these two eminent savants insists on the recognition of the other in connection with what, up to date, seems to be one of the most brilliant therapeutic and prophylactic advances of the century. The latest occasion of the manifestation of this spirit was the presentation to Dr. Roux of the *Grand Diplôme d'Honneur* by the Sauveteurs de la Seine. In expressing his thanks the Professor said a discovery was attributed to him which he had not made; he had only applied it, and he included in the evolution of the discovery the names of Pasteur, Löffler, Koch and Behring. Considerable dissatisfaction is expressed at the course of the British Institute in withholding the name of the hospital to which is furnished all the serum prepared by the Institute, and which, in turn, surrounds itself and the results of its antitoxin treatment with what is styled an "absurd mystery." It is urged that it is the bounden duty of the Institute—after making a successful appeal to the public for the funds necessary to produce the serum—to see to it that the product is so used as to secure an authoritative verdict upon the merits of the treatment in the shortest possible time, and that the research necessary for such verdict "would have taken little more than six weeks to complete," while with the present policy of secrecy "the medical profession can not obtain a definite opinion for an indefinite period." The situation seems to be similar to that in this country. There, as here, the profession is inclined to be skeptical and demands conclusive proof; and there it will refuse to accept as such proof, results obtained through the action of a non-official volunteer organization operating in a favored hospital whose identity is concealed and whose clinical records are unduly withheld. So far as the profession of this country is concerned, its demand was concisely expressed in last week's issue of the JOURNAL: Pending an adequate supply of the serum with which to make individual tests only an authoritative report, after due investigation by a National commission, composed of members selected for their attainments in the branches of medical science involved in the modern system of serotherapy, will be accepted as conclusive of the merits or demerits and of the scope and limitations of the diphtheria antitoxin.

MISCELLANY.

Change of Address.—Dr. Thomas H. Manley to 115 West Forty-ninth Street.

Medical Sketch by Gladstone in Preparation.—Mr. Gladstone is reported to be engaged in writing a biographical sketch of the late Sir Andrew Clark, his own long-time physician and friend. An American journal is to have the copyright.

A Serous Joke.—Apropos of the record of the antitoxin when used in the early stages of diphtheria, the new medical joke in Berlin is the addition of another clause to the familiar "Resist the beginnings" of Ovid: *Principiis obsta; sero medicina paratur.*

The Word was Cabbage.—Readers of the article on "Medicine in Ancient Rome," published in last week's issue of the JOURNAL, are not compelled to accept, as the English equivalent of the French substantive *chou*, the word printed in said article "callage;" *cabbage* was the basis of Cato's therapeutics—"good, both externally and internally, it cured all diseases," etc.

The New York Lying-in Hospital.—The trustees of this institution have been enabled to get a valuable piece of property on Second Avenue and Seventeenth Street, for \$200,000, of which \$90,000 is to be paid at once. This society is nearly a century old, but it has not hitherto been in the possession of a hospital building.

Cerebral Complications of Gonorrhoea.—Pitres has observed apoplectic symptoms followed by hemiplegia in two patients suffering from acute gonorrhoea. One of these was of an age and general condition which rendered the explanation of the hemiplegia by the usual causes difficult. The author asks (*Revue Névrologique*) if this disease may not give rise to cerebral softening. We know that myelitis is also one of its complications.

Another American Hospital in China.—Members of the Low family, living in New York City and Brooklyn have just built, in Wu-Chang, and presented the same to the Protestant Episcopal Mission, a well-appointed hospital for the use of the mission and of the natives of that city. The motive for the erection of this new institution was the honoring of the memory of the late A. A. Low, father of two of the donors, and for many years a resident of China, at Canton chiefly. The new structure bears the title of the St. Peter's Hospital.

Another Anecdote of Dr. Holmes.—The following, from the *Boston Record*, is an anecdote that may fairly be called "characteristic" of the poet-professor; it is odd, yet doubtless truthful to the very center; it is philosophic, modest and void of selfishness: "I asked Dr. Holmes only a few weeks ago, as he was calmly speaking of the possibility that he might not see another birthday, if he had made any arrangements concerning a literary executor or biographer.

"No," said the old poet; 'I must leave that to others to arrange. All my old friends are gone before me. Some one will be found to attend to it.'

"Perhaps your son will do it," I suggested.

"Oh, no," said Dr. Holmes; 'I do not think that he would care to trouble himself with it; it is not at all in his line. He prefers to devote himself wholly to law.'

Another "Fortuitous Combination."—Dr. Viquerat—whose pretentious claims to the discovery of a "sure cure" for tuberculosis by the serum of asses' blood, were referred to in a recent issue of the JOURNAL (October 20, p. 623)—irresistibly recalls that scriptural hero referred to in Judges xv, 16. Dr. Viquerat recently expounded at great length a new and entirely original theory of the bacterial toxins—in effect, that it is the death and not any living action of the bacteria which is toxic. He talked for nearly an hour, completely exhausting the patience of his auditors, members of the Société Médicale de Suisse Romande, and—according to the report in the *Journal de Genève*—"Full of enthusiasm for his discovery, the lecturer ended with this picturesque exclamation: 'Viquerat's ass has killed the learned Koch!'" Whereat the JOURNAL is moved to remark that *le flot de l'âne* is truly a terrible weapon.

What the Country Editor Knows about Medicine.—Mr. "John Quad" has the following explanation to offer why it is that so much profound wisdom as to medicine can be found in the columns of the country editor's paper: "His knowledge of medicine enables him to distinguish accurately the difference between a gum boil and a felon, when he sees one in the mouth and the other in jail, or to diagnose it as a case of hog cholera when a delinquent subscriber dies. He knows that poll-evil is due to had politics, and that ring-bone and string-halt are accountable to the same bacillus. He recognizes that splints—especially on the brain—are resultant from heavy 'jags,' and that 'jim-jams' are not caused by microbes, like

consumption of the lungs, blood or tissues, but by the consumption of whisky. He is satisfied that one may have an excess of gall without being troubled with gall stone, though he may have to dodge a brick now and then, and that conceit is not a secondary symptom of greatness, nor the tintinnabulating mouth the indice of brains."

A Community Without Vaccination.—Dr. Kerr, writing from Rabat on the westerly shore of Morocco, states some facts that will serve to remind the anti-vaccinationists of England of the condition of their own country before the grand discovery of Jenner. Smallpox makes fearful havoc among the Moors with whom Dr. Kerr has lived seven years. During an epidemic at Rabat, over one thousand persons died from that disease in the course of two months. Rabat is a town on the Atlantic seaboard of Morocco having a population of 26,000. Of the conditions of the town during the epidemic, Dr. Kerr writes the following: "Often we felt it sickening when going through the streets, to see young men and boys sitting at shop doors, flour mills, etc., covered with smallpox eruption, in every way facilitating the spread of the disease. Every one thinks that it is impossible for him to escape smallpox, hence no precautions are taken. It is painfully sad to see so many people who have lost the sight of one eye, while many are blind altogether. One day not long ago, I paid a passing visit to a *douar*, or collection of tents, outside the city, and it was touching to see the mothers bring their children, asking me to put the medicine in their arms to prevent the infection. I vaccinated all the children in the village, and although they were surrounded by smallpox none took it."

These conditions, given by Dr. Kerr as to the Africa of to-day, are a simple repetition of what existed in England and Europe before Jenner's great boon to mankind was made possible.

Unequal Distribution of Cancer.—At the recent Medical and Surgical Congress held at Lyons, France, Dr. Gueillot, of Rheims, presented some statistics showing the unequal distribution of cancerous disease. In Paris and in Rheims there are only 100 cases to 100,000 persons, while in one district of the Department of Aisne there are 1,400 to every 100,000. Dr. Gueillot adduces these figures as further proof of the contagiousness of cancer, and cites also instances where the inhabitants of a particular district of a town or the occupants of a particular group of houses have been especially visited by the disease. He has known of fifteen so-called "cancer houses," in each of which three or four tenants—an aggregate of fifty persons—have successively fallen victims, and of 103 other houses in each of which there were two successive cases of cancerous disease. Of these latter, fourteen were fellow lodgers, relatives, or master and servant, and of the remaining eighty-nine, more than four-fifths were husband and wife. Gueillot believes that, while transmission of the contagion may be direct through personal contact, it is more frequently through wearing apparel or table utensils; in two cases he traced it to the medium of a tobacco pipe used in common by a cancerous subject and his "chum." In sixty-four cases the interval separating the appearance of the disease in the two related persons was less than two years. He cites nine cases of physicians who contracted the disease unmistakably from attendance upon cancerous cases. Finally, Dr. Gueillot discredits the supreme influence of heredity in cancer; his analysis of the history of cases shows that only 12.5 per cent. can be fairly attributed to this source, while if the number of persons born of cancerous parents be taken into account, the proportion is reduced to between 5 and 6 per cent.

A Medical Bill of Fare.—Dr. Thomas Dolan, in the current number of his *Provincial Medical Journal*, re-copies the following "prandial prescription" for a dinner given by the Metropolitan Branch of the British Medical Association—a bill of fare composed, as Dr. Dolan observes, "in Latin choicer than that of the Pharmacopœia:"

Programma.
 Consociationis Medicæ Britannicæ.
 Sectionis Metropolitanæ.
 Convivium.
 Apud Hospitium Navem Grenovicensem dictum.
 A.D., VII. Non. Julii. A.C. MDCCCLXXX.
 Ad canes medicamenta abjice—"Dulce est desipere in loco."
 Schema Epuli.
 "Ab ovo usque ad mala."
 Jura.
 Consummatum Habershonis—Purificatum vernale Woodii.
 Pisces.
 Pleuronectes percotti. Salmo elixus cum jure Humari.
 Minutalia ad Homaros. Soleæ parvulæ frixoria coctæ.
 Merlangi intriti Superlativi.
 Anguilla Griggii Vino Lusitanico adjuvante.
 Trutta craticulata cum jure infernali. Assulæ Salmonis more Indorum.
 Clupeæ infantiles simpliciter modoque diabolica redditæ.
 Introitus.
 Pancreata Vitulina Dicksoni
 Pulluli granarienses more Zingariensium.
 Relevata.
 Sella ovina fuscum cocta. Spinacia Boni Henrici.
 Mensa altera.
 Anaticulæ domesticæ ope pisorum perfectæ.
 Intermissa.
 Jusculum coactum Macedonicum.
 Placentulæ diversæ. Glacialis Nesselrodica.
 Fraga cremore mollita. Aqua Citroni.
 Lactus coagula compressa. Vars (a. Stiltonesis; b. Cestrensis.)
 Acetaria.
 Bellaria.
 Vina Interprandialia.
 Xericum. Rhenicum ad Hoc. Companense Spumans.
 Symposium.
 Veteris Bacchi Libationes. "Deprome quadrimum, O'Thaliarche."
 Vina.
 Lusitanicum—Xericum—cognomine—"Amontillado" et et quod ex ædibus Margaviensibus "Claret."
 Propinationes. Orationes Demosthenicæ.
 Joca. "Risum (ne) tenentis amici."
 Sanctæ Nicotianæ Consolatricis Cultus.

Professional Prospects in South Africa.—For the benefit of any JOURNAL reader affected in his practice by the distressing healthfulness of this country and who may think to better his condition by emigration, the following information concerning medical practice in South Africa is offered. It is the substance of a communication to the *Deutsche Medizinische Zeitung*, by a writer who has practiced in various parts of the country for eight years, and who views the situation mainly from a German standpoint. South Africa, while not thickly settled, has some large towns—Capetown and Johannesburg, 60,000 each, Kimberly 25,000, Port Elizabeth 20,000—and these are well provided with doctors and the situation is similar to that in Europe; calls from 2½ to 5 shillings. The gold mines have attracted a large European population, and the newer towns are rapidly increasing in population; these, also, are nearly as well supplied professionally, it being rare to find a place with less than two physicians. Many of the Boer families' sons have become doctors and have advantages over strangers through acquaintances and familiarity with climate, customs, etc. It is possible, however, to find a good location, especially in combination with a drug store; but, besides drugs, instruments, etc., a capital of from 5,000 to 10,000 marks is necessary for subsistence for the first year or two. The foregoing applies as well to Cape Colony and the Orange Free States. The Transvaal, and especially Johannesburg, the capital, are literally overrun with doctors; the capital in 1888, when only one year old, had 10,000 inhabitants and 24 doctors; in 1889 the population had doubled and the doctors increased to 26; now there are 100 medical men for its 60,000 inhabitants. Living is high; it costs a man with a family from 16,000 to 20,000 marks a year to live comfortably. Pretoria has 18 doctors for its 10,000 inhabitants, and it is no exaggeration to say that, in the Trans-

vaal, there is no hamlet of twenty to thirty houses without a doctor. Most of these live off mining companies which pay about 200 marks a month for a laborious and unpleasant service among hundreds of black and white miners. The climate is agreeable, especially in Cape Colony, though Johannesburg, being elevated, is exposed to winds and the winter is severe. The author adds that the study of the endemic diseases is interesting and that the surgeon has frequent opportunity for his skill owing to the numerous mining accidents. Specialists are obliged to undertake general practice as well, as their fees are not commensurate with those of Europe.

Abandonment of Fort Sully, S. D.—This post was one of those established when the regular troops took possession of the Western country after the close of the civil war. Its construction was begun in 1866. It was situated on the east bank of the Missouri River, twenty miles below the mouth of the Cheyenne River. At that time the nearest posts were Forts Randall and Rice, the one 200 miles below and the other the same distance above the site of the new post. Yankton, the nearest town, was distant 300 miles down stream. The mail wagon ran from Sioux City once a week, taking six days for the journey; by the river route the trip from Sioux City could be made in from eight to sixteen days. Even now, at the time of its abandonment, it still remained somewhat isolated, being twenty-three miles distant by stage from Pierre, the State capital of South Dakota. It was built on a terrace about one hundred and sixty feet above low water, the ground rising behind it to the north and east about one hundred feet to the level of the rolling prairie lands beyond, sloping on the south to a deep ravine and on the west to a second terrace, about one hundred yards wide, on which were built the stables, granary, sawmill, etc. Below this terrace lay the bottom lands subject to overflow. The winters were severely cold, the prevailing winds from the northwest with little snow. The summers were excessively hot, with southerly winds and dust storms. In the spring frequent rains gave promise of a luxuriant vegetation, but a few days of hot weather destroyed everything, and left a brown barren landscape. The extremes of temperature were 37 degrees and 110 degrees F. The barracks for four companies consisted of a building 700 feet long by 17 feet wide, with a sallyport 15 feet wide in the middle of its length. The walls were of cottonwood logs, lathed and plastered. The interior was ceiled and divided by partitions into squad-rooms, mess-rooms, kitchens, etc.; the guard house and prison rooms were next to the sallyport. The dormitories were fitted up with rough wooden bunks, double and in tiers as in the emigrant ship, even as late as 1875, when the air space per man was only 255 cubic feet. The latrines, the earth pits of actual field service, were at the usual distance in rear. There were no lavatories or bath-rooms; the men washed in the open air. The officers' quarters were frame buildings affording nothing but shelter, and not any of that to spare. Two six or eight mule teams were constantly engaged in hauling water from the river, the allowance necessarily scanty and the quality inferior. Post gardens were cultivated in the river bottom, and in favorable seasons these were fairly productive. Improvements were slow in taking place at this post. Water was not introduced until 1890. Time was lost in an unsuccessful attempt to reach deep well water; the effort was given up after boring 977 feet. Ultimately a good supply was obtained from twenty wells in the river bottom. The water was pumped into a reservoir and distributed by gravity through six inch mains and three-fourth inch service pipes. Meanwhile frame buildings were constructed with ridge ventilation and fresh air inflows beneath the flooring, opening under the stoves. A bath-house was built with ten tubs and a plentiful supply of hot and cold water. The men were required to take a bath once a week, and a record was kept at the bath-houses. Earth closets were substituted for the pits formerly used, but the post never attained to the dignity of possessing a sewerage system. The natural drainage was good so far as regards rainfall; but the open ditches for the removal of waste water were a nuisance, foul in summer and useless from frost in winter. The hospital was closed November 19, in accordance with recent orders abandoning the post.

"Doctor Rabelais."—Since the following quaint conceit, from the versatile pen of Mr. Eugene Field, is given to the world through the medium of the *Book-Lover's Almanac*, 1895, in an edition limited to 500 copies only, the JOURNAL must give space for its wider circulation among those who will best appreciate it—members of the profession which the great humorist never quite abandoned even after he had become the immortal chronicler of the wonderful *Gargantua* and his still more marvelous son, *Pantagruel*:

DOCTOR RABELAIS.

By Eugene Field.

Once—it was many years ago,
In early wedded life,
Ere yet my loved one had become
A very knowing wife—
She came to me and said: "My dear,
I think (and do not you?)
That we should have about the house
A doctor's book or two.

"Our little ones have sudden ills
Which I should understand
And cure, myself, if I but had
A doctor's book at hand.
Why not economize, my dear,
In point of doctor's bills
By purchasing the means to treat
Our little household ills?"

Dear, honest, patient little wife!
She did not even guess
She offered me the very prize
I hankered to possess!
"You argue wisely, wife," quoth I.
"Proceed without delay
To find and comprehend the works
Of Doctor Rabelais."

I wrote the title out for her
(She'd never heard the name!),
And presently she bought those books
And home she lugged the same;
I clearly read this taunting boast
On her triumphant brow:
"Aha, ye venal doctors all,
Ye are outwitted now!"

Those volumes stood upon the shelf
A month or two unread,
Save at such times by night I couched
Their precious wit in bed;
But once—it was a wintry time—
I heard my loved one say:
"This child is croupy; I'll consult
My Doctor Rabelais!"

Too soon from her delusive dream
My beauteous bride awoke!
Too soon she grasped the fullness of
My bibliomaniac joke!
There came a sudden, shocking change,
As you may well suppose,
And with her reprehensive voice
The temperature arose!

But that was many years ago,
In early wedded life,
And that dear lady has become
A very knowing wife;
For she hath learned from Rabelais
What elsewhere is agreed:
The plague of bibliomania is
A cureless ill, indeed.

And still at night, when all the rest
Are hushed in sweet repose,
O'er those two interdicted tomes
I laugh and nod and doze,
From worldly ills and business cares
My weary mind is lured,
And by that doctor's magic art
My ailments all are cured.

So my dear, knowing little wife
Is glad that it is so,
And with a smile recalls the trick
I played her years ago:
And whensoe'er dyspeptic pangs
Compel me to their sway
The saucy girl bids me consult
My Doctor Rabelais!

Liability for Delay in Transporting Medicine.—Physicians have frequently to send medicines to patients by what the law terms common carriers. Suppose these public servants are remiss in the performance of their duties, does any one have a legal redress? For example, a Texas doctor prescribed, and directed a druggist to send medicine by express, for a woman lying seriously sick near another railway station, the medicine was delivered by the druggist's clerk to an employe of the railway company, to be carried by express

the latter being informed of the nature of the package and the importance of its being sent on by the next train. The railway employe gave the package to the regular agent of the express company, telling him it was to go on the train that night, but without informing him of the nature of its contents. The package, however, was not sent until the next day evening. The sick woman's sufferings, it was proved, in an action brought to recover damages from the express company, were increased by the failure of arrival of the medicine, and that the medicine would have relieved her; and the testimony tended to show that in consequence of its non-arrival she grew worse, and had a long spell of sickness, requiring medical attention, and expenses for a physician, who attended her afterwards for nearly three months. The case was tried by the court without a jury, and judgment rendered for the woman's husband, who it was that sued the express company, for \$300 for physical pain and mental suffering of his wife, \$25 for his own mental suffering, and \$40 for medical bill, making \$365 in all. Under these circumstances, the Court of Civil Appeals of Texas holds, in a decision rendered Oct. 10, 1894 (*Pacific Express Company v. Black*), that the employe of the railway company was so held out by the express company as its agent as that his agency might be implied by persons dealing with him as such, and that the fact that no receipt was given, and no written contract made to ship the package, would not prevent a recovery, if it was accepted for shipment. There was testimony before the court, in this case, from which it might be implied that the employe of the railway company was the agent of the express company to receive the package for shipment. He was notified of the fact that the package contained medicine for the woman who was sick, and that it was important that it should be sent on the next train. This, it is held, was notice to the company, rendering it liable for the injury occasioned by its neglect in forwarding the package with reasonable dispatch. Injury, both physical and mental, was shown to have resulted to the woman by the neglect of the company in delaying the shipment; and, the court declares, it must be held her husband was entitled to recover for such injury. It was not error to admit evidence showing the physical and mental suffering of the woman as the result of the failure of the express company to forward the medicine in reasonable time. But the sympathetic mental sufferings of the husband on account of the suffering and pain of the wife in prolonged labor, caused by the company's failure to deliver the medicine were too remote and consequential. His wife was the direct sufferer, which caused him anxiety and alarm. Her injuries were the proximate result of the default of the company. To allow a recovery for the mental anxiety of the husband on account of the wife's increased suffering, either mental or physical, would be to allow a double recovery for the same cause of action. The trial court should, therefore, not have allowed the \$25 for the husband's injury. Nor was it correct to allow the amount of the medical bill due to the physician attending the woman in her long sickness. It was too remote, and could not have been in contemplation of the parties. The judgment was, on these grounds, reversed as to the amounts allowed to the husband in his individual account and the medical bill, but affirmed as to the amount allowed for the suffering of his wife.

The English Doctor and the Amir of the Afghans.—Dr. G. A. Gray, who for a time was court practitioner at Kabul, has written in the *Lancet* an account of the bitter-sweet aspects of lofty official rank in Afghanistan. He says: "It is a not uncommon occurrence in Afghanistan for an attempt to be made to poison the King. Amir Shere Ali is reported to have died under somewhat suspicious circumstances. The present Amir's father also died suddenly very soon after he came to the throne. Sirdars or nobles of the Amir's own tribe of Barakzai Durrāni are set to watch over his Highness' food and drink, so that, as almost every Afghan has his price, it is possible that the Amir thought a European might have his price also. It is the custom in Afghanistan for the Hakim who is attending the King to drink some of his own medicine before the King tastes it. This was never required of me, but his Highness, though he called me when he was ill, did not as a rule, ask me to prescribe for him till after he had tried the effect of his own medicines and those of the other Hakim. When, however, he had once placed himself under my care he followed out exactly the instructions I gave him. One slight precaution alone was taken; a Hindostani

hospital assistant, one of the better trained, was set to observe and make a note of every drug I used, and I gave him every facility for doing so. I was not asked to treat the Amir medically until I had been many months in his service. His Highness did not ask to see my diplomas, but he received reports as to the effect of my treatment upon other people. I shall never forget one occasion on which he called me to attend him. It was in Kabul after our return from Turkestan. His Highness was taken ill with gout while I was suffering with the diarrhoea alba that I spoke of, so that he had been ill for two months or more before I saw him. It was 9 o'clock one night (Dec. 2, 1890) that I was called, and I found his Highness lying upon his couch rolling his head from side to side in extreme pain. The princes and the chief officers of the kingdom were there kneeling round the room, for they thought his Highness would not live till morning. He was certainly exceedingly ill, and it struck me at the time that I was in as much danger as he, for should he not recover there was scarcely a possibility of my escaping. Apparently, he had had gout in every one of his joints, but when I saw him the acuteness of the inflammation was confined to the right shoulder, elbow, wrist and knee. There was a large patch of crepitation in the left axillary line. He had inflammation of the tonsils and catarrh of the bladder, so that he was passing a drop or two of scalding urine every minute or two; the urine was albuminous to the extent of one-fifth, and his temperature was 103 degrees. He had had no sleep for several nights. I stayed in his room for five days and nights, applying hot belladonna fomentations and administering the medicines myself. As soon as his condition improved I began to make inquiries as to the line of treatment that had been adopted before I saw him. The Hakim had been attending his Highness. They had begun by administering three or four drastic purges; then they leeches the foot that was inflamed, putting on at one time, I was informed as many as a hundred leeches. Suppose we divide this number by three to allow for Oriental flights of imagination, thirty leeches will do. This was not enough, and they bled him frequently; at one time to such an extent that he was insensible, I was told, for twelve hours. Again allowing for Orientalism, say he fainted and was insensible for a few minutes; this is sufficient. Relief being but temporary, and the pain on return severer than ever, they were at their wits' end to relieve their royal patient. They, therefore, tried the effect of plunging the gouty joint into ice-cold water. How many times this was done I can not say, or what other 'remedies' they made use of; but after two months and a half of this treatment his life was in no little danger, and the Feringhi doctor was sent for.

"In spite of the kindness and courtesy with which I was treated at the court, I did not find the experience an altogether agreeable one until his Highness was out of danger. He finally recovered in the spring; but had he not been an exceptionally robust man he could never have borne the treatment to which he was subjected by his native physicians."

Louisville Notes.

LOUISVILLE CLINICAL SOCIETY.—At the regular meeting of this society, the annual election of officers was held. The following were the choice of the society: Dr. George W. Griffiths, re-elected President; Dr. Philip F. Barbour, re-elected Vice-President; Dr. Louis Frank, Secretary.

KENTUCKY SCHOOL OF MEDICINE.—On the 22nd inst., the Faculty of the Kentucky School occupied for the first time their commodious new hospital and dispensary. The first floor of the new building is used as a dispensary. The rest of it contains an elegant amphitheater, wards, and private rooms, fitted out in the most modern and complete manner—steam heat and natural gas, illuminating gas and electric lights. The dispensary has a large waiting room seating about one hundred patients, and twelve private clinical rooms, and a drug room. There are, also, on this floor a library, a faculty and secretary's room. The part in the adjoining old building formerly occupied as the dispensary is to be remodeled and will be used as a chemical laboratory. With this new building of the Kentucky School, the new buildings of the Louisville Medical and the Hospital Medical Colleges, and the added clinical departments of the University, the city of Louisville is abreast of any city with modern facilities for medical teaching.

DR. DAVID W. YANDELL.—Dr. Yandell is lying critically ill at his residence 706 W. Chestnut Street, this city. The announcement of this fact will cause sorrow among the Doctor's many friends throughout the country. He has not been well since his return from a hunt in the West, and there is no improvement as yet in his condition.

ST. JOSEPH'S INFIRMARY.—This institution is located on Fourth Avenue near the U. S. Custom House. The first section or central portion of the infirmary was erected by the Jesuits for college purposes in 1849. In 1852 it was bought from the Diocese by the Sisters of Charity of Nazareth, and established as an infirmary under the charge of Dr. Appollonia McGill. The building at this time had eighteen rooms and three wards. The first patient was received Nov. 29, 1852. In 1890 the first addition of fifteen rooms was made, fronting Fourth Avenue, and in 1893 the second addition was built, connecting the main house and wing, including the chapel, an operating room, nine private rooms and a dormitory. At present there are forty private rooms, and two wards (male and female) of fourteen beds. The nursing is done by the Sisters of Charity, and there is one Resident Physician appointed after a competitive examination from the graduating class of the Kentucky School of Medicine.

DIPHTHERIA.—At present, Louisville is quite abreast of New York City, in that its physicians are enabled to have cultures made from all suspicious cases of diphtheria free of charge to patient or physician. Dr. J. B. Marvin has obtained from the Health Department of New York, a number of the culture tubes and swabs used in that city, and these can be had from Drs. Frank and H. H. Koehler. The inoculated tubes and the swabs are returned to these doctors, with a few notes on the case; duration of the disease, age and sex of patient, where contracted, etc., and in twenty-four hours a report is made as to the nature of the suspected bacillus. This is entirely conducted by the gentlemen named, but the Health Officer is interesting himself in it, and perhaps before long we may have it conducted by the city authorities. In all the cases examined thus far—some twelve or fifteen in number—the result of the inoculation has been verified by the clinical history of the case; showing how invaluable the examination is to the proper conduct of the case.

PLEURO-PNEUMONIA IN CATTLE.—Dr. J. N. McCormack, Secretary of the State Board of Health, has investigated the report received from England, that Kentucky cattle exported to Liverpool were found to have pleuro-pneumonia. In the first place, he learned that the suspected cattle did not come from Kentucky, as was reported in the Washington despatches. Dr. McCormack is satisfied there is no pleuro-pneumonia in Kentucky and there has been none. The error in attributing the suspected herd to Kentucky is one that is calculated to injure the interests of the many export breeders of the State.

MORTALITY REPORT.—The weekly city mortality report shows a total of sixty-five deaths. There were from phthisis eight deaths; from diphtheria four; typhoid fever two; and from pneumonia sixteen deaths. There were thirty-six male, twenty-nine female, forty-five white and twenty colored.

New Orleans Notes.

TULANE UNIVERSITY.—At a recent meeting of the Faculty of the Medical Department, Tulane University of Louisiana, women were admitted on a parity with men in the Pharmaceutical School, and will be granted degrees. This action allows them to attend the lectures on chemistry, medical jurisprudence and toxicology, hygiene, materia medica and therapeutics, while previous to this they were granted certificates and the privileges of the practical laboratories only.

DIPHTHERIA ANTITOXIN has taken a strong hold. Last week Dr. P. C. Archinard, Bacteriologist of the State Board of Health and Demonstrator of Bacteriology, Medical Department Tulane University, sailed for Europe via New York to personally study the subject. The public have responded nobly with subscriptions for the purchase of this new remedy, and there is considerable talk of establishing a station for the manufacture of the article in this city.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Nov. 17, 1894, to Nov. 23, 1894.

Capt. ADRIAN S. POLHEMUS, Asst. Surgeon, leave of absence granted is changed to leave of absence on account of sickness, and is further extended to include Dec. 26, 1894, on surgeon's certificate of disability.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Nov. 24, 1894.

Surgeon FRANKLIN ROBERS, ordered to the U. S. R. S. "Wabash." P. A. Surgeon E. P. STONE, detached from the U. S. R. S. "Wabash," and to the Naval Hospital at Boston.

P. A. Surgeon CLEMENT BIDDLE, detached from the Marine Recruiting Rendezvous, Philadelphia, Pa.

Asst. Surgeon T. W. RICHARDS, ordered to Naval Laboratory and Department of Instruction.

Marine-Hospital Changes.—Official list of changes of stations and duties of medical officers of the U. S. Marine-Hospital Service, for the ten days ending Nov. 15, 1894.

Surgeon H. W. AUSTIN, to proceed to Boston, Mass., and assume command of Service, Nov. 10, 1894.

Surgeon FAIRFAX IRWIN, to assume charge of Quarantine Division of the Bureau, Nov. 14, 1894.

P. A. Surgeon W. P. MCINTOSH, granted leave of absence for fourteen days, Nov. 9, 1894.

P. A. Surgeon G. B. YOUNG, granted leave of absence for seven days, Nov. 8, 1894.

Asst. Surgeon EMIL PROCHAZKA, granted leave of absence for thirty days, Nov. 14, 1894.

LETTERS RECEIVED

Adams, C. W., Kansas City, Mo.; Atkinson, W. B., Philadelphia, Pa.; Andrews, Edmund, Chicago.

Bates & Morse Adv. Agency, New York, N. Y.; Brower, D. R., Chicago, Ill.; Balleuger, W. L., Chicago, Ill.; Blakiston, P., Son & Co., Philadelphia, Pa.; Ball, James M., St. Louis, Mo.; Benedict, Geo. H. & Co., Chicago, Ill.

Cumston, C. G., (2) Boston, Mass.; Culhane, T. H., Rockford, Ill.; Cunningham, S. A., Cedarville, Ohio; Columbia Chemical Co., Washington, D. C.; Christopher, H., St. Joseph, Mo.

Elliot, James, Wilmington, Del.; Earp, E. S., Indianapolis, Ind.

Freeny, G. W., Pittsboro, Mo.; Fowler, Geo. R., Brooklyn, N. Y.; Fringer, W. R., Rockford, Ill.

Gunn, John, Hilda Craig P. O., Ontario.

Hancker, W. H., Farnhurst, Del.; Holtgrewe, F. W., St. Louis, Mo.; Hummel, A. L., (2) Philadelphia, Pa.; Höglér, E. E., Springfield, Ill.

Haldenstein, L., New York, N. Y.; Hodgson, A. J., Waukesha, Wis.

Ingals, E. Fletcher, Chicago, Ill.

Jackson, Thos. J., Chicago, Ill.

Kegan, Paul, French, Trühner & Co., Ltd., London, Eng.

Lindholm, E. M., St. Paul, Minn.; Lowenthal, L., Washington Heights, Ill.; Lehn & Fink, New York, N. Y.; Lord & Thomas, Chicago, Ill.

Mergler, Marie J., Chicago, Ill.; Montzambert, F., Toronto, Ont.

Morse, F. P., New York, N. Y.; Mattel, Wendel, West Saginaw, Mich.

Magruder, G. L., Washington, D. C.

Penman, H. P., Chicago, Ill.

Newington, J. R., Chicago, Ill.; Peters, B. B., Christiana, Del.

Rhodes, J. E., Chicago, Ill.

Sim, F. L., Memphis, Tenn.; Sanders, Enno, M. W. Co., St. Louis, Mo.

Sherwood, W. E., Wilmington, Del.; Stuart, J. H., Minneapolis, Minn.

Triepel, T. T., Long Green P. O., Md.

Western News Co., Chicago, Ill.; Walker Pharmaceutical Co., St. Louis, Mo.; Worley, S. G., St. Augustine, Fla.; Wells, E. D., Westminster, Md.

Yancey, E. F., Sedalia, Mo.

PAMPHLETS RECEIVED

John H. Kellogg. Practical Suggestions respecting the Ventilation of Buildings. The same. Relation of Static Disturbances of the Abdominal Viscera to Displacements of the Pelvic Organs.

John Aulde. Nucleins; a Clinical Study. Diet for Health.

S. A. Fisk. Some Meteorological Data.

E. R. Axtell. Four Cases of Chronic Pulmonary Involvement.

W. B. Dukeman. Resume of Twelve Hundred Examinations for Life S. L. McCurdy. New York Letters on Orthopedic Surgery. Use of Traction in Treatment of Joint Diseases.

E. F. Ingals. Cauterization of Nares; Accidents that may follow.

F. B. Robinson. A New Method of Treatment of Uterine Myoma without Removal of the Uterus, by Ligation of the Ovarian Arteries and the Uterine Arteries, as they course along the sides of the Uterus.—The same. Gonorrhoeal Puerperal Peritonitis (Fever).—The same. The Sympathetic Nerve and Abdominal Brain in Gynecology. Its Reflexes and Its Rhythm.—The same. A Surgical Method for the Cure of Uterine Prolapse or Sacro-pubic Hernia; (amputation of the pointed cervix, anterior colporrhaphy, Tait's perineal flap operation).—The same. Critique of Macroscopic Examination of Specimens removed in Thirty-two Consecutive Laparotomies (with one death).—The same. An Address delivered at the Commencement Exercises of the Toledo Medical College.

F. H. Wiggins. Celiotomy for Bilateral Pyosalpinx, followed four days later by Appendicitis—Operation—Recovery.—The same. A Case of Bilateral Ovarian Fibro-sarcoma.—The same. A Case of Chronic Peritonitis, with Intestinal and Abdominal Fistula—Enterorhaphy—Recovery.—The same. A Case of Contusion and Rupture of the Ileum.

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ORIGINAL ARTICLES.

LEPROSY IN AMERICA BEFORE THE ADVENT OF THE SPANIARDS AND THE NEGROES.

BY ALBERT S. ASHMEAD, M.D.
NEW YORK.

There seems to be some apparent authority for the existence of leprosy in Mexico and Peru, before the arrival of the Spaniards. Sabagan¹ says: "It was the custom in ancient Mexico that once in eight years they danced around the statue of Tlaloc. The performers were masked as animals, birds, laborers and sick men." Among the diseases personated by the latter, syphilis and lepra are named.

We find in the same author, a sentence of much more importance: "Those who have the disease of lepra generally lose their eyebrows and suffer great hunger. To cure them it will be necessary to give them a bath, two or three times, and when they come out of the bath, it will also be advisable to rub them with herbs and roots which have been first ground. Let them drink the water of a root called *texputli*; and if these remedies do no good, they must be cut off from the intercourse of the other people, lest they might infect them." While the symptoms here indicated, the falling eyebrows and the hunger, are common to both leprosy and syphilis, the remedies which are said to have effected the cure, would suggest syphilis rather than leprosy. The fact that the remedies failing to effect a cure, isolation was advised, would apply to both syphilis and leprosy.

At Sabagan's time, the Spaniards in America knew syphilis only as a new epidemic disease in Europe, and likening it to leprosy, must have deemed it contagious, as they thought leprosy was; they therefore isolated syphilitics, just as lepers had been for several centuries isolated in Europe.

Torquemada² speaks of "leprosos bubosos, and sarnosos," distinguishing, it seems, between leprosy and the two other diseases.

The use of the word, lepra, here, is just what proves to me that leprosy is not meant. For the Spaniards were more likely to speak of the disease which we call leprosy, as *mal de san lazaro* and call the lepers, *lazaros*. What they called lepra may have been simply a form of sarna, itch. Leprosy was exceedingly well known to the Spaniards, and if they had met with it in these new countries, would they not have spoken of it as the old scourge known for centuries in Europe?

Brinton³ affirms that lepra does not mean in Spanish or in medical Latin, Oriental leprosy.

Dr. Manuel A. Muniiz in "La Lepra en el Peru"⁴

quotes Parra⁵ as giving the name of the first notable Spaniard who contracted leprosy in Peru, Gonzales Ximenes de Quesada.⁶ He remarks, which was hardly necessary, that the disease of which that Spaniard died, was established in Peru before the Spaniards came. According to this same Parra: "The favorite resort of this disease in America has been Old Columbia. (See note.) It never gained much of a foothold in Peru."

We may understand that the conquerors found here a disease which was not leprosy, the presence of which they would have signaled as that of a well-known European fact (for leprosy had been carried to Spain by the Roman soldiers and was common there in the tenth century), a species of itch new to them.

An important fact is that in those days, the Indians of the Pacific coast were not immune from the disease they called lepra, while they are to-day perfectly immune from leprosy. The Spanish monarchs issued a number of orders to have lepra hospitals founded for Indians, as well as Spaniards, and expressed their earnest wish that no village, either Spanish or Indian, should be without a hospital (see fourth law of the *Recopilacion de Indias*). Edition of Charles III.

Ulloa⁷ who wrote about three hundred years after Columbus, says: "The Indians are vigorous and strong. Syphilis (lues) so common in those countries (Mexico and Peru) did not affect them much, and it is even rare to see any of them suffering from it. The cause of this difference is doubtless to be sought in the difference of their humors, which are but little susceptible of the virus of this disease."

He, then, while stating that the Indians do not catch the disease easily, yet assumes a degree of immunity from syphilis in them. We see here that the Indians, although very little affected by syphilis were yet not wholly immune, while it is known to-day that they are immune from leprosy. It was probably for some kind of bubosos or sarnosos that the Spanish monarchs ordered those hospitals built.

Syphilis is admitted to have existed in America before the arrival of the Spaniards. It is the disease most likely to be confounded with leprosy. In eastern Asia the two diseases are considered as being antagonistic; as one declines in a particular locality, the other prevails. This fact is patent in Europe; as soon as leprosy declined, syphilis prospered, which contributed to the confusion of the two diseases at the end of the fifteenth century.

Syphilis, when first inoculated in Europe, was very violent and widespread; then it gradually weakened

⁵ Ricardo Parra, of Bogota, Republic of Colombia. La Lepra (1850-1860).

⁶ See Father Lucas Piedrahite: History of the Conquest and Discovery of the New Kingdom of Granada. See also Father Simon: Historical Notes of Piedro Firme.

⁷ Voyage Hist. de la Amerique Meridionale, 1752.

NOTE.—It corresponds to the "New Kingdom of Granada," called afterwards the "Vice Kingdom of Santa Fe," which has formed to-day three Republics, Colombia, Venezuela and Ecuador. Cartagena of the Indies was a very ancient focus of lepra.

¹ Historia general de las Casas de Nueva Espana.

² Monarohia Indian.

³ Personal Communication.

⁴ La Cronica Medica, Nos. 28, 29, 31, 32, 1886.

its hold and to-day it is comparatively mild, a circumstance which makes any confusion now with leprosy impossible.

The history of syphilis in eastern Asia is the same. There it has existed for over two thousand years, and it has gradually acquired in those races, by repeated inoculation, a mildness at which Europeans are surprised. When the Spaniards came to America it was at the time when Europeans were first receiving their inoculation of syphilis. If they brought it to America they must have communicated it to the Indians with the same degree of virulence as it had then in Europe. That they did not, that the form of the disease at that time was mild in the native Americans shows that they must have acquired, during a long reign of the disease, a considerable degree of immunity. If they had acquired that immunity, no confusion between leprosy and syphilis could occur in the minds of Spanish writers, who were well acquainted with leprosy in Europe; such a confusion was only possible in the most active stage of the evolution of syphilis in the Indian race. Therefore there can hardly be a doubt that when the Spaniards called something lepra, and not *mal de san lazarus*, they knew perfectly well what they were about. Now these writers have mentioned a disease which they called lepra. The word *teococoliztli*, which Brinton⁸ tells me designated a disease well known in ancient Mexico, is translated in Spanish books as lepra. He states further: "In Maya apparently the same disease was called *uez*; it was contagious, and a species of itch. (See *Perez Diet. Maya*). Torquemada says that the ancient Mexicans sacrificed lepers to the white maize god, *Iztac-centeotl*; this probably refers to progressive albinism."

Now on reference to the ancient dictionaries of the Maya, I find that *uez* is in Spanish, *una especie de sarna o' lepra*, a kind of itch or lepra, showing that the Spaniards understood this species of itch to be something different from leprosy. That they did so understand is shown by the meaning of the other Maya word *ueez*, which, in Spanish is *empeine o' lepra*, that is groin or lepra, showing that syphilis (*bubas*), was also included in the term, lepra. *Nanahuatl* is the ancient Mexican word for syphilis. But the Spanish writers in naming these various diseases, in their own language, use the terms lepra, bubas, sarna, for all of them, sometimes choosing the word lepra, sometimes sarna, at other times bubas.

On the Atlantic coast no confusion between syphilis and leprosy occurs. The authors of the Reports of the Hospital dos Lazaros,⁹ Rio Janeiro, state definitely that the lazarus, who were undoubtedly lepers, date in Brazil from the advent of Europeans and negroes.

We read in the *Annals of Rio de Janeiro*, fifth volume, page 210 e. s., of Silva Lisboa, that "in the seventeenth or end of the sixteenth century, there appeared in Rio a disease called lepra (the word here used in its true sense), but which was commonly known under the name of *morphoea* or *mal de san lazaro*. It was attributed to the scurvy of the imported black, to the bad accommodation and food of the poor, to the immorality of women, and also to the dampness of the dwellings surrounded by marshes." Its appearance was, therefore, much before its ap-

pearance on the Pacific. Brazil had not come into full contact with the Europeans as early as Mexico and Peru.

Dr. Francisco G. Delgado¹⁰ Secretary of the General Archives of the Indies at Seville, Spain, says that syphilis (*venereo*), or bubas, the latter being the most ancient name of the disease appeared at the same time on all the points occupied by the Spaniards in America. He can not say whether "the germ of leprosy and syphilis" (for it must be borne in mind that there was at that time a confusion of the two in Europe) was brought by the Spaniards infected in Italy, (see note), or whether it developed here through their contact with the Indians, or whether it had already been imported from some East Asiatic land. But he knows that in Mexico the bubas (*males venereos*) was known a few years after the Conquest, and that the hospitals (whose foundation was recommended by the kings) were really intended for syphilitics. The disease, bubas, was mentioned at about the same time in South America, that is in Peru and Rio de la Plata, and to it was attributed the death in 1527 of Don Pedro de Mendoza, the first conqueror and colonizer of Rio de la Plata. His death was attributed by the historians to the disease known as the French disease (*galico*). See fourth song of the Argentina, written by Basco de Centenera.

In the book entitled, "Fray Juan de Zerमारagga, First Bishop and Archbishop of Mexico," a biographical and bibliographical study by Don Joaquin Garcia Izcabalzeta (Mexico, 1881), mention is made of a bubas hospital built by the said prelate.

Mention is also made of syphilis and not of lepra, in the Mexican bibliography of the sixteenth century, some details of which are taken from a work by Dr. Cardenas, printed in Mexico, 1591.

In "Diez Frayle," a work written in 1571, much is said about syphilis. In these books no mention is made of leprosy, not even of the disease which went by the name of lepra.

Dr. G. Armauer Hansen, of Bergen, Norway, writes me: "If leprosy had existed in America before the immigration of Spaniards, the disease ought to have been much more spread over the American continent than it really is. Leprosy being a contagious, or if you will, an inoculable disease, and the racial customs of the ancient inhabitants of America most probably not being characterized by cleanliness, the disease ought to have invaded a large part of the population." . . . "I have no clear idea," he says, "and nobody has, I believe, of the earlier intercourse between America and eastern Asia, but if there has been an immigration from Asia to America, I should think that it has taken place in the northern part, where the two countries are nearest each other, and that, in consequence, leprosy ought to have been spread among the North American Indians, to whom the disease, however, never has been known, as far as I know."

Dr. James E. Moore, of Barbadoes, West Indies, writes: "This island has never been inhabited by Spaniards; the Spaniards and Portuguese are said to have frequently visited it with a view of captur-

¹⁰ Personal Communication.

NOTE.—Leprosy came to Italy sixty-two years before Christ, and appeared in Spain in the tenth century. It is not, therefore, easy to see why the disease should not have come directly from Spain with the followers of Columbus and afterwards with Cortez, Pizarro, Bilbao, etc. There were, probably, among the invading crowd a great number of soldiers who had served in the Italian wars, and who may have brought leprosy from Italy.

⁸ Personal Communication.

⁹ Hospital dos Lazaros, Reparticao annexa á Irmandade do Santissimo Sacramento da Freguezia Da Candelaria, Rio de Janeiro, 1893.

ing the Caribs, by whom it was then inhabited. This was previous to the year 1624, in which year it was settled by the English, and since which it has always been in their possession. The earliest account I can stumble over of leprosy in this island, is in a small book written by Wm. Hillary, M.D., 'Observations on the Changes of the Air and the Concomitant Epidemical Diseases in Barbadoes.' He says: 'This dreadful disease was first brought to this and the other sugar islands by the negroes from Africa, and is undoubtedly a native of that quarter of the world and Arabia, and is not originally of this western part. Neither was it ever known here before it was brought hither by the negroes.' This was written by him in 1772."

Dr. Enrique Robelin, who is an authority in Cuba, writes me: "American leprosy is an importation. The Indians did not know it before the arrival of the first conquerors. We may extend this statement to all the Antilles, Cuba included."

Brinton¹¹ never heard of leprosy in America either at or before the time of the Conquest. He also denies the introduction by migration of either arts, words or diseases from eastern Asia into America. "The current," he says, "was in the other direction.

When we study the earliest accounts of the explorers of Behring's Straits, we find they speak of American tribes (Eskimos) on the Asian side, but no Tschutsches on the American side. There was a trade between Siberic and Alaskan peoples, but no hint in historic times of a migration from Asia to America, and no archæologic evidence of it, that I know of, in prehistoric times."

Dr. Brinton further says: "Herrera¹² makes no mention of any such disease until seventy years after the discovery."

Muniz¹³ says: "The first leper hospital in Peru was founded thirty and odd years after the foundation of Lima (Lima was founded by Pizarro in 1535), in the place now occupied by the Quarter of San Lazaro."

Leprosy was unknown in the highlands of Peru which were the abode of the Peruvian Indians. This we learn from Ulloa,¹⁴ who wrote in 1797. Now the Quechuas and Aymaras were the main tribes established on that plateau; they were syphilitic three hundred years before Pizarro entered the empire of the Incas, and had become so probably a thousand years before, through contact between themselves. They had a common name for syphilis, *huanthi*, but none for leprosy. (See Tschudi, "Organismus der Khetsua—Sprache.")

Muniz, however, tells me that: "On the other side of the Andes there are, in Peru, regions truly tropical and mountainous, where lepra may have existed or may exist to-day." As to the occurrence of leprosy among the Incas he thinks that it is "almost sure." He seems to find a proof of this in pieces of pottery ("huacos") or articles of earth, though it is not clear to me in what manner. Leprosy, according to this author, may possibly have existed before the Conquest. He is inclined to believe that it did.

"Leprosy existed in Peru in the lower country," says Ulloa, "but was not rampant on the coast of terra firma." It propagates itself rather freely, and still more so in Habana. In those places they be-

lieve that it is caused by the quality of the pork which is there eaten abundantly, and that the fruit of a certain palm, called Royal, and which is also known as Palmiche, and is a favorite food for swine, aggravates the case. The flesh which has been fed by this food is richer in glandulæ than the normal flesh, these being of a black color, and being perceptible in the whole region of the neck. In spite of the popularity of this theory, we must consider as the chief cause of the origin of leprosy, the introduction of the African negroes, in whose country it is very old and very much at home."

We read in "La Lepra en el Peru," by Muniz¹⁵: "In spite of painstaking investigations, it is impossible to make a statistic study of leprosy in Peru. There is nothing to go upon. There are no registers, and those which we encounter are insufficient to serve as a basis for statistics. One fact, however, is certain. It is the decrease in the number of cases. Leprosy has been very hard on the black; all, or almost all, of the ancient inmates of the Refugio, and those who successively died, were emancipated negroes, the disease affecting the Indians rarely, and the whites still less."¹⁶

"At present all the lepers are Chinese, and their Society of Beneficence has undertaken to offer them an asylum in their hospital at Bellivista."

Dr. A. E. Edwards, of Antigua, West Indies, is of opinion that leprosy was introduced in that island by the African slaves. At any rate it is a fact that leprosy never was seen there outside of the black and colored population, with only one or two exceptions. Dr. Edwards knows of some Chinese cases imported into Antigua ten years ago. There is no history whatever of the Spaniards ever occupying this island. So the disease must be of African origin.

We may safely conclude, ourselves, from all these facts, that there was no leprosy in the native population of America; that that same population has known syphilis for centuries; that Spaniards coming across this new disease supposed it to be akin to leprosy and called it lepra, a word which afterward was wrongly believed to be synonymous with leprosy.

YELLOW FEVER INOCULATION, LIKE BANQUO'S GHOST, WILL NOT DOWN.

BY J. McFADDEN GASTON, M.D.

ATLANTA, GA.

In the *Diario de Noticias*, of October 23, published in Bahia, Brazil, there appears an article touching inoculation as a prophylactic against yellow fever. I have made a literal translation of it, and present it for the consideration of the medical profession in this country, without note or comment, as follows:

"In the International Congress of Hygiene and Demography, of Buda-Pesth, assembled in last September, the question of yellow fever was discussed and Dr. Miranda de Azevedo, a delegate from our government, presented to the distinguished assembly the report of our illustrious citizen, Dr. Domingos Freire, whose investigations upon the etiology and prophylaxis of this disease are well known.

"The Congress formed in this respect, the following conclusions:

¹¹ Loc. cit.

¹² The first negro came with Pizarro and was with "the thirteen" of the *Island Gallo* before the conquest. Already in 1536 there were maroon negroes in Peru. The King granted to Pizarro the privilege to import negroes from Africa.

¹³ Personal Communication.

¹⁴ *Historia general de las Indias*.

¹⁵ Personal Communication.

¹⁶ Secret Memoirs of the Journey to South America.

"1. It is a fact attained for science, thanks to the labors of Prof. Domingos Freire, supported by many physicians of Brazil and by observers of other countries, that a microbe (*cryptococcus xanthogenicus Freire* or *bacteria de le Dantee*) is the active cause of yellow fever.

"This microbe is found in the blood of the patients, principally in the large blood vessels, and also in the parenchymatous tissues of the organs, where they form colonies more or less numerous.

"According to Professor Freire, it measures only one-thousandth part of a millimeter, reaching, however, a larger size in the liquid cultures, principally if they are heated from 37 to 40 degrees Cent., for many days. It executes very rapid movements, as noted by a large number of observers.

"Examined in the fresh state without being heated, this microbe presents a central clear point which is very characteristic. The microbe of yellow fever is readily colored by fuchsin or the methyl blue and violet. After heating, the central spot disappears entirely.

"Gelatin is liquified by it, and according to the experiments of Professor Freire, it is reproduced in spores.

"2. The microbe of yellow fever produces ptomaines which infect the organism. In accordance with the investigations of Prof. Domingos Freire, these alkaloids are formed at the expense of the albuminous matters of the body. He isolates two ptomaines of a liquid form and one gaseous. The sediment of black vomit, the blood of the sick, and the cultures of the microbes, contain these ptomaines.

"3. The experiments and studies, upon the preventive inoculations, of Professor Freire, against the yellow fever should be continued, as the best means of combating the existence and development of this disease.

"4. The therapeutic process which affords the most constant and the most beneficial results, according to the practice of Dr. Miranda de Azevedo, in various epidemics, is that of bichlorid of mercury, the salicylate of soda and naphthol internally. Dr. Angelo Simoes, St. Paulo, has employed chlorin water with good effect. To stop the vomiting, and especially that of blood, the tincture of iodine has been given.

"5. The treatment with quinin should not be used, as it is almost always hurtful, and leads to vomiting.

"6. By employing the means recommended by hygiene, prophylaxis, disinfection and cleanliness of cities, there ought to disappear completely the active germs of yellow fever, as has already been accomplished in the city of Campinas, (State of S. Paulo, in Brazil).

"7. The yellow fever is not endemic in all parts of Brazil. It is only developed there when hygienic laws are not observed; as it can appear everywhere when the active microbe is transmitted and finds means of growth.

"9. The period of incubation does not generally exceed eight days. We should then condemn the vexations and useless quarantine observed in Lisbon against ships coming from Brazil, principally when cases of disease are not verified in this country eight days prior to the departure of the vessels."

THE DISEASE OF INEBRIETY.

ITS STUDY FROM THE STANDPOINT OF THE EXPERIENCE OF AMERICAN PHYSICIANS OF EMINENCE WHO HAVE WORKED IN THIS FIELD OF RESEARCH.

BY EDWARD C. MANN, M.D.
NEW YORK CITY.

(Continued from page 826).

CONFIRMED INEBRIATES.

I shall call the first class confirmed inebriates. I prefer the word, confirmed, to the more common term, habitual, for the reason that one may be in the *habit* of occasional or frequent intoxication, and yet not be so far established in the habit as to warrant the application of the term in its ordinary sense. How to care for this class, more than any other, is the problem that the civilized world is now endeavoring to solve and in which every household is immediately or remotely concerned. Confirmed inebriates constitute a considerable class of the community; they are as a rule, largely unproductive, and a necessary drain upon the resources of the people. What can be done for or with them? The first thought in this connection involves the idea of custody and restraint and this is always offensive to the intuitive love of freedom, which in this country especially, is the fountain impulse in every American breast. All our actions are influenced by this impulse, which is as native to our intellectual being as the capacity to breathe is to our physical nature. Yet the safety of the victim's family, the security of his estate, the peace of society and his own welfare, demand that his downward career must be arrested. How far his personal liberty may be restrained to accomplish this end is a delicate question; but perhaps there is no maxim more pertinent to the case than that of John Stuart Mill, who, when discussing the liberty of the subject says: "As soon as the liberty of the subject interferes with the general interest of the community, the liberty of the subject must be forfeited."

The most democratic government will allow that however sacred may be the rights of men individually, they are no more valuable to the individual than the rights of a community are to those who constitute it. A confirmed inebriate is one whose body is poisoned, and whose moral development is retarded. He is incapable of doing what, in his best moments his will prompts him to do, and hence may be dangerous to his family or neighbors as well as to himself. The interests of the community are thus interfered with, and it becomes the duty of the State to defend itself. Hence penal enactments have been adopted, with a view of protecting the community; but the error has been, as it seems to me, that society has overlooked the interest of the offending class. It deals with them simply as criminals, and offers them no aid to a better life. We need not go beyond our own country for proof to convince us that fines and imprisonment for a few hours or days are utterly useless, either as means of recovery or as a protection to society. On the other hand, the degradation and demoralization which are the essential sequelæ of such a course, lessen the chances for the improvement of the individual, and increase the danger and expense of the community, by increasing the liability to offense and criminal prosecution. Detention in asylums, or sanitariums, with appropriate work for body and mind, under prescription of medical offi-

cers, and a limited probationary trial before being finally discharged, would be the salvation of thousands of inebriates and a source of economy to the State. In many cases the detention might be permanent and it could be made more or less productive by the laboring classes. None would be more ready to accept such an alternative than those who are incurable and helpless, provided the odium and disgrace now attached to commitment and detention are removed, and the appliances for improvement and culture take the form of hospital treatment in place of penal retribution.

Class number two will now be considered :

EMOTIONAL INEBRIATES.

Those who without bad intentions or acute convictions of duty and responsibility, or established principles of right, give themselves to the promptings of impulse, and whom I shall denominate emotional inebriates. Emotion may disturb the processes of nutrition, and all the changes incident to the chemistry of life, while the *will* remains powerless and dismayed. Illustrations of this fact might be drawn from the various erratic displays of hysteria, and the strange effects of grief, joy, fear, etc., upon the visceral functions. We have all seen such cases and our experience must have taught us that the victims of emotional irregularity and excess are frequently the most wayward and difficult subjects we are called upon to treat. The same constitutional conditions which induce hysteria in some cases, induce in others the desire for alcoholic stimulants, and the susceptibility to the poison in such is frequently acute. It would be as wise in the one case as in the other, to attempt restoration by fines and imprisonment. Removal from disturbing associations to new and invigorating influences; restraining excessive development on one hand and stimulating feeble powers on the other, is the end to be sought in either case. It is equally true that in both there may be symptoms of violence, as exhibited in hysterical mania or in delirium tremens when such restraint will be temporarily necessary, as can not be judiciously had at home. Nothing is more common to practitioners of medicine than to witness such cases in private practice.

What are popularly known as nervous diseases interfere with domestic happiness and create discontent by their strange eccentricities which seem, at times, to exhaust the patience and even the sympathy of the fondest friends. The subjects of such disorders are, at times, unfit for the enjoyments and amenities of the social circle as they are disqualified in domestic life for its obligations and pleasures. They are frequently committed to asylums for the insane, as the most available remedy, although they do not strictly belong to the category of insanity. Inebriation is but another form of family sorrow and public annoyance; and as both conditions result from similar constitutional causes and are alike distinguished by eccentric and disturbing conduct, there seems to be no good reason why one should be the subject of scientific care and the other of fine and incarceration. If no such reason exists, it is submitted that special institutions are the best remedy for the emotional form of inebriety, where the enfeebled forces may be strengthened by exercise, and the tendency to excess be suppressed rather than restrained, by preventing as far as may be, the occurrence of emotional excitants.

ACCIDENTAL INEBRIATES.

The third class will be named accidental inebriates. Such are men of good principles and character who know and acknowledge their infirmity and endeavor to overcome it. Students, authors and over-worked business men furnish a considerable percentage of this class. Salesmen, also, of large mercantile houses, in the busy rivalry of trade and hospitable attentions to customers are led into the practice of drinking without being conscious of their weakness, till they discern that they are enticed into inebriety and know not how to escape. They are overcome by drink, as men are often overcome by eating immoderately. Colic, gastritis, apoplexy, death may be the consequence of excessive eating; and intoxication with all its resulting dangers of excess in drinking. And why one should be treated as a disease and the other punished as a crime, is among the anomalies of our civilization. If we would endeavor to study the conduct of men, in its relation to the common law which underlies and controls the vital processes, we would be more ready to see that an over-worked brain which reels from its balance into insanity, is alike responsible for the strain to which it has submitted itself, with another over-worked brain, which vainly seeks relief in the use of alcoholic stimulants, and finds, at last, that while it avoids the one evil it falls into another that is equally alarming, etc.

Whether our institutions are large or small, public or private, seems to me but of little importance, provided the means for classification and distinctive treatment are supplied. What these means should be is an important question.

We have denominated three classes; confirmed, emotional and accidental inebriates. It is fair to assume that a large proportion of the first class are beyond the reach of complete recovery, and that they need constant care and supervision in institutions which should be empowered to restrain and control when necessary.

The second or emotional class require rather an educational process, the end of which, as already stated, should be to equalize a disproportionate system and secure stability of character.

The third or accidental class furnishes a large proportion of cures, and should be provided with institution accommodations that are suitable for thoughtful and serious men. With such men convictions mean something; sorrow is real; effort is earnest; and a quiet persistent struggle with self and temptations is a warfare that must be sustained by associations of an elevated and invigorating character. If society would establish within given districts according to the population, asylums where the confirmed class should be kept under judicious restraint, they would, in my judgment react most favorably upon all other classes of drinking men, to urge them to the use of every available means to avoid in themselves the alternative of commitment and detention. These institutions should not be large but numerous; they should be brought as near to the people as possible, that the people may feel them to be what they really would be, an abiding reproof and warning. In addition, there should be homes or hospitals for the curable, which would be sought for and patronized by a large class of earnest and anxious persons. Economy would be thus insured and public health and morals improved. If crime and disease are as largely the result of intemperance as

is generally believed, it is evident that it is cheaper to detain the confirmed inebriate that he may not be in a position to become a criminal, and to treat the better class in hospitals, where they may have opportunity to recover and become productive with less risk of being burdensome to society and of continuing a diseased posterity.

Statistics seem to prove that crime and intemperance are concomitants of each other, and affect both the social and physical welfare of the people to an extent of which we have yet but an imperfect view. It can not, therefore, be otherwise than safe and economical in the State, to prevent the crime by detaining the confirmed inebriate under proper restraint, and curing the milder form of the disease in suitable and properly endowed institutions, that the effects of this terrible companionship may be modified in this, and largely prevented in the next generation.

The existence of such institutions would afford opportunity of studying the subject of inebriety, as it can be studied in no other way; and they would be instrumental in diminishing the demand for alcoholic and other narcotics, while public sentiment would of necessity become more enlightened, and results could then be secured which would do much to instruct the legislation of the country. As such institutions are multiplied and sustained by judicious legal authority, the public sentiment of the civilized world will approve and foster them.

Light is needed as to the nature of the alcoholic poison and its wonderful power of arresting and destroying vitality; and we should be encouraged to continue, and accumulate and disseminate light concerning this obscure and disastrous evil and the means for its treatment. Society owes much to the inebriate. It recognizes intoxicating beverages as legitimate articles of commerce. Government derives large revenues from their sale, and the law creates a monopoly of the traffic, under a license system, which is more potential for evil than any other adjunct of the government. Society is instrumental, by its defective sentiment and practice on this subject, in creating most of the disability under which the inebriate struggles. It takes from him his property, and in some instances destroys his citizenship, enters the domain of his domestic life, blights the source of family happiness and social prosperity, and then fines him for doing what it entices him to do, and imprisons him for violating a law which entraps his weak virtue, and makes him a victim to the cupidity of the state. To no other class does it mete out such singular inducements to evil, and to no other class does it award such unreasonable and offensive punishment. It may be said that the fault is not in the law or in public opinion, but in the individual. This is true in a large sense, but the fact must be borne in mind that among the results of our abnormal civilization is a generation of people with unusual susceptibilities to evil influences, and that as a consequence they seek abnormal means for supplying the intense demand that is made upon them under such a system. Hence the necessity for a jurisprudence that shall recognize the source of the evil and provide for the protection of those who are weak in will, in judgment or in moral sense.

I desire to call especial attention to the views of the two preceding gentlemen, Dr. Willard Parker and Dr. Joseph Parrish, as they were the pioneers of

the scientific investigation and treatment of inebriety in America, Dr. Parrish having been the originator and master spirit of the "American Association for the Cure of Inebriates." The views of the late Dr. Theodore L. Mason, given below, are of especial interest as he has also passed away, leaving behind him the memory of good deeds, sterling worth and large experience in the field of inebriety. In his anniversary address in 1877 before the American Association for the Cure of Inebriates, of which he was at that time the President, he spoke as follows respecting inebriety as a disease. After stating that the objects of the Association, as set forth in the plan of organization adopted by them, were "to study the *disease* of inebriety, to discuss its proper treatment, and to endeavor to bring about a coöperative public sentiment and jurisprudence;" and that in 1870, at a meeting of the Association, a declaration of principles were unanimously adopted in which these postulates were enunciated: 1, "intemperance is a *disease*;" and 2, "it is curable in the same sense as other diseases are curable," Dr. Mason proceeded as follows: "The first of these principles, viz., 'That inebriety is a *disease*,' is the great fundamental principle upon which the oldest, best established, best known and most successful inebriate asylums in this country are based. The correctness of this principle has, however, in a few instances been denied. I propose to inquire in this paper, What inebriety is? Is it, as some persons affirm, always a *vice*, merely, or is it also a *disease*? May it not be in certain circumstances one of these, *vice*, and in other circumstances *disease*?"

"1. What is the nature of the action of alcohol upon the human system?"

"2. Does alcohol cause acute and chronic constitutional disease in the persons habitually using it?"

"3. Is the diseased constitution thus caused transmissible to the offspring of the drinker?"

"4. Is there evidence that family and national character and constitution may be degraded, by the general use of alcohol?"

"5. And, lastly, are these evils thus caused remediable, and how?"

"A few remarks, may, perhaps, not improperly be here premised as to the character of the active agent, the substance upon the use of which in our own and in the insular and continental countries of Europe, inebriety chiefly depends—alcohol, in some of its varied forms. I do this more readily because of the indefinite and modified manner in which it is sometimes spoken of, even by intelligent physicians. That it is a poison all admit. But immediately upon this admission you will not unfrequently hear this qualifying remark: 'It is a poison when taken to excess;' or, 'it is good for the stomach, but becomes a poison when its effects are felt in the head.' Now this betrays a confusion of ideas, a lingering tendency to hold on to the exploded notions of the past, or an ignorance of the latest teachings of science for which we might find an apology in the jolly monks of the *schola salerniterna*, whose maxim as quoted by Duglinson was: "*Si nocturna tibi, noceat vini; Hoc tu mane vives iterum et fuerit medicina*," but neither of which we think is, at this late day, worthy of intelligent medical men. We do not talk thus about arsenic, opium, atropin, Indian hemp or prussic acid, or any other vegetable or mineral poison. All of these, though poisonous, are of use, and have their places in the *armamenta medica*—

places which the modern practitioner would find it difficult to fill were they removed. They are all of great benefit to man as *remedies for disease*, but they are nevertheless indisputably poisonous. Just so, alcohol has its use in the treatment of disease, but it is a *poison to the normal and healthy man*.

"No intelligent person would say: 'A little arsenic or a little opium, or a little Indian hemp, or aconite, or atropin or prussic acid is a *nutriment*, and is of benefit to man in health and should be taken daily and regularly; but a little too much is a *poison*.' Why, then, suffer ourselves to think or speak thus of alcohol? No. Alcohol is never a *nutriment*, or fit for daily use. Alcohol is a *poison*, inherently, absolutely, essentially; in a drop or in a gill, in a pint or in a gallon, in all quantities and in every quantity it is a poison. Plainly, the quantity can not alter its chemic constitution. The chemic formula, C_2H_6O , expresses the relative proportion of the constituents in a teaspoonful or a gallon of *ethylic, dentilic*, or common alcohol; and Christison and many other authorities in *materia medica* have assigned its place among them as a narcotico-irritant poison."

Alcohol is supposed to have been discovered in the eleventh century of our era by an Arabian alchemist, Casa or Albricasis, a distinguished professor of the mystic art whose adepts were popularly supposed to be helped in their discoveries by the devil, the great enemy of man from the beginning; and verily, were I to judge from the results alone of *this* discovery, I should be strongly inclined to the popular belief, for surely I speak the words of truth and soberness when I declare that, since the transgression of our first parents "brought sin into the world and all our woe" no *single* discovery of man, in his persistent "seeking out of many inventions" has been fraught with such dire results to the moral and physical well-being of our race. The more than seven thousand members of the British Medical Association; the one hundred members of the AMERICAN MEDICAL ASSOCIATION, who met in 1877 in Chicago; the report made before the Section of Medicine of the Centennial Medical Convention in Philadelphia in 1876, composed of representative men from all parts of this country and from Europe, all concur substantially in this one opinion of the noxious effects of alcohol on those who indulge in its habitual use. To this testimony, so clear and full, in justice to our own members and as proof of the views held by them from the organization of this Association I feel constrained to add their evidence.

In a report of Dr. Earle, of the Washingtonian Home in Chicago, I find this description: "Alcoholic mania is the term we apply when, with impaired mental and physical condition, the man seems to have lost all will-power to do as he would. He would do right but he seems to have lost the power to do it. He makes the best of resolutions, calls the Divine Being to his help, but at the first opportunity falls." Is there no disease here? Is this man in a normal healthy condition? "Delirium tremens," he says, "is characterized by insomnia, hallucinations of the special senses, low delirium, with its consequent decreased mental vigor, and with increased digestive derangement." Does no disease exist in this case? Dr. Day, in his paper on "Inebriety and its Cure," read before the Suffolk District Medical Society in December, 1876, propounded this question: "Is there satisfactory proof of the existence of a dis-

ease called dipsomania? If so, can it be cured? I give an unhesitating answer in the affirmative." In his paper on "The Pathological Influence of Alcohol or the Nature of Inebriation," by Dr. N. S. Davis, in answer to the question: "Is inebriation really a crime (vice) or a disease?" and stating certain conditions in which to become inebriated was criminal, he says: "But that the appetite for alcoholic drinks and the state of inebriation are diseased conditions of certain organs or structures is susceptible of clearest demonstration." Dr. Wm. C. Wey, in his paper entitled, "Inebriety by Inheritance," says: "Inebriety being accepted as a physical disorder . . . it becomes us to look back in the train of morbid phenomena by which it has been fostered and developed, and endeavor to analyze its near and remote causes. Conspicuously in this connection comes the consideration of inherited tendency."

The testimony which I have thus brought before you is but a small portion of what is accessible, yet I trust it will be deemed sufficient to establish the proposition with which I began, that alcohol is a *poison*, producing in persons who use it habitually the disease of inebriety—a disease whose forms and features and diagnostic symptoms are quite well understood.

(To be continued.)

CELIO-HERNIOTOMY FOR IRREDUCIBLE INGUINAL OR FEMORAL HERNIA.

BY T. E. SCHUMPERT, M.D.

SHREVEPORT, LA.

There is, perhaps, no operation described within the pages of surgery that ought to be better understood by, or will present itself more certainly and imperatively to the general practitioner, at some time or other, during his professional career than this. An ovariectomy, nephrotomy, gastrotomy, hysterectomy, etc., can be postponed until a more suitable time, but a strangulated hernia demands immediate surgical procedure. I will admit that this operation as generally performed is not at all times easy; that there is danger of doing some vital injury, that the experienced operator, as well as the inexperienced, will at times find himself puzzled to know whether he is contending with the sac or the gut. The theory of cutting down on the hernia and being able to recognize the tissues, layer by layer, is altogether a delusion, and from the fact that it can not be done is calculated to discourage the man who expects to find them.

We do well, after adhesions are formed, to always recognize the sac. I have been at a loss more than once, after I had cut down on the sac, as I supposed, to know if my next stroke was being made in the right direction or not, and have been surprised quite as often to find that I had not reached the sac.

In recent hernia, where the sac is thin, and through some inflammatory process has become adherent to the omentum or gut, it is almost impossible to know positively in all cases when it is reached by any method I have ever seen, *i.e.*, save the one I am now about to describe. For the reason that so many operations have been devised for strangulated or irreducible hernia, and that a great majority of the profession have accepted no particular one, is but an evidence of the fact that none have exactly met the indications, that they are not altogether satisfactory.

Very nearly all operations for hernia are essentially the same; they differ, however, somewhat in detail. The sole object of the operation being: 1, the reduction of the tumor with as little damage to the parts as possible; and 2, a guarantee against its return. Dexterity in this operation is no less important than in all others where an anesthetic is administered, the patient's life, so far as the anesthetic is concerned, being jeopardized in proportion to the time he is kept under the anesthetic. The ordinary operation of herniotomy is begun by making an incision *over* the hernial tumor, and dividing the parts as carefully as possible until the sac is reached, which should be dissected out, cleared of its adhesions to the spermatic cord, emptied of its contents, a ligature thrown around its neck, and the wound sutured. These are the essential features of all the operations, and it requires anywhere from one-half to an hour or more to perform it.

From the first indications above mentioned, the operation which I am now about to detail especially recommends itself, and for the second promises as good results as any, since the closure of the wound and after-treatment is that commonly employed.

The operator, standing at the patient's right, begins his incision in the abdominal parietes about two and one-half or three inches from neck of sac one-third the distance from the anterior superior spine of ilium to spine of pubes one-half inch, above and along the course of Poupart's ligament, and allows it to extend in the line of that usually made in herniotomy, from this given point to one-half inch beyond external abdominal ring, which implies the latter distance over the neck of the tumor. The incision, therefore, for celio-herniotomy must be made about three or three and one-half inches in length, the abdominal portion of this incision or the anterior two-thirds of initial incision is pursued in the same manner as in an oöphorectomy, until the peritoneal cavity is reached, after which the index finger of the left hand is inserted into the abdomen as a guide, with its tip in the ring, in neck of sac, between sac contents and ring; then with a pair of blunt-pointed scissors or a probe-pointed curved bistoury all tissues are divided until the constricting ring is reached, when if a bistoury is used it is inserted between the finger and ring and the cut is made upward; if scissors are used, however, the cut is made in line of the initial incision and in both cases until the constricting ring is felt to relax. The next step is to seize the hernial mass between the fingers, be it gut or omentum, and with a *vis a-fronte* to reduce it, which is easily done and without any danger of rupturing the gut in case it should be threatened with gangrene, as is the case when the force is applied from above.

After the reduction of tumor, the sac is easily and without danger dissected from its contiguous structures and its neck ligated or sutured as in the usual manner. The sac having been removed, the wound is closed by one of the several methods now in vogue, my preference being that employed by Bassini and Marcy, save in dealing with the cord, *i.e.*, after the aponeurosis of transversalis muscle has been sutured to the posterior aspect of Poupart's ligament, and the internal ring closed save just enough space to allow the exit of spermatic cord, using this newly formed wall as a background for the cord; I, instead, gently place the cord in my incision a few centimeters above the internal ring, after buttonholing the incision for

the reception of the cord. Thereby I am allowed to close entirely this ring, which I do with double animal sutures. The cord is now removed entirely from its original habitat in the inguinal canal, save at the external ring, and placed over the aponeurosis of the oblique muscles, where it is incorporated by adipose and connective tissue covered by skin. Some may say there is danger of strangulation by the encroachment of muscular fibers or cicatricial tissue. But this has not proven so in any of my cases, five years having elapsed since the first operation and the patient is without the slightest varicosity or evidence of returning hernia. While this man is too aged to propagate the species, three others by their usual cleverness in this line have testified to the fact that the operation of celio-herniotomy is a complete failure for the production of sterility.

It is asserted by some of the most recent writers on this subject, that their chief object is the restoration of the obliquity of the inguinal canal; mine is the obliteration of this canal, and the formation of another in a locality where the tissues anatomically are better able to resist the etiology of hernia. The locality for the new ring I find to be just within the muscular fibers of the transversalis, a few centimeters above the internal ring. If the component elements of this cord or its anatomic relations have been predisposed to hernia in the first place, statistics go to prove that if left *in situ*, although nature has been greatly augmented by the skill and masterly work of Macewen, Bishop, Czerny, McBurney, Bassini, Marcy, and I might name many other meritorious workers in this field, it will have a tendency to again produce this trouble.

The subcutaneous implantation of the cord is not original with myself, but a product of the ingenious Halstead, however, if the formation of a new ring in a different locality has been used by others, it is without the knowledge of the writer. My operations are performed under the strictest aseptic and antiseptic precautions, realizing, as I do, the proneness of this locality to sepsis. This fact being assured the wound is closed without drainage.

I was called by Dr. D. M., a few days ago to see an old man, 76 years of age who had been suffering from a right oblique inguinal hernia for forty years. His vomit was stercoraceous, his expression excited and anxious, pulse quick and flashy with his arms and legs cold. On further examination, I found an irreducible scrotal hernia that extended half way to his knee, the ring very large and free. Efforts at reduction, by taxis, to my surprise, without avail. On opening the abdomen and reducing the hernia according to my style, I found the hernial mass to be composed entirely of intestine that had assumed a pear shape, the sharp flexions at the base of which were bound firmly by adhesions which extended through the inner ring. The intestine was adherent to the sac, and the sac to the tunica vaginalis which on traction was everted, plainly showing the line of adhesion between intestine and sac, and made dissection easy. The adherent folds of intestine were themselves next severed and the intestine freed.

I am sure this operation was very much facilitated by the combination of celio- with herniotomy. This patient had never in his life worn a truss, but during the entire period had carried this mass in his scrotum. It would have been very difficult in this case, by any of the older methods, for even an experienced operator to have avoided wounding the vaginal tunic or even the gut. I have successfully performed this operation on two patients over 80 years of age, one male, the other female, the latter strangulated; have performed it in all, fourteen times, and twice under

most adverse circumstances. So far it has proven to be all that could be desired. Indeed, the operation is so simple, and the result offered so satisfactory, that when consulted, whether the hernia be reducible or irreducible, I advise an operation. I believe this is the advice of every surgeon of the present day who has given this subject the deserved amount of thought.

• RECAPITULATION.

This operation offers, first, as an advantage over others, its comparative innocence from danger. It also offers the advantage of from several minutes to an hour or more in time, upon which fact, alone, may depend the final good result. It places herniotomy within the reach of the most clumsy and inexperienced operator. The gut or hernial mass falls within a better field for inspection. I close the external ring, save just enough space at its inferior inner angle for the escape of the cord; close the canal after the Bassini-Marcy style, save the internal ring which is closed entirely; buttonhole the transversalis incision just above the inner ring, to form a new ring and prevent the tension of sutures; and place the cord between the integument and the external oblique.

THE TREATMENT OF DOUBLE FRACTURE OF LOWER JAW BY ANGLE'S FRACTURE BANDS, WITH REPORT OF CASE.

BY W. E. GAMBLE, B.S., M.D.

CHICAGO.

Mr. E. N., aged 40, was referred to me by O. A. King, D.D.S., of this city, July 4, 1894, for treatment of double fracture of lower jaw, the line of fracture on right side extending from third molar through angle of jaw (Fig. 1, *x*). Third molar, being loose, was extracted. The fracture on left side was between left lateral incisor and left cuspid (Fig. 1, *y*). The fragment was displaced one-half inch below level of teeth. By direct pressure the fragment was adjusted to its normal place. To keep it there was the problem. A roller bandage was placed the full length of fragment on the under surface of jaw, over which a four-tailed bandage was applied, secured by sewing the bandage carefully.

July 5. Fragment displaced as before. Wiring the jaw was advised, but the patient desired all other means to be tried first. A leather chin cup supported by plaster-of-Paris cast was put on.

July 6. Fragment displaced. I called Dr. A. J. Ochsner who, in addition to chin cup and plaster-of-Paris cast, adjusted a well fitting gutta-percha interdental splint. The Doctor carefully and skillfully applied the dressing.

July 7. Fragment dislocated as before. Further attempt at treatment by splints was abandoned. Dr. Ochsner with my assistance wired the fragment on left side. It seemed unnecessary to wire right fragments. They were not wired. A light plaster-of-Paris dressing was applied to support the jaw.

July 13. Facial erysipelas developed in region of wound, gradually involving face and scalp.

July 21. Fragment slightly dislocated. Region of fracture seat of abscess. Soft tissue swollen to such an extent that the wire suture could not be supported by external splints.

From July 20 to July 31 displacement gradually increased; at the latter date it was two-thirds as great as the original deformity. The wire had evidently cut through the spongy bone a distance equal to the amount of displacement. Had not the process of repair been delayed by the intercurrent disease the wiring would probably have been successful in retaining the displaced fragment. The wiring had not only proved a failure, but it had been a source of injury; the ends of the wire had lacerated the lower lip and tongue. Pus followed the wire, resulting in abscess forming in region of wiring. The lateral incisor (left) and left cuspid became loosened, necessitating the removal of incisor.

Owing to the precarious condition of the patient, resulting from the erysipelas, in addition to the local condition of ends of fragments and the soft tissue about them, a further attempt at wiring was considered not advisable. The frag-

ments must be adjusted and held in place, or a frightful deformity would result. The only fixed surface remaining untried to which this large fragment could be anchored was the upper jaw. The difficulty was to get a fixed point or points on teeth of displaced fragment and opposing teeth of upper jaw to which silk or wire could be attached and the fragment held in place until repair had taken place. At my request, Dr. King kindly visited the Wilmington Dental Manufacturing Company of this city to find, if possible, a band attachment already made to be used in this case. Dr. Angle's fracture bands (Fig. 2) were secured. With Dr. King's assistance a band was placed around the two central incisors of fragment, and to left central incisor of upper jaw (Fig. 1). Little difficulty was encountered in getting bands well adjusted. By burnishing the band accurately to the tooth and tightening the nut until the band is

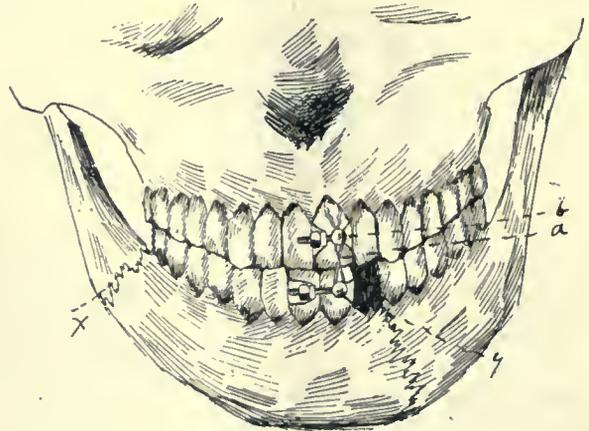


Fig 1

firm, there is but little danger of the band slipping. Floss silk, well waxed, was used about the buttons (Fig. 1, *b*), in the manner of a figure 8. (See Fig. 1, *a*.) The fragments were firmly held in place by this means for six weeks, when repair had taken place with result quite satisfactory.

This case emphasizes the fact that the universal custom of wiring the fragments of a double fracture of the lower jaw where there is much displacement is not the only practical method of treatment. Dr. E. H. Angle has furnished the profession with a perfect instrument for attaching the fragment to upper jaw. These bands are made in different sizes. With care and patience the surgeon can adjust them to the teeth. The teeth can be separated by introducing between them small wedges of orange wood or other hard wood, driven in by a small hammer or handle.



Fig 2

knife, etc. A simpler method is to separate by means of rubber. A piece of rubber of the following dimensions, 15 mm. x 2 mm. x 2 mm., is stretched to such an extent that it can be pushed between the teeth. Its contraction gradually separates them. Fifteen or twenty minutes is required by the method to separate the teeth sufficiently for bands to be applied. The bands may be made doubly secure by cementing.

The simplicity of this method, requiring no anesthetic, no destruction of tissue, no trained assistant, as compared with the bloody, tissue-destroying operation of wiring the fragments, should cause the surgeon to give it consideration in cases in which both

the fragments and the opposing upper jaw are not toothless.

There are no sequelæ as a direct result of treatment, as often follow wiring; abscesses of tissue, loosened teeth and loosened alveolar process.

In fixing opposing molars or bicuspid, Dr. Angle makes use of a rod (Fig. 3, *c*), one end of which is bent to a right angle; this is hooked into an attachment on one band (Fig. 3, *e*). The other end of rod is thrust through a pipe in other band. The rod is held and its length adjusted by a nut (Fig. 3, *d*)

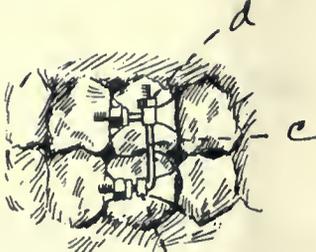


Fig. 3

This rod can be much more easily adjusted in this region than silk or wire, the cheek being in the way.

The articulation of the teeth differs widely in different individuals. The upper cusps and incisors usually project slightly over the lower ones; occasionally the cusps and incisors of lower jaw project farther in front than the upper ones; owing to this diversity in articulation of these teeth, silk floss, well waxed, can better hold them in proper place than the rod or any less flexible material.

264 S. Halsted Street.

MALIGNANT DISEASE OF THE OVARY; REPORT OF CASES.

Read before the Worcester, Mass., Medical Association, Oct. 10, 1894.

BY HOMER GAGE, A.M. M.D.
WORCESTER, MASS.

I trust you will pardon me for asking your attention to a subject which may seem of but little practical importance, and is interesting mainly because it is so rarely met with. I have ventured to report these cases of malignant disease affecting the ovaries, because they present some features of unusual clinical interest and because they will serve very well to introduce the subject of ovarian pathology, about which there seems to be so much confusion.

I think no one who has attempted to do much pelvic surgery himself, or has tried to study pelvic surgery from the medical periodicals or in society transactions, can fail to be impressed with the want of exact knowledge of the various conditions which may be met with in the normal ovary, and with the want of a generally accepted scientific standard, in accordance with which the departures from the normal may be recognized and properly classified. The confusion has been made much worse by the tendency of modern surgery to remove the ovaries upon every slightest pretext, and then to examine them with a determination to find something which should justify the mutilation. The more accurate knowledge which will dispel this confusion must come, step by step, each step perhaps contributed by a different observer.

Can not we, with the increasing clinical opportunities that are being constantly afforded, contribute

something toward the establishment of one of those steps? In the hope, then, of awakening some interest in this subject, I submit these few cases, asking you to remember that nearly all of them occurred among my earliest operations, and that the reports are far from being as full or as accurate as I should like to have them.

The relative frequency of malignant tumors of the ovary is as yet undetermined. Reliable statistics on this point are still too few to furnish any positive data. Cohn's report of 100 cases occurring in Schroeder's clinics, is still the largest number reported, and this list has been reduced by Butlin to 55, by the exclusion of doubtful and unoperated cases. That would be about 8 per cent. of all cases observed during the period covered by his report. Olshausen, grouping all solid tumors together, believes that they represent about 5 per cent. of all new growths of the ovary, and further, characterizes almost all of these as malignant. In Homan's series of 384 laparotomies, there were 7 cases of undoubted malignant disease of the ovaries, but there were 8 other cases in which after removal of the ovarian tumor the patient had died from the appearance of malignant disease elsewhere. The presence of malignant disease at the time of or following the removal of an ovarian cyst, in itself of benign appearance, has also been noted by other observers, and is relatively so common as to make it seem more than a mere coincidence. I have, myself, had one such case which, I think, of sufficient interest to warrant a brief report:

Mrs. H., 53 years old, had been married thirteen years; had never been pregnant; menopause four years ago. Two of her aunts had died of internal cancer, and her father had died of cancer of the face. She had been failing in health for a year; had been suffering from abdominal pain, vomiting and distress after eating, with marked loss of flesh and strength. Five months ago had observed abdominal swelling, which had yielded to medical treatment, but had quickly re-appeared with return of intense pain and constant vomiting. She was entirely confined to the bed. Her abdomen was immensely distended, somewhat tender, transmitted wave of fluctuation readily, was dull over the lower half, resonant in both flanks. I operated on May 6, 1892. On the morning of the operation, her pulse was very small and feeble, 130; extremities cold and moist; had been vomiting all night, a dark greenish fluid in large quantities. She appeared to be *in extremis*, and I certainly expected that she would die during the operation. On opening the abdomen, about three quarts of clear straw-colored fluid of a slightly viscid consistency were evacuated, and a cyst of the right ovary, about eight inches in diameter exposed. It contained a dark thick fluid, was unilocular, and presented only loose adhesions to the rectum and pelvic floor. It was quickly removed, and to my surprise she rallied well from the ether. Pain and vomiting ceased, and at the end of ten days she could be carried to a lounge in the adjoining room and seemed to be gaining steadily. About four weeks after the operation, pain and vomiting and abdominal swelling re-appeared, and on June 22, seven weeks after the operation she died. For the following very careful and accurate account of the tumor and of the conditions presented by the *post-mortem* examination I am indebted to Dr. W. S. Miller, now of the University of Wisconsin:

"The growth was a large cyst, for the most part smooth, but here and there a warty nodule was seen projecting into the cavity of the cyst. About the pedicle the walls were thickened and the nodules were more numerous. I examined portions of all these places, *i.e.*, the thin wall of the cyst, the nodules and the thickened wall about the pedicle. The thin wall of the cyst proved to be that of an ordinary cyst of the ovary; the nodules were simple papillary growths on the wall of the cyst, and the thickened wall of the part about the pedicle showed nothing malignant. The wall was

thickened and the papillary growths more numerous. I remember feeling quite chagrined at the autopsy to find a malignant growth when I had reported on the case as being non-malignant, but I could not then, and I do not now, see anything in the sections to warrant a diagnosis other than papilloma of the ovary.

"At the autopsy a large accumulation of fluid was found in the abdomen, about a pail and a half in all being removed. The entire abdominal cavity was filled with secondary growths of cancer, and in the pelvis all the organs were so firmly matted together that they were almost indistinguishable. This growth in the pelvis seemed to take its origin from the stump of the ovary, but it had none of the appearance of a primary growth. As you noted at the end of your notes, the primary disease was in the pancreas, and the growth in the pelvis seemed to be an implantation on the stump of the cyst."

The tumor was a papillary cystoma, a form of new growth generally classified as non-malignant, except when the papillæ themselves are the seat of cancerous infiltration, and all the cases of this kind are excluded by Butlin from the reports of Cohn and others, in his consideration of the relative frequency and results of malignant disease of the ovary. In the case here presented it would be necessary, to conform to this view, to suppose that the cyst was an accidental complication of the disease of the stomach and pancreas, entirely independent of it, and that the cancerous condition of the stump was not in the nature of a recurrence but was a secondary chance implantation of the disease in this locality. It seems to me that a much simpler and more natural explanation, more in conformity with our knowledge of the history of malignant diseases elsewhere, is to assume that there was something malignant in the cyst itself. These papillary tumors do give rise to metastases, parasitic in their formation to be sure, but very different from anything that we observe in the history of benign tumors. Pozzi, in his late treatise on gynecology, calls attention to the greater degree of malignancy of papillary cystomata, the uncertainty as to what part of the ovary they grow from, and calls for further and more careful investigation of this question. I have not time here to enter into any exhaustive study of the question, but present it to you as one of the unsolved problems of ovarian pathology. Should their malignancy be established, as seems to be conceded by Greig Smith, the proportion of malignant to benign tumors of the ovary must be much larger than is stated by Olshausen.

There is very little in the clinical history or physical examination of ovarian tumors to suggest their malignancy. Ascites is commonly found in connection with both sarcoma and carcinoma, and is relatively infrequent as a complication of benign tumors. Its presence must, therefore, always be regarded with suspicion. This suspicion is further strengthened by the existence of disease in both ovaries at the same time, especially if the tumors are hard, smooth and freely movable; and by a history of rapid growth. It would seem as if, contrary to the general rule, malignancy was relatively more common in tumors appearing in early life. Of seventy-seven cases of carcinoma collected by Leopold, twenty-seven occurred between the ages of 8 and 30, most of them about 20 years, and in thirty-seven cases of ovarian sarcoma collected by Olshausen, fourteen were in patients under 30 years old. It has been suggested therefore, that malignant disease is to be looked for often about the age of puberty and again at the beginning of senile atrophy. Pain in the tumor itself is not often observed; the pain from peritoneal irri-

tation is more common from the solid than from the cystic tumors.

The great majority of all solid tumors of the ovary are malignant. The malignancy of a cystic growth can be determined only after its removal. In the latter states, the presence of a well marked cachexia, of enlarged glands in the groins, or of other visceral metastases is of vital importance.

In connection with this question of diagnosis, allow me to present the history of a case in which the clinical signs are perfectly characteristic of malignancy, while the microscopic appearances seem to point with equal force against it. The case illustrates again, how indefinite and unsatisfactory is our knowledge:

Miss A. S., 30 years old, was referred to me in October, 1891, by Dr. J. R. Lincoln, of Millbury. She had not been well for two years; had complained constantly of pain in her back and hips, more severe in the right, and frequently making it impossible for her to work. It had been growing much worse for the past four months and for eight weeks she had been unable to work at all. Catamenia were regular, of normal amount, and unattended by pain, except on the first day. The abdomen presented neither general nor local distension, was everywhere tympanitic, but was very sensitive to pressure in the right iliac region, which was occupied by a hard irregular mass, apparently beginning at a point one inch above the level of the anterior superior spine, and extending downward into the pelvis, and laterally to the median line. Per vaginam, the uterine body seemed crowded to the left, while on the right and behind could be felt this same hard irregular mass. On opening the abdomen, both ovaries were found very much enlarged, about the size of a small peach, of a hard firm consistency and non-adherent. These were removed as were also two enlarged mesenteric glands. The large mass on the right side was found to consist of a hard bunch occupying the cecum and its mesentery, which rested upon and had moved with the right ovary. The surface of this bunch was smooth, translucent and entirely free from adhesions. Its removal was not attempted. The patient recovered from the operation, but failed gradually in health, became very much emaciated, and although no signs of pulmonary disease were manifested, died in September, 1892, ten months after the operation. The bunch on the right side remained practically unchanged, and a second bunch developed upon the left. Although no autopsy was permitted, there can be no doubt but that she died of malignant disease of the abdomen. I felt very confident that the tumor of the cecum, the bilateral ovarian tumors and the enlarged lymphatic glands would present evidences of the same malignant infection. Upon microscopic examination by Dr. Miller, however, the ovaries and glands were pronounced pure adenoma.

It is unfortunate that in this case the specimens have not been preserved, but they were examined very carefully by Dr. Miller and a typical section was mounted by him, which has been examined by Dr. Baker and Dr. Mallory of the Harvard Medical School, both of whom have confirmed Dr. Miller's report. I can not, however, in any way reconcile the report with the clinical history, and am the more inclined to doubt our correct interpretation of the microscopic appearances, inasmuch as Olshausen and Bland Sutton both state that pure adenoma always appears as a cystoma, and Pozzi fails to notice adenoma as one of the solid tumors of the ovary. Neither of these specimens presented the gross appearances of cystic disease.

There is no treatment applicable to malignant tumors of the ovary except removal, and the operative technique is in no way different from that employed in common forms of cystic disease. The results of operative interference are, however, important and of sufficient interest to warrant a brief review. Butlin has collected ninety-nine cases from the reports of Cohn, Olshausen, Billroth and Thornton. Of these,

thirty-three died from causes directly attributable to the operation, "a very large mortality when compared with the general statistics of ovariectomy." Two of the three cases of sarcoma removed by Homans died from the effects of the operation. It is evident, therefore, that the removal of malignant tumors is attended with far greater risks than the removal of benign ovarian cysts. The subsequent history of those who recover is equally discouraging; only five out of forty-seven patients whose cases could be followed, were alive and well at the end of three years. In the only one of Thornton's cases that remained well three years, the woman had borne a child two years after the operation, and of this he says: "No case could have looked more hopeless than this one did, and the tumor was of a kind in which one would have feared early recurrence." Although there is but little encouragement to be derived from these results, we may, I think, at least go as far as Butlin, in concluding that "the reasons for attempting to remove malignant ovarian tumors are as strong as those which lead surgeons to operate for malignant disease in most other parts of the body."

To this summary, allow me to add two cases from my own series of operations. Both were sarcoma. One is alive and well now, more than five years since the operation. The other died ten months after the operation, and I present her case with the report of the autopsy:

Case 1.—F. S., age 15½ years; works in a shoe shop; came under my observation in March, 1889; maternal grandmother died of cancer of the breast; catamenia appeared at 14, very irregular, not painful, flow considerable in amount, lasting one week; during the winter had noticed that bowels were hard and swollen, and in February accidentally discovered for the first time a hard bunch in the lower part of the abdomen. On February 18, she came home from work with her feet and clothes wet, and complained of not feeling well. The catamenia were due and came on that night with much pain, headache and general malaise. During the next three weeks, she had a temperature ranging from 99 to 102, much local tenderness over the area of the tumor, with abdominal pain; catamenia continued profusely until March 2. She was pale, very thin, had no appetite, could not sleep and felt weak and languid. There was no nausea, no vomiting, and no difficulty about micturition; bowels inclined to be loose.

Filling the right iliac region, extending upward to the level of the umbilicus, and across into and occupying the greater part of the left side, was a hard, elastic, non-fluctuating tumor, slightly movable, with a deep pelvic attachment. It was irregular in outline, and on its anterior surface was a soft sausage-shaped mass freely movable upon it, which felt as if it might be a loop of intestine. The tumor so filled the pelvis that the vagina seemed very small indeed. The cervix could be indistinctly felt high up behind the pubes; the body of the uterus could not be recognized. Although impossible to move it much, the mass could be lifted slightly from below. There was no ascites.

On opening the abdomen on March 16, the movable mass on the anterior surface of the tumor was found to be the uterus, not enlarged, but dragged up out of the pelvis, until the upper border was on the line of the umbilicus. Beneath it and the broad ligaments lay the tumor, irregular in outline, filling the pelvis and everywhere adherent. The adhesions were for the most part soft, friable and easily separated except at the bottom of the pelvis, where they were so tough as to fix the mass firmly, not only to the pelvic floor, but also to the wall of the rectum. Although for the most part of a dense firm consistency, there was an area as large as a 50-cent piece on its upper surface which was semi-fluctuating; no fluid could be withdrawn by trocar, but on enlarging the puncture a small amount of thin fluid and a good deal of soft granular detritus was removed and the size of the mass was sensibly diminished. It proved to have its origin in the right ovary, and a pedicle was secured from the right broad ligament. The patient made a slow, tedious recovery, and suffered from well marked hysterical mani-

festations, convulsions, etc., for several months. Her recovery, however, was finally complete, she became a clerk in a drygoods store and afterwards married. She has remained well up to the present time.

This was my first laparotomy, and had it not been for the skilful and patient assistance of my father, the result, I am sure, would have been far less satisfactory. To his help and encouragement, I owe not only the favorable result in this case, but also whatever measure of success I have obtained in surgery.

The specimen was a somewhat irregularly shaped nodular tumor, of rather firm consistency, weighing about two pounds. On section, it presented numerous small cysts containing clear thin fluid, imbedded in a fibrous stroma which was for the most part dense and firm. Over a considerable area, however, it was much softer and more vascular. The microscopic examination was made by Dr. E. V. Scribner, who was at that time the pathologist to the Memorial Hospital. He reported that it presented the typical appearance of a round-celled sarcoma of the ovary.

Case 2.—Mrs. F., 64 years old, a widow, was referred to me by Dr. D. B. Lovell, in October, 1893. Her mother died of cancer at the age of 78. Her father and two sisters had died of consumption. She was married at 25; and had three children and two miscarriages. Catamenia were always regular and not painful, and had ceased when she was 42 years old. Two years ago she first noticed an abdominal swelling which would, however, at times disappear. Eighteen months ago had considerable pain in the right upper quadrant of abdomen, and soon after was laid up three months with pain across lower part of bowels. Remained well then until last March, when the same trouble returned, and she has not been well since. For two months past has noticed progressive increase in size of abdomen.

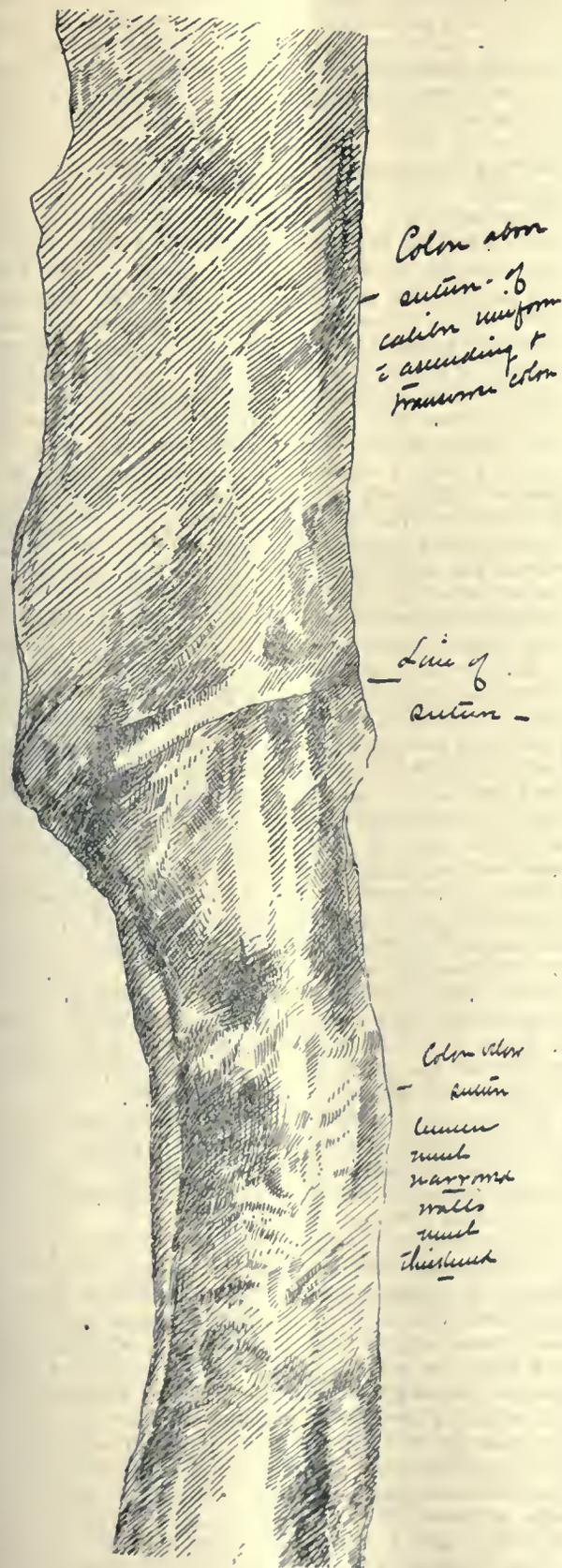
She was well developed and well nourished, weight 160 pounds, girth of chest thirty-seven inches, of abdomen forty-two; heart sounds normal, slight dullness with a few moist râles at both bases behind. The abdomen was evenly distended, tympanitic over the upper part, flat at the side and dull in front from two inches above the umbilicus. Palpation negative at sides, fluctuant in front, and tender everywhere, especially in the left lower quadrant. There was a small umbilical hernia, its contents fluid. Vaginal examination revealed cervix high up behind pubes, posterior vagina wall bulging and fluctuating.

On opening the abdomen, two quarts of pale straw-colored fluid evacuated, revealing a large, solid tumor, occupying nearly one-half the abdominal cavity, with tough fibrous adhesions to the omentum, small intestines and to the descending colon. In separating the adhesions to the small intestines, bits of the peritoneal investment of the tumor were left upon the intestinal walls. In separating it from the descending colon, the colon was accidentally injured so that it was necessary to resect about one and one-half inches just above the sigmoid flexure. The tumor was removed without further difficulty and proved to have originated from the left ovary. The divided ends of the colon were united by three rows of buried silk sutures.

The patient rallied well from the operation, and showed no signs of any general peritoneal infection. On the following day she had some bloody discharge from the rectum, but at the end of a week had a natural movement of the bowels. There was for some time a slight purulent discharge from the abdominal drainage tube which was offensive but at no time feculent in character. When this discharge ceased, there began to be a purulent discharge from the rectum, which continued for two or three weeks. I think there was a localized abscess around the stump of the tumor, which discharged through the rectum, giving rise to the dense pelvic adhesions and to the thickening of the rectal walls, and narrowing of its lumen. The region of the sutured colon seemed to be free from any involvement in this process, as is shown in the accompanying drawing. Mrs. F. gained strength very slowly until in January she became deeply jaundiced, and from that time failed steadily though very gradually. The enlargement of the liver was felt first in July and she died on August 13, ten months after the operation.

The following account of the *post-mortem* appear-

ances is taken from the notes of Dr. Baker, who performed the autopsy, and to it I append his descrip-



stained serous fluid, having a specific gravity of 1021. The intestines were everywhere firmly matted together and distorted, especially near the pelvis. About midway of the descending colon, after much trouble in freeing it from old adhesions, was found the site of an intestinal resection. Below it was a slight dilation of the gut, and at the point of the suturing was a slight ridge of mucous membrane, extending around the lumen. Externally, the point of union could not be recognized. Two silk sutures were discovered, in no way changed during ten months. All the pelvic organs were matted together in one inseparable mass; inguinal glands not enlarged and no recurrence visible in the pelvis.

The liver weighed four pounds and fourteen ounces. It presented numerous nodules from the size of a pea to that of a hen's egg, especially about the lower border of the right lobe, but also scattered over the other lobes. These were reddish white, rather firm and dense. The liver is markedly fatty, and in and across the bile-stained section shows numerous nodules scattered throughout the organ. The gall bladder was not involved. Similar metastatic nodules were, however, found in the lungs, scattered over the parietal peritoneum, and in the mesenteric glands.

The specimen removed was a grayish, opaque tumor, weighing five pounds, of rather soft consistency. On section were found numerous cysts varying in size from that of a hazel-nut to that of one just visible to the unaided eye, filled with a transparent tenacious fluid. Microscopic examination showed it to be made up mainly of small round cells, in places spindle-shaped, imbedded in a homogeneous intercellular substance. It was exceedingly vascular. Sections made from the lung and liver showed the same characteristics, except that they were of firmer consistency. Diagnosis: Sarcoma with metastatic nodules in liver, lungs and peritoneum.

A CASE OF RAYNAUD'S DISEASE.

BY WM. F. BATMAN, M.D.
 LADOGA, IND.

A vascular disorder, probably dependent upon vasomotor influences, characterized by three grades of intensity.

Depew H., son of a physician; age 34; dark hair; gray eyes; height five feet six inches; weight 120 pounds. He is of a neuro-phlegmatic temperament. By avocation a farmer. His father a hale old man at 70; his mother in good health at 66. Had some uncles on the fraternal side who died with pulmonary tuberculosis, but no other hereditary disease traceable on either side. Had typhoid fever nine years ago, but so far as he knows fully recovered. Had the influenza three successive years, 1890, 1891 and 1892, and had tardy convalescence with each attack.

He first noticed these symptoms three years ago, which have gradually increased and affect the middle or ring finger of the right hand which, with the appearance of winter, is hyper-sensitive to cold, and with slight exposure feels numb and cold and then, when reaction takes place and the whole end of the finger gets congested, looks red and full of blood and tingles for hours. This condition is repeated, in fact; always present on exposure during the winter months. One peculiarity of this disease is the absence of the symptoms in the summer time. The patient did not have any symptoms for two months the past summer. Hare's "System of Therapeutics" and Osler's "Practice of Medicine" both give as a remarkable concomitant symptom, hemoglobinuria, which may develop during an attack or may take the place of an outbreak. This appeared plainly in this patient last

tion of the microscopic appearances of the tumor and its metastases:

The abdomen contained about four quarts of bile-

winter, and promptly with the cold weather of the past two weeks. Professor Osler, one of our greatest clinicians, says he has seen very few cases, and divides the progress of the disease into three stages, viz., local syncope, local asphyxia and local gangrene.

Treatment is, unfortunately, not very favorable, so far as a permanent cure is concerned. A course of nux vomica, iron and quinin greatly benefited my patient and he is able to pursue his work, but if he strikes his finger when cold, the pain is excruciating.

Professor Osler says the pain is so severe at times as to require an anodyne. In the severer forms, when threatened with gangrene, wrap the extremity in wool and elevate it. Carefully applied, systematic massage of the extremities is sometimes of benefit. Barlow advises immersing the affected limb in salt water, and placing one electrode over the spine, and the other in the water.

CHLORATE OF POTASH POISONING, WITH REPORT OF A CASE.

BY J. T. McSHANE, M.D.

INDIANAPOLIS, IND.

At 6 o'clock, P.M., July 31, 1894, I was called to see Marie O'Neal, aged 11 years, whom I found suffering from thirst, nausea, vomiting, pain in the stomach, loins and head. Temperature in the axilla 102 degrees; extremities and face cold; pulse at the wrists imperceptible; heart's action rapid and feeble, and a marked cyanotic condition of the whole surface of the body. The patient had been out with her mother calling on friends until 4 o'clock, when, on account of feeling ill, she returned home. At 8 o'clock P.M. on August 1, the temperature was 102.5 degrees F., pulse 130 and fairly strong, frequent vomiting and insatiable thirst. No evacuation of the bowels or bladder. Cyanosis still present, hands and feet cold, ends of fingers and toes shrunken. The color of the patient was striking, presenting a bluish-ashen hue, very like that of an anemic person whose skin has been discolored with nitrate of silver. At this time the patient was extremely restless and semi-conscious. At 10 o'clock she was again visited, in company with Dr. A. W. Brayton, who saw her several times with me from this time on to the time of her death. Her temperature varied from 101 to 103.5 degrees F., until the morning of the fourth day of the attack, when it was normal, and so continued. Stupor was a constant symptom after the first few hours of her sickness, only varying in degree on different days. She could be aroused sufficiently to answer questions intelligently and recognize her friends any time during her illness, with the exception of the third day.

The history of the case shows that on July 30 the patient had sore throat, for which chlorate of potash had been used, but on inquiry the mother stated that it had been used only as a gargle. On the morning of the third day of her illness, I introduced a catheter and drew off two ounces of fluid which was of an inky blackness. This aroused my suspicion that more of the chlorate of potash had been taken than the mother was aware of. Investigation revealed the fact that eight or ten tablets had been taken on July 30, and a teaspoonful of the solution on the forenoon of the 31st, making not less than two hundred grains in all. On account of inactivity of the kidneys the bowels were kept freely opened by the administration of Rochelle salt. Towels wrung from hot water were applied to her back over the kidneys. Cardiac stimulants and diuretics were administered. The average amount of urine secreted per day did not exceed a half-ounce. The urine, which at first was dark, gradually cleared up. Examination of the blood was negative; the corpuscles were not crenated or otherwise deformed; the number was not counted.

On Sunday morning, August 5, which was the sixth day of illness, the blueness had disappeared and given place to a white, waxy appearance. The whites of her eyes were slightly jaundiced. Light pressure over the hepatic region caused severe pain. Two drachms of urine, containing a large per cent. of albumen, was secured by catheterization. Her condition continued without noticeable change until 2:30 P.M., when she grew worse, and died in a few minutes.

Peculiar interest attaches to this case on account of the rarity of poisoning by this drug, and the freedom with which it is bought and used without the advice of a physician. Tablets are kept in the drug stores and sold for sore throat. They are held in the mouth and swallowed as they dissolve. Crystals of the chlorate of potash are carried in the pocket, and taken in the mouth and swallowed as rapidly as dissolved. The unsuspecting patient takes more of the drug in this way than he is aware of, and may be poisoned.

The death of a saleswoman who took a half-ounce of the crystals during an afternoon, while at work, was recently reported by Dr. Scherer, of this city. His patient died on the following day. Dr. Theodore Potter, also of this city, recently reported the case of a man who had grave symptoms of poisoning from taking "2 cents' worth" (probably less than a half-ounce) of the crystals during the course of two days. Another case was recently reported by Dr. Florence Wier Hays, of this city, of a young lady who dissolved a dime's worth of potassium chlorate in a glass of water and used as a gargle, swallowing portions of the mixture from time to time. There was vomiting and purging; suppression of urine; paralysis of the muscles of vocalization and deglutition; darkening of the urine; blueness of the skin. The patient recovered after a week's illness. The reports of a large number of cases of chlorate of potash poisoning are recorded, and the symptoms are described with remarkable regularity. Hare describes them as follows: "When over-doses of chlorate of potash are taken it produces sickness of the stomach, headache, pain in the loins and belly, dyspnea, cyanosis, heart failure, and great weakness. The blood is dark and chocolate-looking, this change being due to the production of methæmoglobin. The blood corpuscles are crenated and broken down, and the liver, kidneys, spleen and intestines are found softened and filled with disorganized blood." The case of a healthy 15-year-old lad who took 150 grains within six hours, for pharyngitis, is reported in Vol. IV. of *Sajous' Annual*, 1892. This patient had, in addition to the usual symptoms, a number of yellowish-brown maculæ upon the side of the abdomen, back, and anterior portion of the neck, which remained an indefinite time after the blueness had disappeared.

M. Carreau, *Centralblatt für Chirurgie*, gave 150 to 300 grains daily for three days for leprosy. Grave symptoms of poisoning were produced, "but the leprosy tubercles almost entirely disappeared, leaving the skin soft and wrinkled."

The following quotation from H. C. Wood's work on "Materia Medica and Therapeutics" is well worthy of consideration: "It is probable that in diphtheria, deaths attributed to the disease have often really been produced by the chlorate." Quoting further from the same author: "The minimum fatal dose is unknown, but a drachm given in the course of a night has killed an infant under 1 year old, and 3 drachms given during a day, a child 3 years old." Dr. J. von Mering, in 1885, published a brochure ("Chlorsäuer-Kali," Berlin), in which he reported a large number of fatal cases from this drug. Dr. Jacobi, of New York, was the first to call attention to the dangerous action of chlorate of potash. His article was published in the *American Medical Times* in April, 1861. Dr. Fountain reported a case about the same time in which an ounce was taken. Copi-

ous diuresis followed almost immediately, then suppression of urine, and death on the seventh day.

Dr. Stephens and Dr. O'Shaughnessy asserted that chlorate of potash imparts its oxygen to the blood. This was generally accepted as true, and until later investigation proved that chlorate of potash is eliminated as such, and without appreciable loss of weight, it was often prescribed in cases of cyanosis and asphyxia.

Theoretically, chlorate of potash has little just claim as an internal remedy. Practically, it has not been scientifically demonstrated to possess remedial virtues, except as a local stimulant to the mucous membranes.

26 East Ohio Street.

RANDOM THOUGHTS ON OUR SPECIALTY.

Read in the Section on Dental and Oral Surgery, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY A. E. BALDWIN, M.D., D.D.S.

CHICAGO.

Under this heading the writer feels free to wield a free lance, and he also feels that there are many things that may be properly grouped under such a title, thus giving a writer an opportunity to suggest varied lines of thought with possibly not a very logical grouping of them. In taking a retrospective view of our professional work and advancement during the last score of years, one can not help a strong feeling of disappointment, in spite of the very extravagant claims of the average dentist. In such a retrospective glance we must keep in mind that the effort of all truly scientific minds is toward that which is strictly scientific—and all will concede that the nearer we approach that exact position, the more incumbent it becomes us to make our so-called scientific work, truly so, by making it clearly demonstrable. To place our specialty in such a position requires us to develop a class of people in our branch of professional work who will ever and always *think for themselves* on any and all subjects. We can not mix to any extent with our fellows in our society meetings without being impressed with what seems to be a fact, that at least 95 per cent of our fellow workers allow themselves to simply swallow any honeyed or less daintily arranged bolus prepared for them by the other 5 per cent., and presented to them in the name of science in a grandiloquent way by one to whom, perhaps, had not yet been born a single original idea—or who knew not the difference between a "premise" and a "conclusion."

There just now occurs to the mind of the writer an illustration which he asks pardon for narrating. This occurred at a meeting of the American Dental Association a few years ago. One of our brethren, who *assumes* great dignity and profound knowledge, read a paper on "Carbolic Acid." The paper was lengthy and verbose, and was by many of the hearers hailed as a wonderful production; they almost made themselves appear as sycophants in their loudly expressed remarks in adoration of the wonderful ability displayed by the writer in his profound experimental research, as demonstrated by the paper; and doubtless many a young man hearing this paper and the comments of others upon it, went away from the meeting prepared to gulp down anything they might hereafter see emanating from his or his secretary's pen—when to strip this paper from its "ego" and

husks you will find it simply a *compilation* from old authors, good and bad, and containing absolutely nothing of any practical or scientific importance but what was from some work direct; not a thought original with the author. The writer went away humiliated that among the many able men there gathered, there were so few who realized the imposition. Again, at another time, at a meeting of the Chicago Dental Society, the writer heard a so-called leader in our ranks—and this only a few years ago—say that he could always diagnose uterine diseases (presumably of women, though he did not say so) by the condition of the mouth of the patient, and the statement went almost unchallenged. What weight could be put upon anything said by such a "pseudo" scientific physician?

These illustrations are made, not for the purpose of casting slurs, but to call attention to the lack of exercise of discriminating power. What is uppermost in the writer's heart, is that the very small number of our brethren who will think for themselves, and not say "amen" to anything simply because some professor says so—but will weigh with physiologic, anatomic, histologic, pathologic or etiologic scales these so-called facts and then indorse or condemn as the scales may determine, that the number of these may increase and multiply until it will be very dangerous for one to stand up before them in public or private and feed them chaff, calling it wheat, with the hope that the statement will pass unquestioned.

Why should we be blind leaders of the blind, or allow the blind to lead us, though they may *claim* they see. We should be awake and learn to think for ourselves. Probably we, in our busy lives, may not have the time or opportunity for as much original investigation as we would wish, but this does not necessarily imply that we may arrive at the same conclusions that an original investigator arrives at, for we (if he lucidly explains all the processes of the experiments) are in possession of all the "premises" from which he draws his "conclusions," and may view them far differently than he does.

In glancing over our journals the same thing is noticed—the immature thought is stated often as a certain conclusion and accepted as such. Many a specialty journal if put into the retort and subjected to the fire of scientific reasoning would come out wholly ashes, and many more would leave only the microscopic atom of truth.

If we might have some power given us to secure a journal that would contain each issue, nothing but demonstrable truths or plain, honest premises, from which to form our own conclusions, how small and choice such a work would be. Our shelves would never get overloaded, neither our minds overburdened in separating the gold from the dross. Then again we think all observing persons are aware that there are many in our ranks who are oftentimes satisfied to do, under certain circumstances, less than the best they can do. This is a matter that vitally concerns us all, for to slight an operation is to bring reproach upon ourselves as a whole. There is, of necessity, a great deal of difference in the various methods as practiced by different operators, but the rule that should govern in these matters is that we should not vary from well-established rules of operation unless we have well grounded physiologic reasons for believing the experimental method is an advance upon the old.

How few among us know the reason each time for what they do, or even try to solve the problem. How hard we have to drum the idea into the head of the average person, that growth or development of the part is induced by systematic exercise of the part, and if we as specialists expect a healthy and generous growth in mental and physical ability, it must come very largely at least, not only by systematic thought and close study of books, but by training our powers of discrimination, so as to be able to determine the true from the false. Only a few days ago the writer had occasion to extract a tooth for a patient, in which he found that the pulp-chamber had been filled with, apparently, no attempt to clean the *débris* from the root canals or to fill them. Upon learning who the operator was and thinking it was a mistake on his part, he took occasion in the kindest way possible to call upon the dentist and show him the work and call attention to the history of the case; when, surprising as it may seem, the dentist said he knew he did not fill the root canals, and as an excuse said for what he charged he could not afford to do any more work than he did.

Is it any wonder that when such things are done the people are distrustful of the ability or the honor of our workers? No one can afford to do less than the very best that lies in his power, regardless as to whether he gets a large price or does the work for nothing. The rule is called "Golden," that we should follow in this and in all matters; then the world, as well as our profession, would always be the better for our having lived.

DISCUSSION.

DR. TALBOT—There is only one point in this paper I wish to emphasize, and that is the independence of thought which Dr. Baldwin urges. Do not take everything which is said by the voice of authority to be finally settled. Weigh everything and judge it by the best knowledge you have. We, as dentists, labor under one disadvantage. Our professional training is narrow. We are taught one branch of medicine and we do not get the broad, liberal foundation which we ought to have. If we had a thorough training, not only in medicine but in the sciences, we could reason upon all subjects. We could decide for ourselves whether the arguments of a paper were correct or not.

In closing the session, I want to say that I am more than gratified with the papers which have been read and the discussions which have been evoked by them. Taking into consideration all the circumstances, we can congratulate ourselves on having had a very successful meeting of the Section. The sessions have been well attended and the numbers in attendance have been constantly increasing. We never have a large attendance; in fact we do not want mere numbers, unless they enter actively into the work. I was one of the originators of the Section, which was instituted for the purpose of educating the medical profession in dental subjects, and you must admit that they have certainly become interested in us and they read our papers in the medical journals. I believe that we will in fifty or a hundred years be recognized as an important part of the medical profession. The Section then adjourned.

THE PRESENT AND FUTURE STATUS OF THE DENTAL PRACTITIONER.

Read in the Section on Dental and Oral Surgery, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY JOS. D. HODGEN, D.D.S.

SAN FRANCISCO, CAL.

The dentist of to-day is the doctor of dental surgery, educated and licensed as such. As a practitioner his province embraces the science and art of diagnosing and treating diseased conditions of the organs and contiguous tissues of the oral cavity, of

operating surgically for deformed, injured and wasted conditions, and supplying artificial substitutes in the place of organs and tissues lost in that region.

From such it is to be inferred that the truly proficient practitioner should have, at least, a partial if not a finished medical education; that he is to no slight extent an oral surgeon, and that he is a skilful and scientific mechanic. He is thus at once a physician, a surgeon and a handicraftsman—a dentist. His parallel, to a partial extent, might appear in the oculist, who linked with his own specialty the skill of the manufacturing optician.

In holding that a dentist should have the advantages of a medical education we are well aware that we meet with no inconsiderable opposition. But, while the opponents to such are strong in numbers, they are weak in point of argument to sustain their holding. It is argued that the time and expense necessary to such a course are its greatest hindrances. It is perhaps true that many men who are now enabled to pursue a course in dentistry would be deprived of that privilege if our colleges prolonged their term of pupilage to that extent necessary to embody a medical curriculum. However, we are led to doubt this as a fact when we recognize that only three years ago the course in dentistry was lengthened from two years to three, and that by actual statistics there are more colleges and more students to-day than there has ever been at any time previous. Young men are crowding the colleges and the profession who would do well to stay with the plough and farm. Are we, then, to lower the standard of the profession in order to receive these men to our already overflowing ranks? Is dentistry a refuge for those who are seeking what appears to them an easy and respectable means of gaining a comfortable livelihood? It is also said that dental practitioners burdened with medical education "view their dental work through medical spectacles." What detriment this may be to their judgment as dentists is not clearly explained. Further, it is argued that the majority of dentists who attain a medical education "subsequently abandon dentistry for the practice of medicine." Such a condition does not interest us or fall within our province to consider.

No; the status of the dentist of to-day is—change, preëminently, above all else. He has reached that point at which he must declare himself a handicraftsman, a mechanic, a skilled laborer, or a scientific specialist of the great healing art. He has occupied the disputed position as long as progress will permit. Which shall it be? Back to mechanics and back to charlatanism, empiricism and closed laboratories, or a step towards medicine, a move towards occupying what has been termed the *terra incognita*, that territory of practice which has heretofore been partially claimed by both medicine and dentistry, and preëmpted by neither? It means that we must now decide whether we are to practice tooth restoration or tooth conservation; whether we are henceforth to be satisfied with the slaughter of natural organs and tissues in order to restore and supply, or by scientific investigation aim at the conservation of what remains and prevent the inroads of further destruction.

It has been lately remarked that "dentists are wonderful patchers-up of things half gone, but they do not show how to prevent the going." This is the key-note. And what is the cause of this condition?

Is it because our mechanical skill has been neglected? Should we have had more infirmary and laboratory practice and training at college? Is our metallurgy and physics defective? No; more science and more medical education.

We feel safe in the assurance that conservative dentistry must necessarily be based on an appreciation of the anatomic, physiologic and pathologic relation of the mouth in disease and health, and that until the importance of this kind of knowledge is fully appreciated, a community will fail to receive at the hands of its dentists the benefit which they have a right to expect.

"To be impressed," says one, "with the necessity which these propositions indicate, one has only to remember the various important anatomic and physiologic functions of the mouth; its physical, organic and mental associations, and the corresponding extent of its pathologic relations.

"Anatomically, no portion of the human economy offers a more complex association of structures; physiologically, none whose functions are so diversified, and yet so essential; pathologically, none whose systemic relations are more significant.

"A consideration of the pathologic relations of the mouth includes radiated, reflex or sympathetic disturbances of harmony, or interference with function in contiguous or remote organs, originating in the mouth, as the expression in the oral cavity of lesions or interruption of harmony in other organs. Morbid systemic or constitutional conditions, whether the result of some intermediate primary affection, or of inherited tendency, or perversion, find usually a more or less strongly pronounced expression in the mouth.

"It is supposed that the dentist is entirely unacquainted with the systemic condition of his patient. Indeed, he is not presumed to have any right to meddle with such; while the physician rather complacently ignores the importance of the local lesions which is esteemed the province of the dentist to correct.

"Meanwhile, the patient chafes at the incompetency of the dentist who fails to arrest by mechanical skill the ravages of caries, and perhaps the operator himself fails to recognize in the lesions the expression of the systemic mischief. On the other hand, the physician, ignoring the local causes, tries in vain pills, and plasters, blisters and purgatives; tries in vain the whole round of narcotics, sedatives, stimulants, tonics, anti-spasmodics and anti-periodics; talking learnedly of neuroses and cachexia until pharmacopœia, patience and patients are alike exhausted."

These undeniable facts are illustrative in the necessity that a wider range of knowledge by the dentist is imperatively demanded.

During the year 1881 a considerable agitation of the subject, the status of the dentist, was evoked by the publication of a paper written by Dr. Truman W. Brophy and read before the New York Odontological Society, in which that gentleman advocated the establishment of a Section of Dentistry in the AMERICAN MEDICAL ASSOCIATION. And notwithstanding the somewhat considerable opposition on the part of physicians and dentists, that Section was organized at the thirty-second annual meeting of the ASSOCIATION. The principal objection to the movement at the time was, as many may remember, the condition

upon which dentists were to become members. Since only those practitioners of dentistry who were graduates of regular medical colleges and members of local county societies were held eligible, the opposing members of the dental profession held that dentistry was being represented by representatives who had no constituency.

In the same year the first meeting of the Section on Diseases of the Teeth—a compromise in name—was held at the International Medical Congress in London.

At the thirty-eighth annual meeting of the AMERICAN MEDICAL ASSOCIATION, in 1887, to relieve the embarrassment that existed between the regular profession of medicine and the dental profession, it was argued that the Department of Dental and Oral Surgery was as much a part of the profession of medicine as ophthalmology or otology, or any other 'ology, "because," said our friend, "our teeth are parts of our system, and are used more than any other part," and that since dentistry has owned with humiliation the soil from which it sprang and had since steadily advanced presumably to a decent respectability, that it was only just and proper that the arms of the AMERICAN MEDICAL ASSOCIATION be more widely extended to receive the foster child.

At this meeting the line of demarcation was drawn as per the following resolution:

"Resolved, That the regular graduates of such dental and oral schools and colleges as require of their students a standard of preliminary or general education and a term of professional study equal to the best class of medical colleges in this country, and embrace in their curriculum all the fundamental branches of medicine, differing chiefly by substituting practical and clinical instruction in dental and oral medicine and surgery, instead of clinical medicine and surgery, be recognized as members of the regular profession of medicine, and eligible to membership in this ASSOCIATION on the same conditions and subject to the same regulations as other members."

This is as far as the recognition of dentistry as a medical specialty by medicine has gone. Since 1887 no particular advancement has been made, certainly, on the part of medicine. Thus far we have defined the position of dentistry and shown what has been done on the part of those most active in the advocacy of its being a specialty of medicine.

Medicine, in its broadest sense, is the science and theory of disease and of remedies, the art of preventing, curing or alleviating diseases and lesions of the human body, and its highest form to-day is found in its specialism; in other words, the medical art breaks away at once from the unity of the theory of disease, and while there is but one body of pathologic doctrine for either sex, for every period of life, and for every region and part of the organism, the practical art divides itself into departments and sub-departments, such as surgery, obstetrics, dermatology, ophthalmology, otology, etc. Dentistry, or more properly at this juncture, odontology, being the science or art of preventing, curing or alleviating the diseases of the teeth, which form an important part of the human body, is therefore a department of the healing art.

Such a deduction is but a natural one, and true in the confines of its premises. Why, then, are we still clamoring without the gates for admission? Because to the doctor of medicine this is not strictly true. He is not so liberal. Medicine to him is only medicine when the art of preventing, curing or alleviating diseases of the human body is practiced by medical graduates of medical colleges. When teeth are con-

served from disease or extracted when useless, it is dentistry.

So the status of dentistry to-day, as far as our medical brothers are concerned, is not that of a specialty of medicine, principally because we are not graduates in medicine. Are they right? To those who may believe that they are not, it is comforting to feel that though their maternal acknowledgment is so dear and their association so keenly desired, they shall not be permitted to sit sole judges of our relationship.

Other influences, both external and internal, are doing much to drag us from this fireside of art and science. The first, we are led to believe, is the necessary amount of mechanics our profession is obliged to teach and practice; 2, the distinctive degree and curriculum we are attempting to maintain and enforce; 3, the percentage of our profession who are not graduates—many of whom, though, are our brightest lights; 4, our determination to be recognized.

The forces and influences which are tending to draw us beneath the maternal roof are, however, such that they will eventually overcome all opposing ones. They are:

1. The addition of medical chairs to dental faculties, and the division of dentistry into the operative and the mechanical dentist.

In all large communities men who make a business of doing mechanical work for one or more practitioners are fast becoming a special department of dentistry. These mechanical dentists in many cities do a very large percentage of all the mechanical work, and in some States the law is inclined to wink at the infractions of these unlicensed.

2. The patent dissatisfaction in which the degree is held, and the disinclination of colleges and universities to settle upon the not unusually adopted degree of doctor of dental surgery, together with the tendency to establish a variety of post-graduate degrees for the purpose of advertising those decorated and the college conferring it.

3. The rapid percentage decrease of the body of non-graduates and the tendency of dental and medical graduates who intend to practice dentistry to acquire both medical and dental degrees.

4. The establishment of the Oral Section of the AMERICAN MEDICAL ASSOCIATION.

The elevation of any particular class of men is, however, dependent upon a demand on the part of their constituents; the people. The greatest advancement of any profession or body, the pulpit, the bar, the medical fraternity, or what not, is the result of enlarged conception on the part of their representatives, and that conception has its stimulus in the public demand.

The forces, then, of successful issue lie in the education of our patients, in the establishment of recognition from them, occasioned by scientific efficiency, and an elevated qualification in the average practitioner.

No amount of recognition from a National, State or local medical association given a body of men undeserving, can be made to stand the test of popular opinion.

We therefore believe the future course of those who are so ably leading, to be not only through the channels of education as it may present itself in the education of dentists in the specialty of medicine,

but that theirs is a plea for text-books and for education of the people.

Complete recognition can only, and will result, in the displacement of the dental degree by the medical for all, with special training for special practice.

DISCUSSION.

DR. R. H. COOL—I am interested in the paper, especially in its advocacy of a wider range of knowledge for the dental practitioner. I take the opposite view, that more knowledge of oral and dental surgery and of its resources by medical men is needed. More and more the best surgeons and best physicians are coming to call in the dentist in oral lesions. As an instance of the value of the dentist's knowledge in these cases, there is no known splint for a broken jaw like that made by an experienced dentist. In antral troubles the surgeon also calls in the aid of the dentist. With regard to instruments, those shown by Dr. Talbot for perforating the antrum produced the impression that they would give a great deal of pain, while our dental engine makes a prettier opening much easier. We can almost say that dentistry is now acknowledged among the leading surgeons as a nucleus for dental information, and I think we are being recognized as a professional body by them.

DR. A. F. McLAIN, Santa Rosa—I agree with Dr. Cool as to the advantages of skilled consultation between surgeons and dentists in diseases of the mouth and jaws. A student at the dental college contributed to a successful result in a case in which there was a fracture of the jaw near the ramus, which may have been comminuted. This student took the case in charge, made an interdental splint for it, and I defy any one to say that the result was not everything that it should be.

DR. M. J. SULLIVAN, San Francisco—I heartily indorse the tone of the paper. I have always believed in a liberal medical education for the dentist. The better the foundation the surer the success, both theoretical and practical.

SOME PATHOLOGIC NOTES ON NEOPLASMS OF THE MAXILLÆ.

Read in the Section on Dental and Oral Surgery, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY VIDA A. LATHAM, F.R.M.S., D.D.S.

CHICAGO, ILL.

Among the conditions associated with the pathology of the oral cavity and its contiguous parts, none are perhaps more interesting than those relating to the new formations which may be observed there. A pathologic formation may be simply an excessive production of the normal structure and is a morbid condition only in respect to the amount and arrangement of the ordinary tissues of which it is composed, or of the region in which it is situated. These are known as "homologous" growths and form a large number of all the pathologic formations throughout the body, and include the hyperplasias, exostoses, congenital tumors, and many growths of varying origin, such as the arthritic enlargements, formations following a rheumatic attack, or the chronic inflammatory enlargements due to long continued irritations. The main and most important class of neoplasms are those belonging to the "heterologous" class in which the structural elements are different from the tissues in which they are situated, or with which they are connected. The true distinction is one which depends upon the histologic composition, rather than upon the gross external appearance or upon the clinical peculiarities. The great and only reliable distinction is the microscopic, for upon this depends to a very great extent the correct estimation of the nature and tendency of any pathologic formation, both in relation to its effect upon the tissues with which it lies in direct contact, as well as

its influence upon the well being of the individual. Certain growths are found to consist of a tissue different from any found in the adult body, and therefore, unlike any of the tissues in which they are situated. These are very confusing to the pathologist and they have to be referred to some of the immature forms of the tissues, or to their derivatives. We must, in fact, return to embryologic tissues, for we only find the embryonic types sparingly distributed in adult life or limited to certain parts.

We usually regard growths of mesoblastic origin as of a malignant type, but still the benign forms are found as fibroma and so forth.

Granulation tissue or embryonic connective tissue is not a permanent structure. It only exists in the body of the embryo as a transitory material, the conversion of which produces another and entirely different material. We can easily understand if embryonic tissue re-appears at a time when no process of repair is going on, and accumulates in any great amount, that it may undergo similar changes to those belonging to it in its usual and normal state. It is never a permanent tissue, but is always changing to other and different forms of structure. When a new growth appears it exhibits a tendency to undergo further changes, either extension of disease, or more often a rapid decadence or retrogression of the tissue already formed, and lastly it may be combined with almost any form of tissue in the body.

Text-books on oral surgery and pathology convey erroneous impressions by classifying neoplasms of the oral cavity as ordinary types; but a careful examination with the microscope reveals the fact that they are much more complex and peculiar. It is to this "mixed" class that I find the majority of the tumors of the maxillæ and oral cavity belong, basing this statement on the microscopic examination. These growths are also much more common than is usually thought to be the case, particularly so in the region of the neck, reaching from in front of the submaxillary gland to the parotid, and surrounding the angle of the jaw. Nearly every specimen obtained so far from this region has been of this peculiar type of growth, bearing no resemblance to any fixed type of tissue and having only an ordinary clinical history. The diagnosis made by the operator has in almost every case proved to be erroneous when the growth has been examined microscopically. The commonest varieties perhaps are epithelioma and sarcoma, the latter usually a peculiar mixed form between the round-celled, spindle-celled and osteo-sarcoma. Enchondroma undergoing sarcomatous¹ degeneration is also met with.

Tumors of the salivary glands are almost always confined to the parotid, being very rare in either the submaxillary or sublingual glands.

The commonest type of the parotid tumor is one composed of a mixture of cartilage, myxomatous tissue, a varying quantity of connective tissue and ill-formed glandular acini. Growths of this nature are often called "parotid glandular tumors" or "adenomata," but it is quite rare to find a growth the bulk of which is composed of true gland tissue. The cartilage of these tumors is hyaline and it is by a mucoid degeneration of its stroma, and that of the fibrous tissue of the growth that the myxomatous tissue is produced. Sometimes there is a considerable mixture of sarcomatous tissue; at others the growth is chiefly cartilaginous; and as might be expected

from this variety in structure there is a corresponding difference in the rapidity with which such tumors develop. These growths appear in middle life and are found in either sex. They occur most often in that part which overlaps the lower jaw, are usually encapsulated, and when small adhere but little to surrounding parts. They attain large size if left alone, and may cause death by encroaching upon the pharynx or large vessels. The lymphatic glands are seldom affected, and although the growths may recur locally after removal, they seldom or never become disseminated.

Malignant growths are happily rare in the parotid. About the only growth which occurs in the submaxillary gland is made up of cartilage and even this is rare. According to Bowlby, there are not more than seven or eight cases on record and they are usually enchondromata.

Tumors of the maxillæ possess so many distinct features as to almost require a separate description. These distinct characters depend partly on the proximity of the neighboring mucous cavities, partly also on the presence of the teeth and of the fetal structures from which the latter originate.

Epulis is a loose term often applied to any tumor which appears on the gum, but is best limited to the fibromata. It usually develops from periosteal tissue and is occasionally attached to the periodontium and very often extends into the alveolus. It necessarily compels the extraction of a tooth or teeth and excision of a portion of the alveolar margin. A simple diffuse epulis is usually only a thickening of the gum.

Myeloid sarcomata are often included as myeloid epulides growing within and expanding the jaw bones, presenting rounded, tense and elastic swellings often feeling suspiciously like cysts; and generally found in young people. Other varieties of sarcomata occur within the jaw bones and also within the antrum. The cells are round or oval. The growths being soft and rapid in development, tending to extend all around and to fungate through the skin, affecting the lymph glands and so disseminating.

The distortion of the antrum and its relative structures is too well known to require description. Any tumor growing in this region tends to distend the cavity in this way, but malignant tumors do so in a more typical manner than do the benign growths. Fibro-sarcomata are found in the inferior maxilla (mandible) are not very malignant and when completely removed with the bone seldom recur.

Carcinoma are most often found in the antrum¹ and develop from the epithelioma lining the antral cavity. They are rapid in their course, affect the glands, rapidly disseminate and are usually found in elderly people.

Multilocular cystic tumors, so-called by Mr. Eve,² and known as "cystic epithelioma" stand in the position of a mixed growth—a solid and a true cyst. They are most common in the inferior maxilla and are endosteal or central growths and possibly originate by an ingrowth of the epithelium of the gum and following caries or traumatism of the teeth. They occur at any age but usually between 20 and 40, are slow in growth and may take years to reach any size. The growths are usually not malignant and seem not to affect the glands or disseminate. The

¹ New York Medical Journal, November 10, p. 586, and November 17, p. 612.

² British Medical Journal, Jan. 6, 1883.

bone is usually expanded on its inner side, and is very hard to the touch, sometimes elastic and crepitant. The teeth loosen, fall out, and a sticky discharge comes from the alveoli. Macroscopically the bone shows expansion, the cavities are filled partly with a solid growth of a soft fibrous or fleshy material, partly by fluid, serous or viscid. The septa dividing the cysts are often incomplete and are either fibrous or bony.

Periosteal cysts are situated beneath the periodontium, generally inflammatory in origin and are found in connection with carious teeth or with imperfectly extracted roots. They are very painful.

Antral mucous cysts may also be found and must be differentiated from malignant growths as they produce a similar distension by their slow growth and fungation; and as the bone turns the presence of fluid is soon detected.

Dentigerous cysts and odontomes³ are quite well described in our dental surgeries and pathologies.

Diffuse osseous growths of the antrum are rather peculiar in that they diffuse over the whole area of the antral wall, and do not grow from some definite portion as is the usual mode. Therefore we have no definite tumor, but a general thickening of the whole bone which incloses the antrum and a gradual obliteration of the sinus by the new bony formation. It may be confined to the antral cavity or may extend to the superior maxilla. The growth is slow, occurs in youth and is benign.

Cartilaginous tumors of the superior maxilla are extremely rare and usually combined with sarcomatous elements.

Sarcomata. This group which is mainly due to the exertions of Virchow, includes the fibro-cellular, the mucous tumor, and the myeloid of English surgery. The group, on the whole, nearly corresponds to Paget's recurrent fibroid. The best classification of this group is perhaps a strictly pathologic one after Billroth:

1. Round-celled sarcoma, granulation-sarcoma (including glioma) consists of mesoblastic corpuscles; the inter-cellular substance is homogeneous, striated, reticulate and varies widely in amount.

2. Spindle-celled sarcoma. The cells are usually well-marked, intercellular substance is absent or scanty, homogeneous or fibrous. The most recurrent sarcomata contain this tissue but do not always recur.

3. Giant-celled sarcoma, myeloid. This has the general structural elements of one of the other varieties and has in addition many large multinucleated cells.

4. Net-celled sarcoma—mucous sarcoma. This is not exactly like the myxoma. Myxomata are sarcomata of various kinds and are similar by having a gelatinous appearance. Net-celled sarcomata contain stellate cells with long processes and gelatinous intercellular substance.

5. Alveolar sarcoma are very rare.

6. Melanotic, may be combined with alveolar. Glandular tumors secondary to epithelioma of the lip or tongue become adherent to the lower jaw in the later stages, but must not be confounded with growths originating in the bone itself.

These are, in brief, the most important varieties of neoplasms met with.

With regard to frequency. The superior maxilla seems to be most often involved and usually recovers

itself, on account of its high degree of nutrition. In an article in *Archiv. für Klin. Chirurg.*, (Vol. xviii, 25, 1875) an account is given where the entire jaw was removed fifteen times:

"Twice for carcinoma, five for sarcomatous growths as giant-celled, three as spindle-celled, one as round-celled and one as medullary. Cylindromata twice required partial resection; epitheliomata twice an almost complete resection; enchondroma one, a total resection. Mortality being 15 per cent. According to this proportion carcinoma is more common than medullary sarcoma."

This does not agree with Prof. C. O. Weber's account: "The usual result of carcinoma is a recurrence after about one to three years and usually recurring in the cicatrix."

The diagnostic signs of antral growth are as follows: When springing from the interior of the antrum, the orbital, nasal, palatal and buccal walls of this cavity are expanded, according as the tumor grows upward into the orbit, inward into the nostril, downward into the mouth, or forward upon the cheek, causing a prominence of one side of the face. A tumor of the antrum in many instances grows simultaneously in all these directions, producing exophthalmos, obstruction of the nostril, prominence of the cheek, and bulging of the roof of the mouth. When springing from the anterior surface of the superior maxilla it causes a projection of the cheek, dipping down between the gums and the soft structures of the face. It may extend backward into the interior of the antrum by increase in size, thus secondarily implicating that cavity. When springing from behind the superior maxilla the upper jaw is first pushed bodily forward, but as the antrum becomes secondarily involved, any of the walls of this cavity subsequently become expanded and rendered prominent.

A serious affection of the gums appears in a more innocent garb, apparently a mere ulcer. Dental surgeons are more apt to see it in its earliest stages than are surgeons. A sore appears, perhaps awakened by a carious tooth. It does not heal kindly, but exhibits a tendency to extend. Its borders become hard and thick, its base soon adheres to the bone beneath—this is cancer.

"Bone is never the seat of cancer primarily." This broad statement was first made some years ago by the best German pathologists, and cancers of the superior maxilla were held up as positively disproving any such idea. But now we know there are but two locations in the superior maxilla where cancer is first encountered. The first appears as above—upon the gum; the second in the antrum of Highmore. In each case it starts as an ulcer, eats its way into the bone, and never appears as a distinct tumor. The sore is found upon the gum, its edges thick and firm, base immovable, and this characterizes its malignant infiltrating tendency. Dentists can not have these facts too strongly impressed upon them. It will be noticed that carcinoma of the body of the superior maxilla conceals its true nature at first, and except by a careful person is not recognized until extensive destruction of bone has resulted, possibly an opening made in the oral, nasal or orbital cavity and is soon beyond operative relief.

Butlin has removed the upper jaw within seven weeks of the first signs of the disease, only to find the bone entirely destroyed and sinuses burrowing into all the

³ New York Medical Journal, p. 612, 1894.

surrounding parts. Thus we see the necessity, when malignant disease is suspected, to examine not only the mouth, nose and orbit, but even the throat, and here comes the necessity for broad medical and dental education in the combined efforts of thorough dentists and surgeons. Professor C. Heath gives an excellent suggestion, and a most valuable one, when he says the attachment of any growth to the roots of extracted teeth should excite the suspicion that a serious disease is present in the antrum, and a microscopic examination should be made.

In conclusion, we have seen from the foregoing remarks that neoplastic growths of the maxillæ are then modified forms of the great groups, carcinoma or sarcoma. They are, in fact, more truly complex and diffuse in structure, so much so as to require special grouping; for in structure the histologic-elements are not allied as is usually the case in growths found in other parts of the body. I regret to say that lack of time prevented the subject being brought before you in a more thorough manner, but as their structure is so complex more special study was required. It is hoped this may be completed later and published with photographs and cases. Might I suggest that members of the ASSOCIATION and profession kindly collect such specimens and examine them, or aid by loaning or giving specimens for examination? They would thus enable better and more complete work to be done in this line, and so preserve valuable material. They would confer a great favor upon the essayist, and at the same time help to make understood some of the great questions which occur in oral pathology, especially in the histologic details.

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DISCUSSION.

Dr. JACOBS—Some seven or eight years ago I studied the structure of tumors considerably, but I have done very little work in that direction lately. I should not therefore dare to discuss the paper further than to confirm it as far as I know, and to say that Dr. Latham is the hardest worker I ever knew, and I have no doubt of the correctness of everything she says.

SOCIETY PROCEEDINGS.

Medical and Chirurgical Faculty of Maryland.

Semi-Annual Meeting held at Cumberland, Maryland,
 Nov. 21 and 22, 1894.

FIRST DAY.

The Medical and Chirurgical Faculty of Maryland convened in session in the council chamber of the city hall at Cumberland, Nov. 21, at 10 A.M. After the Address of Welcome by Dr. J. M. SPEAR, of Cumberland, and the Address by the President, Dr. R. W. JOHNSON, Dr. H. SALZER read a paper on "Distension of the Stomach," in which he spoke of the methods of diagnosis of diseases of the stomach, and especially distension of that organ, by examination of the gastric secretion. He did not always use the stomach

tube, but let the patient vomit the substance taken, and then made an examination.

Dr. WM. OSLEA thought that the method of Dr. Salzer was more pleasant than the one by the use of the stomach tube. He thought that the examination for movable kidney, as suggested by Dr. Salzer, was important. He generally found signs of dilatation of the stomach in neurasthenic patients, and palpable if not movable kidney, and it may be at times a floating kidney. He believed in the abdominal bandage after pregnancy, and it was important in preventing these troubles.

Dr. GEORGE J. PRESTON thought that all those who saw many cases of neurasthenia would be interested in this paper. It is a question how far the nervous condition affects the distension and how far it should be treated. In many cases that he had treated he had noticed diminished knee jerk.

Dr. E. M. SCHAEFFER would support what he said about the corset and absence of exercise. He thought the use of the tight corset was potent to do much harm, and exercise would correct many troubles, and he approved of the bicycle in certain cases.

Dr. ROBERT L. RANDOLPH read a paper entitled "Some Suggestions as to the Treatment of Wounds Involving at the same time the Lens and the Ciliary Region," and reported two cases in which he did not find it necessary to remove the eye, but took out the lens and one case got well, with some vision.

Dr. HARRY FRIEDENWALD read a paper on "Removal of Particles of Steel from the Interior of the Eye with a Magnet," in which he related several cases successfully treated, showed the steel and the magnet, and explained the manner of using it.

Dr. WILLIAM H. WELCH then made some

REMARKS ON THE DIAGNOSIS AND TREATMENT OF DIPHTHERIA.

The study of the antitoxins is the order of the day. The evidence that the Klebs-Löffler bacillus is the cause of diphtheria is very conclusive; no one can doubt this now. It is constantly present in every case of genuine diphtheria; isolated in pure culture it is productive of the disease and the disease can be produced experimentally in no other way. We are familiar with the toxic principle of this disease and we know its physiologic but not its chemic properties. This substance has been found in the bodies of those dead from diphtheria. There is probably no organism the study of which has led to such practical results as this. It gives us the diagnosis, prognosis and treatment. The diagnosis can be made with certainty by the demonstration of the specific bacillus. There are many diseases which are like diphtheria in their clinical history, such as membranous croup. Then there are the cases where the disease would not have been recognized on account of the slight symptoms if the bacillus had not revealed the diagnosis, and these light cases are the very ones which spread the disease. Then our increased knowledge of this disease allows us better to understand its symptoms and the question whether it is a local or constitutional disease is cleared up. It develops locally; the bacilli are attached to the membrane in the pillars of the fauces and here the toxins find their way into the body, causing the constitutional symptoms. The prognosis hinges to some extent on the demonstration of associated bacteria. Other bacteria may be associated with the Löffler bacillus in the throat; thus the presence of streptococcus gives an unfavorable prognosis and offer fewer chances for successful treatment. An accurate diagnosis is not only important in order to carry out the treatment, but makes it possible to take sanitary precautions. Of those who are exposed to diphtheria not a small number receive the bacillus without getting the disease, especially in crowded districts. The organism has been found in as many as 50 per cent. of the persons exposed whether they took the disease or not, which shows that there must be a susceptibility, which is a very important point. This susceptibility may be local, that is, susceptibility exists for the local effects and not for the toxins, or the reverse may be true; the local effects may be slight and the general systemic poisoning very severe and in some cases there is no susceptibility at all. Some cases show a thick membrane and little poisoning, and *vice versa*. The method of making the bacteriologic diagnosis is a simple one. As little of the membrane as possible is taken, or some of the secretion from the posterior pillar of the fauces near the larynx. First, cover-slip preparations are made. If it is a case of genuine diphtheria the diagnosis can be made in about 50 per cent. of all cases with no further ex-

amination. Still this is not so conclusive, as it is not quite so characteristic as the tubercle bacillus. For culture medium the Löffler blood serum mixture is used. It is usually sterilized now by exposing it to a heat just below the boiling point for a half hour. The mixture is opaque when rapidly heated, and clear when done slowly. When a small piece of the membrane or some of the secretion has been smeared over the surface of the culture medium and put in the incubator at body temperature, the culture appears in eighteen to twenty-four hours. Even if kept at the temperature of the room there will be a feeble growth. Usually the growth takes place rapidly. The difference between the growth of the true and false bacillus may be seen in the beef bouillon. In most beef, of which the culture medium is made, there is usually a little inosite or muscle sugar. This undergoes a change in color when the true diphtheria bacillus is inoculated into it, which does not occur when the false bacillus is inoculated.

The question now is how to make this method of diagnosis available to all physicians. In New York City this problem has been beautifully solved much to the admiration of the whole scientific world. Formerly many cases of ordinary angina and sore throat were called diphtheria and much glory was reaped by the physician who cured the case. Now the bacteriologic diagnosis shows that only about one in four is true diphtheria, and this not only separates the cases and makes a certain diagnosis but it saves those other three cases from exposure to the disease, for in most instances these supposed cases were put at once into the diphtheria wards and if they did not have diphtheria before, they promptly acquired it there. In carrying out the serum-therapy only artificially immune animals can be used; those naturally immune will not do. The animals usually selected are the horse, goat, cow and dog. The manner of procedure is to inoculate the animal selected, with a minute part of a pure culture of the organism. A change takes place in the blood and a new substance is found there. After each injection of the poison there is a diminution of the antitoxins and then they increase and so on until in course of time the antitoxin takes its place in the blood and a large dose of the culture will not affect the animal. It takes from three to four months to immunize an animal. In simple cases where there is no association of the streptococcus a few injections will effect a cure. Roux' experiments showed that in all cases under ordinary treatment about half died whereas in the antitoxin treatment about 26 per cent. died. A mixture of the pure culture of diphtheria and antitoxin in a test tube does not destroy the bacillus but holds its action in abeyance when this mixture is injected into an animal; if the streptococcus be added and then this mixture be injected, poisoning takes place from which it is concluded that the streptococcus keeps the antitoxin from acting and allows the poison to affect the victim. Roux advises against any caustic treatment of the throat as making a cure more difficult.

DR. JAMES A. STEUART said this was a great advance; that health officers had sometimes difficulty in distinguishing dangerous from ordinary cases.

DR. I. E. ATKINSON thought that such practical steps should be taken in Maryland.

DR. JOHN N. MACKENZIE had had great success in treating diphtheria with the dioxide or peroxid of hydrogen.

DR. JOHN MORRIS thought there should be no municipal or State control of this remedy, and referred to the poor vaccine matter furnished by the State of Maryland.

DR. I. E. ATKINSON said it was largely the fault of the profession that we did not get good vaccine matter. State and municipal duties had not been carried out. It is because the profession has not demanded it.

DR. E. T. DUKE defended the vaccine matter of Maryland and said as Health Officer of the city of Cumberland he had used it very successfully, and referred to an institution in which he had vaccinated fifty persons and forty-eight of them took.

After some discussion on the State and municipal control of the antitoxins by Drs. G. H. Carpenter, G. J. Preston, John Morris and Welsh, the subject was closed.

DR. G. H. CARPENTER reported a "Case of Puerpura Hemorrhagica," in which he advocated the use of the tincture of the chlorid of iron in large doses, say 40 drops, every two hours. He also expressed his opinion that the disease was much graver in character than was usually taught.

DR. W. J. CRAIGEN read a paper entitled "Electricity in Gynecology," in which he reported several cases treated by electricity, spoke of the use of high currents and their dangers, and referred to the possibility of resuscitation after a severe electrical shock as was suggested in New York.

DR. RANDOLPH WINSLOW reported "Two Cases of Gastro-tomy for Cicatricial Stenosis of the Pharynx and Esophagus," in which he showed that the operation had saved life so far, and gave some promise in one case of ultimate recovery.

DR. GEORGE J. PRESTON then read a paper entitled "Hysterical Pyrexia" in which he showed that: 1, in hysterical individuals a rise of temperature may occur, due probably to disturbance of the heat regulating centers in the central nervous system; 2, the type of this fever is either continuous or intermittent; 3, the type of fever is characterized by its great irregularity and atypical exacerbations, by the fact that the pulse and respiration frequently remain normal, or nearly so, that the temperature is often different on the two sides of the body, by the temperature not yielding readily to antipyretic measures and by the unaltered urine and the unchanged nutrition; 4, hysteria often complicates existing fevers, changing their types; 5, the hysterical manifestations would be more frequently noted if the temperature were taken in all cases.

DR. WILLIAM H. WELCH thought that the question of fever from central nervous origin was an important one from many points. It most likely comes from diminution of heat loss and there is no evidence of increased heat production. In some cases there are remarkable irregularities in heat distribution. It may be high in the vagina and normal in the axilla and *vice versa*. By taking the surface temperature great differences may be found.

DR. G. J. PRESTON had noticed many of the points above alluded to. There may be the greatest differences between the temperature of the two sides of the body. The fever may be out of all proportion to the organic lesions and may be caused by hysteria.

DR. WILLIAM OSLER then made some remarks on

CHILLS AS A CAUSE OF ERROR IN DIAGNOSIS.

Chills differ very much in their etiology, but they may be divided into two main groups: 1, from some sudden shock to the nervous system; 2, from absorption of the toxic material formed by organisms. In the so-called nervous chill, fever is absent. In the second group, there is always fever. The first group need not detain us. The nervous chill is that met with in gall-stone colic or in the passage of a catheter. This initial chill is without fever, but subsequently there may be chills with fever due to infection. The disease most often associated with chills is malarial fever and here the chill is of a characteristic kind so that the name, "chills and fever," is synonymous with malaria. The two great diagnostic points in malaria are the invariable association of the plasmodium of Laveran and the invariable curative effects of quinin. These are the two special features of the malarial chill. It may be said that within forty-eight hours the chill will cease in genuine malaria if quinin be used. On the other hand, the paroxysms continue and under its use malaria may be excluded, except in a few cases of the autumnal malarial fevers which may resist quinin for a few days, but these have not the same character of ordinary intermittents. He had not met a single instance of genuine malarial fever which quinin had not stopped. Chills cause errors in diagnosis in various affections. In tuberculosis, the error may be made early or late in the disease, for it is at the two extremes of pulmonary tuberculosis that we have chills. These are a special feature of the early stages of tuberculosis. He has had many cases of early phthisis brought to him as malarial fever. Errors occur frequently in regions where paludism is common. Then there is the large group of septic processes with fever, such as abscess of the liver which is a common cause of chills and fever in this latitude. There are very few cases of abscess of the liver which are not at first regarded as malarial fever and thus much valuable time is lost in the treatment. Malignant endocarditis is another disease which is ushered in by chills and which is often treated for malaria. A not frequent source of error is the chill following and associated with pleurisy of a tuberculosis nature form and from empyema following the infectious diseases, as scarlet fever, etc., and following the formation of pus. The chills in typhoid fever are of the greatest importance and have attracted attention for years. They occur in 2 and 3 per cent. of all cases. Very often the chill is due to the doctor's giving powerful antipyretics. He had seen a case in which chills and fever had followed a large dose of antifebrin. In certain affections of the urinary passages and more especially pyelitis, chills occur which are often obscure. In chronic obstruction of the common duct by gall-stones there is the condition called by Charcot, hepatic intermittent fever due

to catarrhal cholangitis. In new growths of various kinds, as in cancer of the stomach, in Hodgkin's disease and lastly in syphilis, errors in the fever may be made. The important points in the diagnosis are in the use of quinin and in the examination of the blood.

Dr. JOHN NEFF reported a case of fever, in the course of typhoid fever, in which there was kidney complication with albumen and casts. The use of nitroglycerin caused much improvement.

Dr. HARRY FRIEDENWALD referred to a case of otorrhoea which had high fever, and which turned out to be due to a thrombosis of the lateral sinuses.

Dr. JOHN MORRIS made some interesting references to the fevers of former days and the manner of treatment.

Dr. G. H. CARPENTER spoke of having seen cases of tuberculosis with fever which he thought was malarial because it occurred in a malarial district. He also said he had seen a certain number of cases of fever in the course of typhoid fever which he called typho-malarial fever.

Dr. I. E. ATKINSON referred to some obscure cases with fever, and said milk fever was a thing of the past as we now know it and was not due to the condition of the milk or the breasts. Septic fever occurred in the course of typhoid fever.

Dr. J. J. WILSON referred to a case of typhoid fever in his practice in which there were several chills and finally an abscess of the parotid gland developed.

Dr. WILLIAM OSLER was glad to hear Dr. Carpenter's remarks about typho-malarial fever. Many physicians treat ordinary cases of typhoid fever as malarial from beginning to end. There is no such disease as typho-malarial fever. The two diseases may exist concurrently. Quinin will cure malarial fever but it will not influence typhoid fever at all. Cases of so-called typho-malarial fever are typhoid and should be treated as such. Too many lives have been lost by neglect of this caution. In nearly four hundred cases of typhoid fever which have been treated at the Johns Hopkins Hospital, in no case had malaria coexisted.

SECOND DAY.

Dr. THOMAS A. ASHBY read a paper entitled "Treatment of Retro-Displacements of the Uterus," in which he reported several cases with the results of his treatment. He considered the subject under four heads: The congenital; the acquired forms without adhesions; the acquired varieties associated with inflammatory conditions of the tubes and ovaries; and those cases in which the tubes and ovaries are not involved to any extent but where the uterus is firmly attached to the pelvic peritoneum by firm bands of adhesions.

Dr. W. J. CRAIGEN asked if he had ever had trouble with a hemorrhage after breaking up adhesions. It is not good to leave the uterus with a partially diseased stump after removal of the tubes and ovaries.

Dr. E. M. SCHAEFFER was glad to hear him speak of massage, and also of the use and abuse of the corset.

Dr. ASHBY had never had any trouble with hemorrhage after the operation if the blood vessels are looked for and tied. He does not believe in removing the uterus unless it is diseased; then tie off the stump and disinfect it and do not remove more tissue than is absolutely necessary. This is a principle of surgery which should be followed in gynecology. Massage should always be tried first. He had seen return of the uterus to its normal position by manipulation. He believes the corset is a cause of trouble, but can Dr. Schaeffer tell us how to avoid it?

Dr. R. W. JOHNSON then read a paper entitled "Wandering Kidney with Report of a Case of Nephrorrhaphy," in which he spoke of the importance of a correct diagnosis, and the ease of making it, and the causes. He related a case which had passed through the gynecologist's hands and had lost both ovaries without feeling better. He found a wandering kidney which he fastened in place and the case recovered.

Dr. OHA referred to cases in his practice, and spoke of the difficulty of making a diagnosis of floating kidney in stout persons.

Dr. R. W. JOHNSON would not advise removal of the kidney unless there was some good reason for it. He is in favor of conservative surgery and referred to removals of the vermiform appendix. He did not advise operation for hernia as long as the truss will retain the hernia and as long as the case is in a civilized region where trusses can be found and operations done in an emergency.

Dr. E. M. SCHAEFFER then made some "Observations on the Use of Food as Medicine," which was a very practical

paper showing the importance of using the proper food both in health and disease and the necessity of cooking it in the right way. He showed charts illustrating the comparative values of food by weight and nourishment and made some strong objections to the dress of woman.

Dr. E. N. BRUSH said that persons should be taught not only what good food is, but how to purchase it and how to cook it.

Dr. S. J. FORT said that he treated epilepsy and imbecility by giving the proper food.

Dr. W. B. CANFIELD said that while it was eminently proper to insist on nourishing food, many persons preferred to eat what they liked rather than what was good for them and in making a diet list, palatability should be considered. Many a person, sick or well, preferred a savory dish even if not so nourishing or digestible, and often its palatability made it more digestible in spite of chemistry and physiology to the contrary. The diet of rice as pointed out by Dr. Schaeffer may be very nourishing, but it was also constipating and not to be borne by many. He noticed that little reference was made to the use of sugar in food. He thought that the craving of children and some adults for candy was a natural one, and he did not think that good candy in moderate amount was injurious.

Dr. G. H. CARPENTER said he knew more about cattle raising than he did about bringing up a healthy race and the former was much easier. He agreed with Dr. Canfield in what he said about palatability. It is important to gratify the appetite when no actual harm is done.

Dr. T. A. ASHBY said that disease in woman was divided into two classes; that in the married and that in the unmarried. In the sterile woman the disease is generally from some defect formed in childhood. Then hygienic measures are important. About 90 per cent. of the diseases in child-bearing women are due to childbirth. Sexual selection is ideal and so are the charts which were here shown.

Dr. SCHAEFFER said in conclusion that rice constipated because it was so thoroughly digested that there was little residue. There is no waste as in other foods. Rice properly cooked formed a very palatable dish. The Chinese recognized the value of rice when they ate rice and butter.

Dr. E. N. BRUSH then read a paper on the "Treatment of Insomnia," in which he deplored the multiplication of hypnotics which had been encouraged by physicians so much of late, and spoke of natural methods as inducing sleep. He referred to baths, proper clothing and attention to general hygiene.

Dr. SCHAEFFER agrees with Dr. Brush and thinks that attention to food and drink will often take the place of drugs as he had already shown in his paper.

Dr. S. J. FORT then read a paper entitled "Pseudarthrosis," in which he related cases of hysterical joint trouble in children, simulating rheumatism.

Dr. WILLIAM B. CANFIELD then read a paper on the "Treatment of Pulmonary Consumption in Large Cities," in which he referred to the great advances in the pathology of that disease and the failure to find a specific remedy. He said that cod-liver oil and tonics were still relied on in most cities. Out-door life, equable climate, good food, comfortable clothing, slight occupation in some cases do more than drugs. With our present light the proper treatment of consumption in large cities, especially the incipient cases, was in small hospitals where each case could be studied.

Dr. H. FRIEDENWALD then read a paper entitled "Spring Catarrh of the Conjunctiva."

Dr. E. M. SCHAEFFER then read a paper on "Dirty Air in Public Places," in which he spoke of the necessity of good ventilation.

The papers by Dr. GEORGE THOMAS, "Illumination of the Accessory Nasal Cavities," and by Dr. J. T. SMITH on "Acute Pericarditis" were read by title. The profession of Cumberland and vicinity were very cordial to the visiting physicians.

Mississippi Valley Medical Association.

Abstract of the Proceedings of the Twentieth Annual Meeting, held at Hot Springs, Ark., Nov. 20-23, 1894.

(Continued from page 854.)

THE IMPORTANCE OF URINALYSIS IN DIAGNOSIS.

By Dr. A. B. WALKER, of Canton, Ohio. If physicians and surgeons would avail themselves of this important aid to diagnosis, much more good could be accomplished to their patients, many a life spared and thousands of dollars saved life insurance companies. As urinalysis requires but a few

moments of time, and the results from it are so positive and true, the author felt that no opinion of a case of any importance should be given without there having been made a careful examination of the urine. Many a case of Bright's disease might be prevented if, when the first symptoms of the disease manifest themselves, a careful examination of the urine be made and the proper treatment and diet prescribed. An interesting case was cited in point.

In every case where ether is to be given as an anesthetic, a careful examination of the urine should first be made to determine the condition of the kidneys, when if they show the least symptom of disease it should not be given, for it is known to exert an unfavorable influence upon them. Many cases of transitory albuminuria are noticed after ether has been administered, proving that it does affect the kidneys. When the kidneys are in an advanced stage of disease, the ether is likely to cause a congestion of the organs and thereby prevent the elimination of urine, when death will surely be the result. The author is surprised that all life insurance companies do not require an examination of the urine even for their small risks. He believes the time is not far distant when they will see the necessity of it and demand it in all cases.

DR. A. M. OWEN, of Evansville, Ind., read a paper entitled "My Experience with Gold as a Therapeutic Agent."

SECOND DAY—AFTERNOON SESSION.

DR. STARLING LOVING, of Columbus, Ohio, read a paper entitled

PHYSICIANS' PRESCRIPTIONS.

He said in but few medical schools of the present day—of this country, at least—is the theory and art of prescribing taught or even mentioned. Hundreds of bright, enthusiastic young men, full of knowledge of other departments of professional learning, and of hope and ambition, are turned out every year without having had even a hint of the difficulties which they must encounter when they essay their first prescription. We seldom read of mishaps from defectively written prescriptions in England, Germany or France, where requirements are larger and more systematically taught. When such occur, the apothecary is usually to blame. The same lack of method and carelessness, notable in the writing of prescriptions is to be found in the combining of medicines in the various forms. Sufficient attention is not always given to compatibilities, chemic and therapeutic, to solubilities, the influences of light, temperature, the air, and of other circumstances affecting the condition of drugs and chemicals. Many failures in treatment and many accidents, some serious in character, result from carelessness or want of accuracy in the directions given to nurses and patients for the administration of medicines after they have been brought ready for use. Why should the medical profession of the United States, in other respects so quick to see their own advantage, so sagacious in diagnosis, so bold in operating and in treatment, neglect so important a branch of knowledge as the theory and art of prescribing? The answer is, carelessness on the part of teachers and pupils.

DR. WILLIAM F. BARCLAY, of Pittsburg, read a paper entitled

TOXICS.

After defining a poison, the author said it may seem strange that almost all toxics are innocent, until they reach the circulation of the blood. Their slow or rapid absorption largely determines their deleterious effects upon the system. In our observation we are reminded, from time to time, of the idiosyncrasies of individuals and we seldom inquire into the causes of these peculiar conditions. It is generally attributed to a perversion of the nervous system, but in truth is caused by a rapid absorption of the poison, and is modified by the power of resistance inherent in the individual. Toxics enter the circulation of the blood, and their action on the normal cells produce toxins, and the multiplication of these products bring on pathologic conditions. Nothing is more easily demonstrated than that the emunctories throw off toxics. We observe at once upon the entrance of a toxic into the circulation of the blood that all the functions of the body are impaired to a greater or less degree, and that definite poisons are quickly formed, such as ptomaines, leucomaines, and others, which is nothing more or less than an altered nutrition. The vital forces are at once disturbed or arrested. Primarily the circulation, and secondarily, the nervous system are impaired, and a condition termed shock is superinduced. In the state of shock, nature seems intent upon relieving herself of all effete matter, by the discharge of the contents of each viscus of

the body. All such efforts should be assisted by artificial means in restoring a healthy condition. Vigorous health and strength are maintained by proper food, perfect digestion with healthful environment.

QUININ IN THE TREATMENT OF CHOREA.

By Drs. FRANK R. FRY and M. A. BLISS, of St. Louis. The writers briefly reviewed Prof. H. C. Wood's theory of the causation of chorea as set forth in a paper on "The Choreic Movement," which was published in the *Journal of Nervous and Mental Diseases*, April, 1893. He therein advanced the suggestion that chorea is due to disturbances in the spinal inhibitory apparatus, which he supported by a highly scientific argument. He made the further practical suggestion that inasmuch as quinin had been found physiologically to stimulate spinal inhibition in animals, the drug be given to dogs, and the human subject affected with chorea. In this direction he had made a few trials with very gratifying results. Although his opportunities for observation had not been many at the time he published his communication, they were of such a nature as to encourage others to use quinin in treating chorea. The writers cited the results of other clinicians who had been using it, wherein it was found that the drug had had a decidedly beneficial effect. They then recited a number of their own cases from clinic and private practice in the treatment of which they have been using quinin. Their results confirm those of Dr. Wood and others. They called attention to the fact that they had not used as large doses as others, yet had very satisfactory results. They raised the question whether the effect of quinin in this disease is due to the *modus operandi* suggested by Dr. Wood, viz., its stimulating effect on the spinal inhibitory apparatus, and not to some other effect. They suggest that this drug has a decided value in the treatment of certain infectious diseases in which class, according to the opinion of some authorities, chorea belongs. They further suggested that drawbacks may be found in giving quinin in large doses to choreic patients, inasmuch as it sometimes produces unpleasant nervous phenomena, and especially in nervous or neurotic individuals. They met with no inconveniences of this kind so far in the choreic patient, to whom they had administered it. In fact, they stated they could confirm an observation made by others to the effect that these patients are not apparently easily cinchonized.

While they have witnessed decided and, as a rule, only beneficial effects from the drug in these cases, they concluded that more data must be collected before its final status may be determined upon. With this end in view they have been keeping and would continue to keep careful notes of all their cases to which quinin was given. An interesting item of the paper was the citation of a severe case of chorea which after resisting other remedies, promptly recovered on full doses of quinin, the notes of which were published by Dr. Fry in the *Weekly Medical Review*, June 15, 1889, five years ago.

REFLEX IRRITATION AS A CAUSE OF DISEASE.

By DR. EDWIN WALKER, of Evansville, Ind. The essayist said that no error in modern times has had such tenacious hold on the professional mind as that of reflex irritation as a cause of nervous disease. In fact, to most of us the explanation of the occurrence of any nervous phenomenon or lesion is satisfactorily accounted for, if some peripheral irritation is found. A long prepulse, some slight version, flexion or laceration of the uterus or other deviation from the picture in our charts, is sufficient to account for hysteria, epilepsy, or other nervous disease. The reflex theory dates back many years. Early in this century it was offered as an explanation for certain neurotic phenomena, but its prominence in the medical mind of to-day is due to the lectures of Brown-Sequard on the "Physiology and Pathology of the Nervous Centers," delivered in London in 1858. The essayist then alluded to the contributions of several other prominent writers in regard to reflex irritation as a cause of disease, and said that for nearly twenty years he had thought much of this question, his attention being first called to the articles of Sayre. He followed his advice and did many circumcisions, and later, mainly through the teachings of Emmet, did operations on the cervix and vagina; he has observed many cases of neuroses in women presenting various lesions of the genital tract, and states that he has never seen a case of epilepsy, insanity, catalepsy, hysteria, or grave neurasthenia, or any organic disease of the nervous system cured or even permanently benefited by any operation on the genital tract, either done by himself or any one else. He has also noticed that a large proportion of patients who consult us for diseases of the genital tract do not suffer from defi-

nite nervous disease; and on the other hand, that of patients who do consult us for nervous diseases, many and perhaps most of them are free from genital disease. In a given case in which we find genital irritation and nervous disease, a careful inquiry into the case will develop other more potent causes. The writer does not deny that lesions of the genital tract may not in some way derange the nervous system, but insists that it does not do so by reflex action. For example, a woman has a bad laceration of the perineum that interferes with her locomotion; it is difficult or painful for her to go about, her life becomes sedentary, she suffers with constipation, later, dyspepsia from her inactivity, then her general system suffers from deficient nutrition as well as the want of healthful exercise. The nerves are not nourished and disease is engendered. Or a patient has some disease of the abdominal viscera, perhaps he has intestinal indigestion and nervous symptoms—a very common thing. Are we now to say that his nervous disease is reflected from his bowels? Certainly not. The lack of proper digestion and assimilation of food starves the system or by auto-infection poisons it.

Dr. HAROLD N. MOYER, of Chicago, read a paper entitled "Accidents and Injuries from Electric Currents of High Potential."

THIRD DAY—MORNING SESSION.

Dr. FRANK P. NORBURY, Jacksonville, Ill., read a paper entitled

THE MENTAL SYMPTOMS OF CEREBRAL SYPHILIS; A CLINICAL STUDY.

He drew the following conclusions:

1. Somnambulism and allied states; lapses of intelligent conceptions with associated loss of memory are mental symptoms of cerebral syphilis.

2. Sudden somnolence with ocular spasm or paralysis point to syphilis, when preceded by headache and monoplegia is almost pathognomonic. Headache, quasi-periodical, as defined by Gray with marked insomnia, suddenly ceasing and followed by psychic disturbance is due to syphilis.

3. Melancholia or mania when following periodical headaches, insomnia, or somnolence; *a.* with ocular spasm or other form of monoplegia or heterogeneous paralysis is due to syphilis; *b.* pseudo-paranoia. By this, he means cases presenting all symptoms of paranoia; systematized delusions depending on hallucinations of sight, hearing, taste or smell with slight impairment of general mental functions are due to syphilis, as we know that syphilis causes isolated local losses of power, and it is noteworthy when the special senses are involved that mental derangement usually results; *c.* pseudo-paresis, characterized by fibrillary tremor of tongue, indistinct speech (partial or complete aphasia), uncertain and trembling gait, with delusions of grandeur, and occasional outbursts of maniacal excitement, papillary involvement—all characteristic symptoms of paresis—but which yield readily to anti-syphilitic treatment, we can say are due to syphilis.

4. Class 4 have epileptiform and apoplectiform attacks. We find cases in which treatment was undertaken too late. The symptoms are those of terminal dementia, only occurring in patients of previous sound mental condition and with no special hereditary history.

Dr. CHAS. B. PARKER, of Cleveland, Ohio, contributed a paper on

THE SURGICAL TREATMENT OF INJURIES OF THE HEAD, in which he presented the following conclusions:

1. In any case of doubt as to the character of a head injury, explore by incision, if necessary.

2. In the case of wounds, especially the smaller and punctured, enlarge them for exploration and cleansing.

3. In all cases of fracture, depressed or fissured, operate, elevating the depression and exploring the fissure for a depression of the inner table which so often occurs.

4. Leave principal fragments of bone after elevation, if surgically clean, even if entirely detached from the dura mater and pericranium, thus averting cerebral hernia, vertigo and other cerebral disturbances.

5. All these operative measures should be conducted under the most rigid aseptic and antiseptic measures.

Dr. GEO. N. LOWE, of Randall, Kan., read a paper entitled

TRAUMATIC LESIONS OF CRANIUM AND BRAIN,

in which he reported four interesting cases. The first case was one of depressed comminuted fracture of the right parietal bone at the junction of the temporal bone, caused by the

kick of a horse. There was also a contused lacerated wound of all the soft tissues along the entire ramus of the left inferior maxillary. In this case the author trephined and elevated the depressed comminuted bone fragments. Recovery.

Dr. B. MERRILL RICKETTS, of Cincinnati, read a paper entitled

(A)—CASTRATION FOR HYPERTROPHIED PROSTATE; (B)—REMOVAL OF HEAD OF FEMUR FOR DISLOCATION INTO LESSER SCIATICA NOTCH; (C)—TREPINE FOR PRESSURE AS A RESULT OF FLUID IN ACUTE CEREBRAL MENINGITIS.

In the case of castration for hypertrophied prostate, the author said he was inclined at first to make a suprapubic operation, possibly combining the suprapubic and perineal. After thoroughly considering the matter and explaining to the patient the probable results of the various operations, he decided to remove the testicles. After having the patient under observation for ten days, he proceeded to operate, removing the testicles. The arteries were torsioned, the wound closed and integument coapted with a continuous silkworm gut suture. The patient rallied well from the chloroform and suffered no inconvenience or pain thereafter. The wound was examined on the fourth day and primary union was found to have taken place. The patient left Dr. Ricketts' private hospital at the end of the sixth day. On the second day after the operation the patient told him that he could urinate with greater ease, and that the pain was slight; that he could sleep four hours at a time during the night, whereas formerly he had been getting up once every hour. This condition continued to improve during the patient's stay in the Doctor's hospital.

Case 2 was reported to show how little is known of what takes place within a mass of muscular and adipose tissue. It has been said that all operations upon the abdomen are exploratory, and it might be well said that positive diagnoses can not be made in cases of fracture or dislocation without an exploration. The question therefore arises, What is our duty to ourselves and our patients in these complicated fractures and dislocations, where doubt exists as to their character? Especially may this question be asked where the results are not what might have been expected.

TUMOR ALBUS OF THE KNEE JOINT.

This paper was read by Dr. WILLIAM E. WIRT, of Cleveland, Ohio. The object of the paper was to present a summary of the points to be observed in the treatment of tumor albus of the knee joint, and to call attention to the fact that most excellent results are obtained by the use of conservative measures. The author classified the treatment under the two headings of constitutional and local measures, and the local under the subdivisions of conservative and operative treatment. The author first considered constitutional treatment, and then the local treatment which he divided into the conservative and operative. The conservative measures to be carried out in the treatment of this affection are counter-irritation and local applications, fixation, protection, extension, rest, and correction of deformity. These were considered under their respective heads. Of sixty cases under the expectant plan, 60 per cent. had motion. Of 145 cases under the fixation plan, 76 per cent. had motion, and of 37 cases under the protective plan, 95 per cent. had motion. Of 227 cases only 15 recovered with a deformity at an angle under 135 degrees, and 141 had an angle of deformity not less than 165 degrees. This enabled them to walk with their limbs practically straight, and with scarcely any appreciable deformity.

Dr. A. H. MEISENBACH, of St. Louis, read a paper entitled

RESECTION OF THE KNEE FOR SEPARATION OF THE LOWER EPIPHYSIS OF THE FEMUR.

The case was of two years' standing in a patient 13 years of age. The author said separation of the epiphysis is a condition that may occur either on account of trauma or disease. There seems to be a difference of opinion by writers as to the frequency of its occurrence, especially as the result of trauma. As the result of disease of the bones—osteomyelitis, it is considered a not infrequent accident. Traumatic separation of the lower end of the femur occurs in about from one-11th to one-third of all the reported cases, and in the majority of instances previous to the sixteenth year, seldom later. The forces that are necessary to produce this separation are various. Thus during child-birth, traction may produce it. Volkmann states that he has produced it when the hip is diseased, when making rotation in seeking for crepitation, or extension in the application of plaster-of-paris dressings. Other forces are indirect external vio-

lence, usually of a twisting character, or lateral, or at right angles to the axis of the limb. The readiness with which the dislocation of the separated diaphysis into the popliteal space occurs can be explained; 1, on account of the anatomic structures of the surrounding parts; 2, the force and position of the patient, the popliteal space being in the direction of least resistance, while on the anterior aspect we have the quadriceps tendon, the patella, and the ligamentum patella. The occurrence of pathologic separation of the epiphyses is regarded by the latest writers on surgical pathology and diseases of the bones as a not infrequent accident in diseases of the bones and joints. It is noted in osteomyelitis of the long bones.

Dr. J. E. LINK, of Terre Haute, Ind., read a paper entitled "Colles' Fracture," which will appear in the JOURNAL at an early day.

THIRD DAY—AFTERNOON SESSION.

Dr. J. H. KELLOGG, of Battle Creek, Mich., demonstrated by diagrams and illustrations the deformities of American women resulting from neglect of physical exercise and the conventional mode of dress.

Dr. C. R. HOLMES, of Cincinnati, read a paper entitled "Diseases of the Accessory Nasal Cavities; their influence upon the Organs of Sight; Modern Surgical Treatment with Report of Cases."

Dr. W. C. WEBER, of Cleveland, Ohio, read a paper on

HYDROCELE.

The author first dwelt upon the anatomy of the testis, and then alluded to congenital hydrocele. He said that this form results from an imperfect closure between the cavities of the tunica vaginalis and the peritoneum. It is most frequently met with in children and can be demonstrated by inverting the child or by elevating and compressing the scrotum. During this manipulation the liquid passes into the abdominal cavity where it can be retained by making pressure over the external rim. Considerable care should be exercised in dealing with this form of hydrocele, as it not infrequently happens that a loop of the intestine has also found its way down and is liable to serious injury from pressure. The treatment of the congenital form is usually simple and satisfactory. Having reduced the tumor by the above manipulation, all that is required in most instances is continuous pressure over the external ring for a time when adhesion soon occurs. Other plans of treatment consist in the use of discutients of various kinds, acupuncture and tapping. Acquired hydrocele occurs in children and most frequently in early adult life. Its cause is not always known, though traumatism is probably the most constant factor in its production. Having diagnosed a hydrocele, how shall it be treated? This depends mainly on the size of the tumor and its age. In a hydrocele of small or ordinary size, and the date of its origin recent, an evacuation by means of a small trocar and canula may be all that is necessary to accomplish a cure. Should this fail in its purpose, it becomes necessary to adopt measures whereby sufficient irritation of the tunica vaginalis may be produced to secure inflammatory adhesion of the opposing surfaces. This end is usually attained by the injection of the tincture of iodine, alcohol, carbolic acid, perchlorid of iron and other substances into the sac after the removal of its adventitious contents. Among other methods of treatment may be mentioned excision, incision and the seton. The seton and incision should rarely or never be employed in the opinion of the author. The author then reported a case in which he used carbolic acid, which illustrated very nicely what can be done in the way of radical treatment in apparently extreme cases. The result was very satisfactory.

TREATMENT OF TRAUMATIC CATARACT ATTENDED WITH RAPID SWELLING OF THE LENS.

By Dr. JAMES M. BALL, of St. Louis, Mo. For years the subject of traumatic cataract has been the *bête noir*. Cases of lenticular opacity caused by a foreign body which remains within the eye are always extremely dangerous, owing to the introduction of pathogenic germs on the one hand, and the danger to the sympathetic ganglia on the other. Such cases must always remain the opprobrium of ophthalmology. There are many cases, however, of traumatic cataract attended by rapid increase of intra-ocular tension, with the production of iritis or irido-cyclitis, and ultimate excavation of the optic nerve head in which the foreign body either lodges in the lens or is withdrawn at the time of the accident. It is concerning such cases that the author desires to speak. For many years the practice of the profession has been to rely upon the use of atropia if the symptoms were not severe and to perform linear extraction if the symptoms

be acute. Linear extraction, the author considered a relic of that barbarous surgical age when antisepsis was unknown. Performed for the purpose of relieving undue tension and evacuating the lenticular fragments, the very nature of the operation has been such as to diminish the first only temporarily and defeat the second frequently. The situation of the corneal incision has been such as to preclude the possibility of removing all the fragments of the swollen lens. The oblique course of the wound has rendered its patency impossible while favoring its closure. Furthermore, the incision made by the ordinary keratome is too short.

The proposition the author desired to advance was this: In cases of traumatic cataract with rapid increase of intra-ocular tension, an operation should be performed, and that operation should not be linear extraction, but an extraction made with the Graefe knife, and with the incision located in the corneo-scleral junction. The knife should cut from one-third to two-fifths of the corneal circumference, according to the extent to which the softening process in the lens has advanced. If glaucomatous symptoms supervene with softening of only a small part of the lens, the corneal incision should be large. If the softening involved the whole of the lens, the incision should be of less extent. The extent of the incision in the cornea, as far as healing is concerned, is of little importance provided we make an aseptic operation. The chief merit of the operation lies in the avoidance of the valve which is produced by the linear methods. In other words, the author's method permits of free evacuation of all the lenticular substance with the least amount of traumatism. An iridectomy is not made. All *debris* is removed at once. This can not be accomplished by the linear method. The author then reported two very instructive and interesting cases.

Dr. LEWIS C. CLINE, of Indianapolis, Ind., read a paper entitled

SOME OBSERVATIONS ON SORE THROAT DUE TO CONCRETIONS IN THE TONSILS,

in which he said every experienced practitioner can recall cases of recurring tonsillitis or sore throat that often develop without any apparent cause, but which were doubtless due to chronic inflammation of the follicles, altered and retained concretions. It was to this class that he invited attention. The symptoms of these cases are not as a rule very prominent, and are not confined to cases where the tonsils are much enlarged, but are often found in patients from whom they have been partially removed or have sloughed away by repeated attacks of inflammation or quinsy. The author's remarks dealt more particularly with the cheesy bodies and not the calculi which are probably the outgrowth of the long retained cheesy deposits acting as a nidus for the deposit of the more solid materials, as phosphate and carbonate of lime, iron, soda and potassa, etc. The soft or cheesy deposits vary in size from that of a pin head to a grain of wheat, and consist of epithelium, pus corpuscles, bacteria and chalk. These troublesome concretions are found more frequently in the small tonsil, or where there is scarcely any tonsil to be seen, for the reason that in the larger tonsils there is more pressure brought to bear on them and they are kept squeezed out. These concretions are doubtless the result of a catarrhal condition of the mucous lining of the follicles, coupled often with a uric acid diathesis. Some writers believe them to be parasitic in origin.

These concretions predispose to attacks of quinsy, and in the author's judgment are the cause of the majority of these cases, and they can be permanently cured by carefully hunting out and destroying all the crypts and pockets in which these bodies are formed. The author reported several interesting cases which emphasized the point that he wished to make, viz, that perverted secretion of the follicles of the tonsils from catarrhal inflammation resulting in cheesy concretions, which remain as a smoldering fire ready to be fanned into a flame by the least exposure, is the cause of more sore throats and quinsy in adults than any or all other causes combined.

Dr. CHAS. H. BEARD, of Chicago, read a paper entitled, "Squint with Especial Reference to an Operation."

(To be continued.)

Bequests to Medical Institutions of Philadelphia.—By the will of the late Dr. William Goodell, of Philadelphia, the sum of \$50,000 is donated to the Medical Department of the University of Pennsylvania. The College of Physicians will from the same source fall heir to \$10,000. Dr. Goodell was the eldest son of a veteran missionary to Turkey, and himself practiced medicine for several years at Constantinople.

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SATURDAY, DECEMBER 8, 1894.

THE PRESIDENT'S MESSAGE.

PRESIDENT CLEVELAND'S message makes the following recommendation to Congress concerning a Public Health Establishment:

"I am entirely convinced that we ought not to be longer without a National board of health or National health officer charged with no other duties than such as pertain to the protection of our country from the invasion of pestilence and disease. This would involve the establishment, by such board or officer, of proper quarantine precautions or the necessary aid and counsel to local authorities on the subject, prompt advice and assistance to local boards of health or health officers in the suppression of contagious diseases, and in cases where there are no such local boards or officers, the immediate direction by the National board or officer, of measures of suppression, constant and authentic information concerning the health of foreign countries and all parts of our own country, as related to contagious diseases, and consideration of regulations to be enforced in foreign ports to prevent the introduction of contagion into our cities and the measures which should be adopted to secure their enforcement.

"There seems to be at this time a decided inclination to discuss measures of protection against contagious diseases in international conference with a view of adopting means of mutual assistance. The creation of such a National health establishment would greatly aid our standing in such conferences and improve our opportunities to avail ourselves of their benefits. I earnestly recommend the inauguration of a National board of health or similar National instrumentality, believing the same to be a needed precaution against contagious disease and in the interest of the safety and health of our people."

The PRESIDENT thus compliments the Bureau of Animal Industry of the Agricultural Department, and its accomplished chief, Dr. SALMON:

"The scientific inquiries of the Bureau of Animal Industry have progressed steadily during the year. Much tuberculin and mallein have been furnished to State authorities for use in the agricultural colleges and experiment sta-

tions, for the treatment of tuberculosis and glanders. Quite recently this department has published the results of its investigations of bovine tuberculosis, and its researches will be vigorously continued. Certain herds in the District of Columbia will be thoroughly inspected, and will probably supply adequate scope for the department to intelligently prosecute its scientific work and furnish sufficient material for purposes of illustration, description and definition. The sterilization of milk suspected of containing the bacilli of tuberculosis has been, during the year, very thoroughly explained in a leaflet by Dr. D. E. SALMON, the chief of the Bureau, and given general circulation throughout the country."

It is very apparent from the PRESIDENT'S words that he would lose no time in approving an act establishing a Department of Public Health.

A GREAT WORK ON YELLOW FEVER.

We are pleased to announce that this JOURNAL will soon commence the publication as a serial, of the "Original Investigations on the Natural History of Yellow Fever (Symptoms and Pathology) 1854 to 1894," by PROFESSOR JOSEPH JONES, of New Orleans. The work, as a whole, is devoted to the record and elucidation of carefully conducted observations on the temperature, pulse, respiration, black vomit, *post-mortem* temperature and other phenomena of yellow fever.

In 1859 PROFESSOR JONES presented to the AMERICAN MEDICAL ASSOCIATION an elaborate record of similar investigations in regard to malarial fever. The forthcoming series is more elaborate, and it will be apparent to our readers as the articles appear, that the labor involved in their preparation has been incessant for a period of more than forty years, and has rarely been surpassed by any one. Fragmentary extracts of some of these articles have appeared from time to time in various medical journals, but the ASSOCIATION JOURNAL alone will publish the whole investigation, which is a storehouse of information on the subject. The expense of the laboratory and the necessary library has been borne by the author during all these years, and the American medical profession will be the gainer by his self-sacrificing labors.

It may not be improper to mention in this place that PROFESSOR JONES was himself prostrated by the disease during the great epidemic of 1878, and the attack was followed by a malignant carbuncle which left him much prostrated for a considerable period.

In concluding this advance notice we can only say, and we feel that we simply voice the opinion of the whole ASSOCIATION when we say: Honor to our distinguished fellow member, the learned Doctor JOSEPH JONES, of New Orleans.

"THE VIRCHOW-BEHRING FEUD."

If further argument were needed for the immediate creation of a National Diphtheria Commission for the investigation and report on the antitoxin treat-

ment of MM. ROUX and BEHRING, it is to be found in the results of the unfortunate feud between HERR BEHRING and PROFESSOR VIRCHOW. Stung into a wholly unnecessary access of passion by VIRCHOW's conservative and somewhat critical attitude toward the serum treatment, BEHRING made a bitter attack upon the eminent and popular scientist, and, with singularly poor taste and judgment, selected a pronounced political journal as the medium for the publication of his diatribe. VIRCHOW's half century of scientific work needs no defence and his high character is proof against attack; nevertheless, the Berlin Medical Society deemed it incumbent to formally declare that "it is necessary we show that we feel an indestructible thankfulness and veneration for VIRCHOW and behold him with pride at our head." VIRCHOW thanked the Society, expressing the hope that, for such a cause, such expression would never be called forth again, and it was believed the affair was ended.

A cable dispatch of the 3d inst., however, announces that VIRCHOW's assistant, DR. HAUSEMANN has informed the Berlin Society of his intention to contest PROFESSOR BEHRING's claims of the curative and prophylactic properties of the antitoxin—mentioning several cases in which patients had died, although, as alleged, they had received the injections in the prescribed quantities and within the defined period of the attack; he also challenges the accuracy of the published statistics, averring that no cure of proved diphtheria by the serum treatment has yet been substantiated, while, on the other hand, "there seems reason to believe that the serum causes kidney diseases, pains in the joints, fevers and other ailments." Making due allowance for partizanship, it still remains that HAUSEMANN's notification gains significance from his association with PROFESSOR VIRCHOW; that the Professor has probably sanctioned his assistant's action; and that, therefore, the verdict of the profession on the claims of the new treatment—which seemed to be crystallizing into one of unanimous approval—may be seriously delayed.

For the benefit of the medical profession of this country, as well as for the probable benefit to the public, which is now suffering from an unwonted prevalence of diphtheria, this verdict should be arrived at as speedily as may be, and with all the weight and authority that a National Commission of competent investigators can give.

Let there be created a Department of Public Health!

LOCATION OF CONTAGIOUS DISEASE HOSPITALS.

One of the vexed questions in sanitary administration is the one pertaining to the location of hospitals for contagious diseases. The matter has been recently brought to the surface in Washington City in a most unpleasant way.

As is well known, the unfortunate residents of the

Capital City have no voice in the selection of their rulers, the right of suffrage being denied them. The natural consequence is that the District Commissioners pay little or no attention to the wishes of the people, and like the late Mr. Vanderbilt, when any of their acts meets with popular disapproval they snap their fingers and say with much unction: "The public be d—d." One of the handsomest parts of the city, one having one of the finest views about Washington was chosen by the Commissioners as a site for the new contagious disease hospital. Naturally, the property owners in the vicinity, whose real estate is damaged by this action are indignant, and a public mass meeting has been held to denounce the Commissioners' action. The action of the Commissioners is considered all the more irritating and arbitrary, as there are many acres of equally salubrious land on the brow of the hill between the Bladensburgh road and the Almshouse, not near desirable residence property, and far enough away from the other charitable institutions to prevent conveyance of infection to the inmates, and at far lower prices.

Congress is confidently appealed to by the citizens to prevent the consummation of this scheme.

No municipal government has the right to disregard the welfare and property rights of citizens in selecting sites for these necessary institutions, and as all citizens of the United States are directly interested in all that makes the Capital better and more estimable, we desire to express our opinion on this question, as citizens and sanitarians, to the effect that the proposed site should be abandoned and that right speedily.

Let there be created a Department of Public Health!

CORRESPONDENCE.

Letter from Vienna.

VIENNA, NOV. 18, 1894.

To the Editor:—As the Behring remedy for diphtheria is causing a great commotion in medical circles throughout Europe, and probably also in the United States, it may be of interest to inform your readers of the status of the remedy on this side of the Atlantic, in so far as it is possible to get at the facts.

I made daily visits until a few days ago, for three weeks at Professor Koch's barracks in Berlin where Dr. Kossel is conducting the treatment of diphtheria patients with Behring's blood serum, and am happy to be able to say that, in the main, the treatment of his cases has been followed by satisfactory results while the work there has aroused the interest of European physicians. Every day a number of different foreign physicians are to be met there who have come to investigate the progress of the treatment, and its results. Dr. Kossel asserts positively that nearly every case sent to him thus far before the third day of the disease, has recovered, but with each successive day's delay the chances of recovery are greatly diminished. In other words, to get the full benefit of the treatment the "serum" should be injected within the first three days after the invasion of the

disease. The first case he lost was one that came to him on the seventh day and died of a mixed infection, streptococci having invaded the child's blood.

One day on entering the ward we found three children breathing through tracheotomy tubes, aged respectively 2, 4 and 7 years. The Doctor explained that the 2-year-old child was on the point of suffocating when he entered the barracks; the 4-year-old child came to the hospital on the sixth day. His larynx was involved at the time and before the serum had had an opportunity to retard the progress of the disease, stenosis occurred and tracheotomy became necessary. The 7-year-old child was brought in on the third day with a thick membrane in the larynx; his parotid glands were greatly swollen. In this instance, Dr. Kossel conjectured that the disease was of longer duration than was known. All three recovered.

One of my colleagues expressed surprise that tracheotomy was still necessary with this treatment. The explanation given was that in some cases the laryngeal stenosis comes before the remedy has had time to influence the disease, as in the case above mentioned. In other instances the patients were so profoundly poisoned that the membrane continued to form for hours after the serum was injected and during this time stenosis could occur. This made it necessary in a percentage of cases to use the tube.

The percentage of recoveries in the barracks since August, when the blood serum treatment was introduced was 85; before August 1 recoveries were 40 per cent. Out of twenty-five tracheotomies 55 per cent. recovered. He also mentioned that of fourteen tracheotomies in children who came under treatment before the third day, twelve recovered.

Roux, of Paris, states that the mortality rate in the children's hospital there was reduced from 55 to 26 per cent. since the Behring treatment was introduced.

In Vienna, the serum was used in a case of puerperal fever, although Behring claims that the remedy is only to be relied upon to attack the germs of diphtheria. The patient is recovering. How much the serum influenced the disease one can not tell, although her temperature has steadily descended.

The treatment is simple; Koch's syringe is used for the purpose; ten cubic centimeters of the serum are injected below the axilla, where the connective tissue is quite loose. *Asepsis strictly observed.* The temperature in nearly every case begins to descend in from eight to twenty hours. There is no reaction after the injection. No elevation of temperature or discomfort to the patient occurs.

The injection is repeated after twenty-four hours if no improvement is noticed in the patient, and may be repeated daily if necessary. Usually, however, the first injection is followed by decided improvement within twenty-four hours, and in the milder cases one injection is sufficient to stay the progress of the disease. After twenty-four hours the membrane softens and in many cases comes away in shreds. No other medicines are given, except to weak patients who are supplied with an abundance of wine, milk and beef tea. Behring says the serum is a *specific* for the destruction of the diphtheria germ only, and if complications arise in the case as a result of a *mixed* infection his treatment should not be held responsible for it, as diphtheria is a disease peculiarly liable to be accompanied by a mixed infection; other germs finding an infective atrium in the naso-pharynx, larynx and bronchial tubes. Any complications appearing must be treated by the usual methods, but so long as diphtheria germs are discernible the serum is to be used to *destroy* them.

He also wishes to have it understood that the remedy is not a poison like Koch's tuberculin, but an *antitoxin*, being the blood serum of an animal (horse or sheep) that has suc-

cessfully stood inoculation with the diphtheria culture. He claims to have found small "bodies" in the blood serum of such animals which he says are antagonistic to the diphtheria germ. He calls them "Heil Küfer" and claims to have proved his discovery by repeated experiments upon lower animals. As the remedy is considered an antitoxin, many of the most prominent members of the profession in Berlin, Vienna and Paris say that the remedy can not injure the patient and ought to be thoroughly tried in view of the fact that such remarkable statistics have been presented in its favor by thoroughly competent and well-known physicians of Germany and France.

Yours truly,

F. C. SCHAEFER, M.D.

The Discoverer of Anesthesia.

ATHENS, CLARKE CO., GA., NOV. 26, 1894.

To the Editor:—Dr. Ephraim Cutter, in his note to the *Journal* of November 17, says the rotunda of the Capitol contains a statue of Dr. "J. D. Crawford," the discoverer of ether in 1842. This note is replied to by Dr. W. H. Sharp, of Parkersburg, W. Va. Dr. Sharp's note is on the right track. Dr. Crawford W. Long used ether as an anesthetic in 1842 in Jefferson, Jackson Co., Ga., eighteen miles from Athens, to which fact a number of old citizens of Jackson County will testify. It was first used for surgical purposes on a man named Venable, and a member of this same Venable family lived near Jefferson, Ga., for several years previous to 1842.

Both in Jackson and Clarke Counties the young people at parties would call for volunteers to whom ether should be given for the amusement of the crowd present on these occasions. My own mother was present at a number of these entertainments in Clarke County, one of which was at the old Weir place four miles from Athens, on the Monroe road. At this time ether was given to a negro boy, and when full anesthesia was established, the young men who gave the ether became very much frightened, thinking they had killed the negro. In their fright they sent to Athens for a physician, but when he arrived the negro had come to life as they thought, and so expressed it.

Now as to the statue spoken of by Drs. Cutter and Sharp, I have this to say, which I think will explain the matter fully. A few years after the death of Dr. Crawford W. Long, portraits were made of two of Georgia's most distinguished citizens (two portraits of each one); one to be placed in the State Capitol at Atlanta, Ga., the other in the rotunda of the Capitol in Washington, D. C. The name of Dr. Crawford W. Long was presented as one of the number, being the discoverer of ether as an anesthetic in 1842. This claim has been fully established by abundant proof, and some authors give the honor to Dr. Long. In the "American Text-book of Surgery," by Keen and White, Dr. Long is named as the discoverer, and one or two English authors give the credit to Long. In the East the credit has been given to Dr. Morton, who first used his anesthetic in 1844, and to whom a monument has been erected, and a public demonstration held in his honor as the discoverer. Dr. Morton deserves all this as one of the discoverers, but Long having antedated Morton two years, he should at least share this honor, notwithstanding the fact that Morton did make known first his discovery to the world. The medical profession of the world should take up this subject and ask for a monument fund, to be raised by voluntary subscriptions by the physicians of every nation.

The statue to Sims, at the unveiling of which I had the honor of being present, is an honor worthily bestowed. The noble profession of the healing art deserves much praise for this work, and I hope the good work will go on. The

names of McDowell, Long, Gross, Morton and Sims, as well as others, should be placed on statues, that in this way their names and achievements may be perpetuated in the minds of future generations. I will head the subscription list from Athens (and no doubt every physician in Athens and vicinity will follow) in raising a fund to erect a statue to the memory of Long. Respectfully, ISHAM H. GOSS, M.D.

Report of a Case of Extensive Gunshot Wound.

READING, PA., NOV. 1, 1894.

To the Editor:—On Aug. 2, 1894, I was summoned in great haste to see Mr. G. B., who met with a dangerous accident half an hour previous to my arrival at his residence, by a discharge of a full shell, containing No. 8 shot, from a breech-loading shotgun, into his left side. Upon examination, after anesthetization by the assistant physician, I found the whole contents of the shell, containing about two hundred and fifty shot, had entered three and three-fourth inches to the left of mid-sternum between the seventh and eighth ribs, fracturing the ninth, eighth and part of the seventh ribs to minute pieces, tearing and lacerating the pleura, peritoneum and diaphragm; lung and liver protruding, and impregnated with numerous shot.

At first sight the case was thought and expected to be entirely hopeless. However, I was determined to do all that could be done, so I excised a great deal of lacerated marginal tissue. I extracted all the pieces of bone obtainable, with numerous shots, and shreds of clothing from lower left lobe of lung and liver; washed out the peritoneal and pleural cavities with a warm bichlorid of mercury solution, 1 to 2500, but could hardly control capillary oozing until, as a last resort, I applied hydrozone half diluted with water, which admirably controlled all capillary oozing, and at the same time acted as a strong disinfectant.

After a thorough cleaning and removal of lacerated tissue, I brought the edges together and coaptated with silk sutures, after inserting two drainage tubes; one under the lower lobe of the left lung and the other under the liver from which I ascertained there was absolute drainage. The external dressing was composed of iodoform gauze. I prescribed internally brandy, belladonna and quinin and a bland but nutritious diet.

On the third day, I found my patient restless and coughing, with hematemesis and fever. Upon this I removed the dressing and washed out the abdominal and thoracic cavities with hydrozone in solution through the herein mentioned drainage tubes, and reapplied another antiseptic dressing, from which time the case made a remarkable forward progress until about the fifteenth day, when again the patient began to show some internal disturbance that on the eighteenth day proved to be an abscess on a large scale in left lower lobe of lung; this ruptured spontaneously three days later, leading to profuse purulent expectoration (undoubtedly a result of remaining shots and small fragments of bone) breaking down the patient's vitality very much for a time which, however, was soon repaired with quinin and iron, and now the patient is absolutely well.

I merely report this remarkably unusual case to show what can be and often is done to apparently hopeless cases.

Fraternally,

F. H. BROBST, M.D.

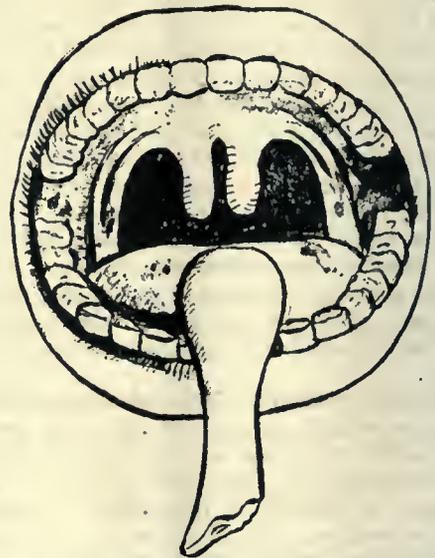
Report of a Case of Bifid, or Double Uvula.

KANSAS CITY, MO., DEC. 3, 1894.

To the Editor:—The patient whom I present is 23 years old, and is a mechanic by occupation. He was born in Ireland, came to the United States three years ago, all of which

time has been spent in Philadelphia, Pa. About four weeks ago he came to Kansas City to enter Park College, the great industrial school at Parkville, Mo., about ten miles from this city. His family history is good, and is of no importance as far as his own case is concerned. He has always been well. None of his relatives have ever had cleft palates, or any trouble with their throats. Several weeks ago he was referred to me by my friend, Dr. Jessie Woodside, of Parkville. He complains of some difficulty of deglutition and articulation. The voice is rather fine, for a man. On attempting to sing he notices a little accumulation in his throat; this is caused by the saliva adhering to the bifid uvulae and sticking them together.

He is a good patient to examine, and has such perfect control of his throat, and opens the mouth so wide, that every one can have a perfect view of this beautiful specimen of double uvula. On looking in his throat, you see two distinct uvulae, side by side, separated all the way to the arch. As you see, there is not the slightest tendency to cleft palate in his case; in other words, his hard palate is perfectly natural. If you will look in his mouth you will see that each uvula is about the normal size. I am under obligations to my friend, Dr. J. C. Steward, who has kindly drawn the perfect sketch of my case which accompanies this article.



The patient insists on having one uvula removed, and I have promised to comply with his wish, thereby hoping to relieve the small amount of difficulty he has in deglutition and articulation. This patient was exhibited to the Kansas City Academy of Medicine Oct. 8, 1894.

HAR FOSTER, A.B., M.D.

“Great Swelling Words.”

CHICAGO, DEC. 3, 1894.

To the Editor:—The man who knows neither Greek or Latin, and at the same time lacks training in English, seems to have a mania for padding out his writings with useless but sonorous phrases of classical derivation. He appears to think that by inflating his language in this way he will make his thoughts more pompous and impressive than if he sets them forth in the crystalline gems of pure English words.

Two of the stilted phrases which have recently gotten into vogue are “etiologic factor” and “etiologic entity,” and they have been rattled about our ears from so many quarters that nobody knows the first sinner who introduced them.

The Greek word, αιτια, means a cause. Αιτιολογια,

from which is derived etiology, is compounded of *αιτια* a cause and *λογος*, which taken in composition signifies a study or science. The whole means the study or science of causes. *Αιτιολογικος*, from which comes etiologic, means a person skilled in the study of causes, and may mean any person or thing pertaining to the science of causation. *Factor* is a Latin word lugged in to mix with the Greek, and signifies a person doing or producing anything. It has also a mathematical use. When two quantities are multiplied together and bring out a product, they are called factors, that is producers. Putting it all together, an "etiologic factor" should be some person or thing producing some other person or thing skilled in, or related to the science of causes; or in other words a causative-science-maker; or a maker of something or of somebody pertaining to the science of causes.

In the name of all the gods of Greece and Rome, what idea are these men trying to express? If they simply mean *cause*, why don't they say *cause*, and be done with it?

As to "etiologic entity," I believe the phrase originated in England and its elucidation may be safely left to the learning and wisdom of our mother country.

Can we not, in some way, induce medical men to reduce their technical terms and classical derivatives to the smallest possible amount and to use the simplest and purest English which will express their meaning? This is the rule among all the best scholars and writers, and only by diligently observing it can medical literature be elevated to its proper dignity.

EDMUND ANDREWS, M.D.

Testimonial to Sir Joseph Lister.

To the Editor:—Sir Joseph Lister having recently retired from active hospital and teaching work, the occasion has been thought appropriate for presenting him with a testimonial of the esteem in which he is held by his former colleagues and pupils, and committees have, therefore, been formed in Glasgow, Edinburgh and London for the purpose of raising the necessary funds.

It is proposed that the testimonial shall take the form of a portrait. Subscriptions have been limited to two guineas, and it is hoped that sufficient funds will be collected to permit of some memento of the occasion being presented to each subscriber of that amount.

As there are probably many surgeons in the United States who may wish to join in the movement, but whose names and exact address it has been difficult to ascertain, I should be glad if you would permit me to state that subscriptions may be sent to me at 29 Weymouth Street, Portland Place, London W. England, or to one or other of the following gentlemen who have kindly consented to act as Treasurers, viz: Dr. James Finlayson, 4 Woodside Place, Glasgow, Scotland; Professor Chiene, 26 Charlotte Square, Edinburgh, Scotland; Prof. William Rose, 17 Harley Street, London, W. England; Dr. Malloch, 124 James Street, South, Hamilton, Ont., or J. Stewart, M.B. 37 South Street, Halifax, Nova Scotia.

I have the honor to remain sir,

Yours faithfully,

J. FREDERICK W. SILK, Honorary Secretary.

P. S. Two guineas are about \$10.23.

Tubercular Abscess of Spine—Incision and Irrigation—Drainage with Iodoform Gauze—Recovery.

MEYERSDALE, PA., NOV. 2, 1894.

To the Editor:—A. M., age 26 years; German-American, applied to me in March, 1894, for relief of rheumatism of the spine and lower extremities. He had been suffering for some years, and at this time was unable to perform any

manual labor. Examination showed carious spine with large lumbar abscess.

March 24. A free lumbar incision was made and the abscess cavity evacuated. The cavity was gently curetted and irrigated with saturated solution of boric acid. It was then injected with a 10 per cent. emulsion of iodoform in sterilized olive oil and packed with iodoform gauze, applying externally the usual antiseptic dressing. The dressing was repeated every third day until July, when the healing was found to be complete. Every effort was made to have and maintain asepsis throughout the entire course of treatment. Some tonics were given to improve the general health which was much depreciated. No anesthetic was used; the patient declining to take any. Since the operation he has gained some twenty pounds in weight and seems entirely well, having been at his work (coal mining) for several months and experiences no inconvenience.

A. C. HARRISON, M.D.

Souvenir of the Mississippi Valley Medical Association.

A CARD FROM MRS. HAY.

HOT SPRINGS, ARK., Nov. 30, 1894.

To the Editor:—On November 23, the wheels and flying sparks took from me the most enthusiastic and charming assembly of people it has ever been my good fortune to know, and after many miles lay between us I received an exquisite token, a circular pin, of richest gold, with a diamond in the center; its rays showed me plainly the brilliancy of the givers. I do not thank them "four or five times," but four or five million times.

Yours appreciatively,

LOTANANNA F. HAY.

The Term Scirrhus.

CHICAGO, ILL., Nov. 29, 1894.

To the Editor:—To settle a dispute, will you kindly inform me of the origin of the term "scirrhus?"

MEDICAL STUDENT.

ANSWER.—The term *σκιρροζ*, from *σκιροζ*, "hard," was first used by Galen to all indurations, but gradually became limited to one form of carcinoma.

ASSOCIATION NEWS.

The Treasurer's Notice.

Many and generous have been the responses to the Treasurer's notification of arrears, but there are many, very many, who forgot to respond. Another notice will, therefore, be mailed this week. The Treasurer would be pleased to present a report to the Association at Baltimore next May, to the effect that every member had paid his annual subscription for the current year. The purchase of the new office plant makes it imperatively necessary that every member who has not already done so, should pay his subscription promptly.

The Baltimore Meeting.—Active preparations for the next annual meeting are being carried forward in Baltimore. Dr. Julian J. Chisolm has been temporarily compelled to rest from his labors on account of illness, and has delegated Dr. Wm. Osler, of Johns Hopkins as acting Chairman. Dr. George H. Rohé is secretary of the committee, and the members may rest assured that the committee's work will be well done. All the signs point to the next meeting as one likely to be the largest ever held in the history of the Association. It is expected that two special trains will be organized west of the Alleghenies.

SOCIETY NEWS.

Trinity Medical Society.—A regular meeting of the Trinity Medical Society of Toronto, Ont., was held November 16.

The New York Society, for the Relief of Widows and Orphans of Medical Men, held its annual meeting November 21. The following officers were elected for the ensuing year: President, Ellsworth Eliot; Vice-Presidents, David Webster, J. H. Emerson, and Charles H. Feale; Treasurer, Henry Tuck. The fund of this Society has been increased nearly \$60,000 during the year.

NECROLOGY.

GEORGE LEONARD BAGLEY, M.D., aged 44 years, died in Des Moines, Iowa, of septicemia caused by a pin prick upon the middle finger of the left hand. He was a member of the Polk County, Capital District, and Iowa State Medical Societies. His death took place in twelve days after the injury.

ALEXANDER F. CARROLL, M.D., of Brooklyn, died November 17, aged 28 years, from anemic coma due to chronic nephritis. He was born in Brooklyn, of Irish parentage, the son of the late Colonel Carroll, formerly County Register and Police Commissioner. He was son-in-law of ex-Register McLaughlin, and was for a time an attache of the Health Department. He was one of the County Hospital staff and a member of the Kings County Medical Society, of the staff of the Columbian Dispensary and of the Conception Nursery. His medical degree was given at the Long Island Medical College in 1888.

H. X. HIXSON, M.D., of Oshkosh, November 23.—C. F. Strecker, M.D., of East St. Louis, who was seriously injured by the overturning of his carriage, died November 26, aged 43.—C. S. Ellis, M.D., of Wabash, Ind.—Charles L. Jones, M.D., of Chicago, November 23.—John B. White, M.D., of Saginaw, Mich., November 21.

PUBLIC HEALTH.

A New Serum.—An Italian physician, Dr. Risso, of Genoa announces that he has discovered a new anti-diphtheritic serum which he claims is much more efficacious than Behring's, whose pupil he was. The successful results of its use are reported by the French journals to be confirmed by the highest Italian authorities.

Cholera in Armenia.—Letters recently received by the American Board of Foreign Missions from its correspondents in Armenia near the scene of the recent atrocities by the Kurds, report that a virulent type of Asiatic cholera has broken out at Moosh, a town in the vicinity of the wholesale slaughter. From twenty-five to thirty-five deaths a day were occurring, death ensuing from five to ten hours after the appearance of the first symptoms and only about 10 per cent. of those attacked recovering. The virulence of the disease is attributed to the effluvia from the bodies of the slain, numbering in the neighborhood of ten thousand.

Conservation of Food by Antiseptics.—M. Nocard, having been commissioned by the Prefect of Police of Paris to investigate the conservation of meats and fish by the use of boric acid, borax, bisulphite of soda, etc., reports that the use of these agents should be proscribed on two grounds—first, their use allows meats to be preserved that have already undergone alterations, possibly not rendering them toxic but modifying their organic elements so as to deprive them of part of their nutritive value; second, the direct action of the conserving agent may modify the nutritive value of the

meat more or less profoundly by causing the formation of organic compounds which do not exist in the fresh state. Furthermore, now that sulphuric acid is made from arsenical pyrites it is not impossible to have the sulphites retain traces of arsenic. For these reasons M. Nocard thinks that borax, boric acid, bisulphite of soda or of potash should not be used in the conservation of alimentary materials of animal origin.

Smallpox.—There is a gratifying paucity of smallpox intelligence. No new centers of importance have been reported since the date of the last issue of the JOURNAL. There were twenty-one new cases and twelve deaths in Milwaukee during the week ended December 3; total cases in the city, ninety; in hospital, thirty-eight, in homes 52. Dr. Wingate, Secretary Wisconsin State Board of Health, says: "Nearly all new cases occur in one section of the city—the south side. Disease not known to exist at present outside of Raymond and Rochester, Racine County, one each, and the city of Milwaukee." In Chicago there were forty-eight deaths from smallpox in the month of November, as against forty in October. On the 3d inst., there were sixty-seven cases remaining in hospital—none in homes. Except the cases at Sandwich, previously reported, and two cases in Aurora, contracted in Sandwich, it is not known that the disease exists elsewhere in Illinois. There is a slight increase in the number of cases in New York, and there have been one or two sensational cases in that city and elsewhere; a member of an English variety company, playing in Harlem, was found to be suffering with the disease and created considerable alarm among the other members of the company on the 1st inst.; a Thanksgiving visitor from New York developed a case of the disease at the house of his host in Paterson, N. J.; another case contracted in New York was taken to the City Hospital in Cincinnati on the 26th—the first it is said, received at that institution in three years; a woman, resident in Dubuque, Iowa, for two months, developed an attack of smallpox on the 24th, and its origin has thus far baffled all investigation.

Diffusion of Diphtheria.—There has been no abatement, but the contrary, of the prevalence of diphtheria during the past week. Estimated on the basis of reports received during September the disease has increased about 50 per cent. during the last sixty days. Public schools continue closed in many localities and isolation hospitals are overcrowded. In Detroit the public and parochial schools, which were closed on November 24 for one week, remain still closed and it has been proposed to convert the new smallpox hospital, just completed, into a hospital for diphtheria; the disease is also reported epidemic at Tyrone and other points in Michigan. In Chicago, while the disease has seriously increased, it has not been found necessary to close the schools; reports of its prevalence among the pupils of one school created considerable alarm and the school was taken charge of by the Health Department, which instituted a domiciliary inspection of the families of all pupils and promptly allayed the excitement by revealing the real extent of the disease. The incident has been utilized for a more thorough notification of cases and the exclusion of scholars from infected families and residences. Elsewhere in Illinois the disease is especially prevalent in the central portion of the State, and schools have been closed in consequence at Earlville, Farina, Lilly, Pontoosuc, Five Points, Brocton and a number of other places. It is also epidemic at several localities in Nebraska, Minnesota, Wisconsin, Indiana, Missouri, Kentucky and Ohio, with the usual results; public funerals of diphtheria victims are rigidly prohibited in Fort Wayne and other precautions against spread are enforced, and schools have been closed in St. Paul and Kansas City. Of the Eastern States the

most numerous reports come from Massachusetts, New York, New Jersey and Pennsylvania. During November there were upward of 100 cases reported at Yonkers, with a mortality of about 40 per cent.; all the public schools, seven in number, were closed on the 25th for an indefinite period, although it was hoped that the disease would be "stamped out" shortly after Thanksgiving. In New York City, in Brooklyn and elsewhere on Long Island the disease is increasing, as well as at Buffalo and points in the interior. The Evelyn Female College, three-quarters of a mile from Princeton College campus, was closed on the 29th ult., and the students sent home on account of a fatal outbreak of diphtheria in the institution; one of two students, kept in quarantine, developed the disease and has since died. There is also an increase in the number of cases in Philadelphia, and schools have been closed for indefinite periods at Doyleston, Exeter, South Williamsport and elsewhere in Pennsylvania. Other isolated reports from points in Canada, Oregon, Louisiana, Texas, Tennessee and West Virginia, indicate the pandemic extension of the disease.

BOOK NOTICES.

Transactions of the Colorado State Medical Society. Twenty-fourth annual convention, Denver, June, 1894. Pp. 486. Cloth.

This is a handsomely printed, well-edited volume, containing the proceedings, papers and discussions of the last meeting of the Society. Many of them have been printed elsewhere, and they are all of general interest, with the exception, perhaps, of the address of the President, which is devoted to matters concerning Colorado. The Transactions as a whole, reflect worthily the high state of professional culture which Colorado has attained.

The Medical News Visiting List for 1895. Weekly (dated, for 30 patients); Monthly (undated, for 126 patients per month); Perpetual (undated, for 30 patients weekly per year); and Perpetual (undated, for 60 patients weekly per year). The first three styles contain 32 pages of data and 160 pages of blanks. The 60-Patient Perpetual consists of 256 pages of blanks. Each style in one wallet-shaped book, with pocket, pencil and rubber. Seal grain leather, \$1.25. Philadelphia: Lea Brothers & Co. 1894.

The Medical News Visiting List for 1895 has been thoroughly revised and brought up to date in every respect. The text portion (thirty-two pages) contains useful data for the physician and surgeon, including an alphabetical Table of Diseases, with the most approved Remedies, and a Table of Doses in both decimal and old systems. It also contains sections on Examination of Urine, Artificial Respiration, Incompatibles, Poisons and Antidotes, Diagnostic Table of Eruptive Fevers, and the Ligation of Arteries. The classified blanks (160 pages) are arranged to hold records of all kinds of professional work, with memoranda and accounts. A thumb letter index is furnished when required. In its several styles the Medical News Visiting List adapts itself to any system of keeping professional accounts.

A Monograph of Diseases of the Breast, Their Pathology and Treatment with Special Reference to Cancer. By W. ROGER WILLIAMS, F.R.C.S. With 76 figures. Cl., 8vo., pp. 571. Price £1.10. London: John Bale & Sons. 1894.

One naturally places this book with those of Sir Astley Cooper and Velpeau, both written a little more than a half century ago, and yet in certain respects they have had no successors. The anatomy of the breast as presented in the magnificent plates of Cooper, representing prepared specimens, are unrivalled to-day, and the immense clinical material at the disposition of Velpeau makes his work still a storehouse of information on the subject. Where the modern work excels is in the histology and in therapeutic statis-

tics, which are based on modern science. The book under consideration is well written and exhaustive. We may not accept the author's view of the origin of cancer, but we may commend his patient research, and the eminently satisfactory character of the work done. One of the most interesting chapters in the work is one that was unknown to the older works, namely, the geographical distribution and topography. Full credit is given Billings and other American statisticians for their labors in this direction. Taken all together it is an extremely valuable addition to the literature of the subject.

The Principles of Surgery and Surgical Pathology. General Rules Governing Operations and the Application of Dressings. By DR. HERMAN TILLMANS. Translated from the third German edition by JOHN ROGEEAS, M.D., and BENJAMIN TILTON, M.D. Edited by Lewis A. Stimson, M.D. With 441 illustrations. Cl., 8vo., pp. 800. New York: D. Appleton & Co. 1894.

As a text-book for students we have nothing but words of praise for this book. It represents the very latest teaching on the principles of surgery and surgical pathology. The fact is now recognized in all medical schools that the surgeon can never be successful, can never take high rank among his fellows unless his practice is built upon the sure foundation of pathology, and in works on surgery, regional or particular surgery grows smaller in bulk. From year to year, yes, from day to day almost, there are changes and alterations made necessary by the advances in medical science, more particularly in bacteriology and chemistry. To keep pace with these changes in surgical pathology we are compelled, although regretfully, to lay aside the favorites, sometimes in the lifetime of the author. Paget and Billroth follow one another in the annual procession to the top shelf in the library; and the text-books of yesterday will soon follow. Our present interest is with those of to-day. The book is divided into three sections. The first, on General Principles Governing Surgical Operations, contains ten chapters; the second, The Methods of Applying Surgical Dressings, contains five chapters; and the third, on Surgical Pathology and Therapy, contains five chapters; these are: I, Inflammation and Injuries, with an appendix on Chronic Mycoses: Tuberculosis, Syphilis, Leprosy, Actinomycosis. II, Injuries and Surgical Diseases of the Soft Parts. III, Injuries and Diseases of Bones. IV, Injuries and Diseases of Joints, with an appendix on Gunshot Injuries. V, Tumors. We can not too highly commend this volume to our surgical readers.

MISCELLANY.

Intra-Uterine Injections by the Ancients.—Dr. Koromilas, a Greek physician, thinks it is evident from their writings that Hippocrates, Oribasius, Paulus Aegineta and Galen knew of the use of intra-uterine injections. Hippocrates divided the female genital organs into three parts: 1, the external organs; 2, the genital canal or vagina; 3, the uterus; and had a separate remedy to inject into each—wine and honey for the external parts, "goose grease" for the vagina, and wine and oil for the uterus. Dr. Koromilas believes that Hippocrates was the first to make intra-uterine injections.

M. Bertillon Outdone.—The various means used by the police in their hunt for criminals appears to be distanced by that employed lately in Germany to capture a fugitive spouse. The wife of a rich manufacturer at Essen abandoned the conjugal roof and it was discovered had taken a train for Pecs, in Hungary; whereupon the husband telegraphed to the chief of police of that town as follows: "Arrest a woman who will be found on the train at Pecs. Description: Weight, 83 kilogrammes—exact." Upon repair-

ing to the train with this "exact description" the chief was somewhat disconcerted at discovering that all the women on the train were rather portly. However, he had them all weighed in the baggage room and only one weighed 83 kilogrammes exactly. This proved to be the fugitive, and the *Journal de Médecine de Paris* adds that this shows the importance of knowing the exact weight of one's wife—especially if she be somewhat "flighty."

Another New Antiseptic—It is said in recent therapeutic reports that the salicylate of cadmium has a more energetic action than other salts of this metal. It gives good results in the treatment of purulent ophthalmia, in vascular engorgement of the cornea, as an astringent in mucous discharges, against syphilides, etc. Chemically pure salicylate of cadmium is a white salt, occurring in splendid tabular crystals with plane faces and rounded sides. It has a sweetish taste at first, then styptic. It melts above 300 degrees, dissolves in 24 parts of water at 100 degrees, in 68 parts at 23 degrees, and in 90 parts at zero. It is soluble in alcohol and ether, more readily in warm; very soluble in hot glycerin, but is insoluble in chloroform and benzin. The salt has the formula $(C_6H_5O_2HCOO)_2Cd$, and has 24 parts per 100 of metallic cadmium. It may be prepared either by acting on hydrated oxid or carbonate of cadmium with salicylic acid, or by precipitating salicylate of barium with sulphate of cadmium; the latter method is more complicated and the product is not so pure.

Thyroid Intoxication.—A French physician, Dr. Beclère, writing on myxœdema in the *Gazette Médicale de Paris*, makes use of the above term to express the sum of the symptoms that follow an overdose of thyroid gland. He reports a case that was successfully treated by sheep's thyroids, in the course of which there was an accidental excessive dose, followed by quite an array of symptoms. The patient was a female, 31 years old. The overdose consisted in the ingestion of three ounces of the thyroid gland in eleven days. The English authors have reported such symptoms as tachycardia, variable pulse, insomnia, agitation, pyrexia, polyuria, glycosuria, albuminuria, the sensation of heat and sweating. The present writer adds an increased frequency of respiration, transitory tremblings of the arms, exophthalmia and a staring expression of the eyes. Hysterical symptoms were also observed in this patient, such as aphasia, monoplegia and anesthesia of the right upper extremity, although the woman had not theretofore exhibited any neuropathic symptoms, and Dr. Beclère suggests that an excessive secretion of the thyroid juice may be one of the exciting causes of hysteria. He believed it would be found that thyroidism, when occurring in hysterical subjects, will arouse hysterical seizures in them, just as other intoxications would. Dr. Beclère thinks that the intercurrent of exophthalmic goitre points to a hypersecretion by the thyroid gland and that the juice acted, like other intoxications, as an exciting cause of hysterical outbreaks.

Abandonment of Fort Marcy, N. M.—This post, situated within the city limits of Santa Fé, has been garrisoned since the occupation of the Territory by the United States; but for many years the troops were kept constantly employed in carrying on active operations against hostile Indians so that the garrison was rather in the field than stationed at a military post. The elevation of Fort Marcy was 7,000 feet above the sea level. Foothills rising abruptly in the vicinity of the post lead up to a succession of mountain ranges in the east and northeast, the highest of which, seventeen miles distant, attains a height of nearly 13,000 feet. To the south and west is a plain, twenty miles in extent, broken only by a few small hills and arroyos until the mountains bor-

dering the Rio Grande are encountered. This plain is susceptible of high cultivation if water is supplied by the natural rainfall or by irrigation. The climate is mild and equable on the whole, although when the direct rays of the sun are withdrawn the lowering of the temperature, as in all mountain regions, is abrupt; and in winter cold winds sweeping down from the snow-covered mountains sometimes gives a thermometric fall of 15 or 30 degrees F. in a few hours. Notwithstanding this, the place has been much lauded as a sanitarium for incipient cases of pulmonary consumption. The post participated in the excellent water supply of the city. A reservoir holding 250,000,000 gallons was built three miles above the city on the line of a mountain stream. The water is delivered by iron service pipes under a pressure of 187 pounds per square inch. A government reservation for National park purposes includes the head waters and course of the stream to within a distance of four miles from the reservoir. No settlement is permitted on these grounds; and as the interval between the reservation and the reservoir is a narrow valley, it can easily be watched and protected by the Water Company so as to prevent any contamination of the supply. The barrack buildings were thick-walled one-story adobe houses, with good roofs, ventilated by skylights and ventilating openings near the eaves. The quarters of the officers were commodious and comfortable. Bathing facilities were ample and complete. Waste water from bathrooms and kitchens was conveyed by open ditches to a sandy arroyo where it was absorbed or dissipated. In some instances old wells were used as cesspools for waste water. Earth closets were used in the absence of water carriage for the removal of excreta. The general health of the garrison was good. The only diseases which could be said to be prevalent were bronchial and rheumatic affections.

Necropsy of the Czar.—Following is the official statement relative to the cause of death of Alexander III. of Russia, made by the court physicians, as well as the protocol of the autopsy:

Diagnosis: Chronic interstitial nephritis followed by cardiac and vascular lesions; hemorrhagic infarct of the left lung, followed by pneumonia.

(Signed) PROFESSOR LEYDEN, PROFESSOR ZAKHARIN, PROFESSOR POPOV, DR. HIRSCH, DR. VELIAMONOW, Honorary Court Physicians.

Livadia, Oct. 21 (Nov. 2) 1894.

Autopsy: In the year 1894, the 22d of October (3d of November), we the undersigned, proceeding to embalm the body of the deceased Emperor, Alexander Alexandrovitch, have found the following alterations: Considerable edema of the sub-cutaneous tissues of the legs and reddish spots on the left knee. The left pleural cavity contained 200 cubic centimeters of reddish serous fluid; in the right side there were 50 cubic centimeters of the same fluid. The apex of the right lung showed an old fibrous cicatrix; the right lung is edematous. The upper lobe of the left lung is slightly edematous and there is an hemorrhagic infarct in the lower lobe filled with blood and containing very little air. The infarct was found in the upper border of the lower lobe of the left lung and presented a triangular area on section—one and one-half by one centimeters. The pericardium contained thirty cubic centimeters of reddish serous fluid.

The volume of the heart is considerably increased. The vertical diameter is seventeen centimeters, the horizontal eighteen. The subserous tissue contains a great quantity of fat. The heart was found in a state of slight diastole. The left cavity is enlarged and the wall of the left ventricle thickened (two and five-tenths centimeters). The muscle in this ventricle is pale and flabby and of a yellowish color. In the right ventricle the muscular wall is thinned (six millimeters) and of the same yellowish hue. The valvular apparatus is perfectly healthy.

The abdominal cavity contained about 200 cubic centimeters of serous fluid. The stomach and intestines were filled with a large quantity of gas. The liver is somewhat increased in volume and this organ is very plethoric. The kidneys have the following dimensions: The left is sixteen centimeters long, seven centimeters wide and four thick; the right, fifteen centimeters long, six and five-tenths centimeters wide and four centimeters thick. The capsule of the kidney peels easily and is of normal thickness. The surface of the kidneys is slightly granular and of a deep red color; the hardness is insignificant. The cortex is lessened (from six to seven millimeters) and of a yellowish color—the medulla of a deep red;

in the left kidney was a serous cyst, three millimeters in diameter.

In virtue of the preceding we are of opinion that H. M., Alexander Alexandrovitch, succumbed to a cardiac paralysis, preceded by a degeneration of the hypertrophied cardiac muscle, and to an interstitial nephritis (granular atrophy of the kidneys).

(Signed) PROF. J. F. KLEIN, D. N. ZERNOW, PROF. M. A. POPOW, DR. N. VALTONKHOW, DR. N. C. BELOUSSOW.
Livadia, Oct. 22 (3d Nov.) 1894.

Proper Care of the Eyes.—Dubuque physicians have issued the following statement to the public: In view of the fact that the advice of the family physician is frequently sought on the subject of the proper care of the eyes, it seems proper and opportune to call attention to the following points:

1. Glasses for the correction of visual defects are demanded for a variety of reasons, some of which pertain to the ordinary changes in the refractive media incident to advancing age or otherwise, and some of which are due to true disease of the eye which from the nature of the case are far more serious, requiring for their proper treatment the services of one properly equipped in that department.

2. We believe that the one intrusted with the care of so important an organ as the eye should understand not only the mechanical methods of adapting glasses to the common refractive errors, but also the far more important and intricate diseased conditions, for the proper appreciation of which a knowledge of anatomy and physiology and the principles of medicine are absolutely essential.

3. We have, as residents of our city, men who in our opinion are exceptionally well fitted not only to recognize and correct the ordinary refractive errors, but also to diagnose and treat properly diseases of the eye.

We think it due to the public not less than to these gentlemen to bear this testimony.

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| G. M. STAPLES, | ASA HERR, |
| SAM'L H. GUILBERT, | J. K. GREEN, |
| JOHN E. BREADY, | M. E. CONNELLY, |
| JNO. L. LEWIS, | J. R. GUTHRIE, |
| WM. BRAY, | J. S. BIGELOW, |
| C. H. HAMILTON, | ALLEN STAPLES, |
| F. W. WIELAND, | WILLIAM SLATTERY, |
| F. H. HOLLAND, | N. M. HILL, |
| J. F. MCCARTHY, | B. MICHEL, |
| GEORGE MINGES, | F. R. NITZSCHE. |

Experiments with Mosquitoes in Mississippi.—Mr. Howard Weed, of the Agricultural College, Mississippi, has had some success in the abatement of mosquitoes by the free use of kerosene upon tanks of water and in other positions which he mentions. His observations are published in the last issue of *Insect Life*. He begins by saying that the use of kerosene, for this purpose, has been known for many years in the French quarter of New Orleans. The citizens of that section have found that the addition of kerosene to their water tanks has materially reduced the pest of insects, but much has been written showing that such is the case, and in this age of advancement we can no longer go by hearsay evidence. Everything must be founded upon known facts, and these facts can only be ascertained by experiment. On the college campus are eleven large water tanks, two of which are used for drinking water and the others for irrigation and fire protection. Not far from the limits of the campus are also four pools of standing water, three of which are used for watering stock and the other for irrigation in the horticultural department. These pools, however, are well stocked with fish, and the larvæ of the mosquito are never found there. "Before the water tanks were built, the college campus had been quite free from mosquitoes, but the evil has been constantly upon the increase, reaching its climax early the present season. I have often advised that a small amount of kerosene be placed in each of the water tanks, and the college proctor several times informed me that he 'had a nigger put kerosene in the tanks every week, but it did no good.' The college physician also stated that he had placed some kerosene in a jar of water containing some of the wiggletails, but that the kerosene had not killed them, thus regarding the remedy recommended as ineffective.

"By June 20 of the present year, mosquitoes had become

so numerous on the college campus as to make life a burden, and sleeping without a mosquito bar was out of the question. Wishing to demonstrate the effectiveness of the remedy which I had recommended, I took a large glass jar and filled it nearly full with water from one of the tanks, which was fairly alive with the mosquito larvæ. The jar contained several hundred of the larvæ and I took it to the college physician, poured a little kerosene into the jar, and asked him to please watch the effect. This was as expected, for within fifteen minutes all the larvæ were dead." Some of the tanks for fire purposes were in dark attics and relatively free from larvæ. Four tanks had them in large numbers. Mr. Weed treated these with a gallon of kerosene, and ten days later the mosquitoes were nearly all gone from the campus and the collegians were able to dispense with the mosquito nets. Three weeks later some of the tanks were again dosed. Upon all the outdoor tanks a thin film of kerosene has remained since the kerosene was put in. The campus is now nearly free from mosquitoes and has been so since ten days after the kerosene treatment. Hereafter during the summer, kerosene will be put in the outdoor tanks, putting in enough to keep a thin film over the top of the water.

Mr. Weed recommends the use of kerosene to moderate the irritations that afflict a mosquito-burdened locality. "I have also found that kerosene is a good article to use to prevent mosquitoes from annoying one when they are numerous. To use it for this purpose a little is smeared upon the back of the hands and also upon the face. At first thought this would seem to be a disagreeable operation, but a trial of it will prove that it is not disagreeable in the least. It is quite effective in keeping the mosquitoes away and is much better than the Florida method, which I have been told is to remain secreted under a large iron kettle and with a hammer clinch the bills of the mosquitoes as they are thrust through the kettle."

Prerogatives of Boards of Examiners.—Cases are constantly arising, in one part of the United States or another, where some holder of a diploma and a State Board come into conflict. The latest decision of this nature, where there has been an authoritative adjudication of the points at issue, is to be found in Tennessee. The holder of a diploma from a certain college for the practice of dentistry, presented same to the State Board of Dental Examiners, asking them to file and register it, and to issue to him a certificate to practice dentistry in that State. This the Board refused to do. Thereupon he sought, by the legal writ of mandamus, to compel the Board to issue to him the desired certificate or license.

The board answered that it was not a reputable college of dentistry which issued the diploma, giving a sufficient course of instruction; that the board was not compelled by law to recognize its diplomas; and that, in the discharge of its duties for the protection of the public, it could not be controlled and coerced in the exercise of its discretion. It appeared from the record that the board had determined to only recognize as "reputable" such schools of dentistry as belonged to the National Association of Dental College Faculties, whose rules it has adopted, and by whose recommendations it was to a great degree governed. The Tennessee statutes prohibit the practice of dentistry, except by persons holding diplomas from reputable dental colleges, the validity of which diplomas the State Board of Dental Examiners is authorized to decide upon. When no diploma is presented, the Board is to make an examination; and this it offered to do in this case. Much was said here as to the scope and meaning of the word "validity" as applied to a diploma, whether it meant simply its genuineness, or in addition, its force and effect as emanating from a reputable college.

Coming now to the decision, the Supreme Court of Tennessee holds, under date of Sept. 13, 1894 (State v. State Board of Dental Examiners), that it is evident from the purpose and tenor of the Act that it was intended that an applicant, having his claim upon a diploma from a dental college, and relying upon that, and declining to pass an examination, must have a diploma from a reputable college, and the Board of Examiners provided for must have power and discretion to determine in cases of applicants with diplomas, whether they come within the provisions of the law, and whether the diplomas tendered by them as the basis of their application emanate from a reputable dental college. The

power to determine this could not be lodged in a more appropriate tribunal, composed, it must be presumed, of men learned and trained in their profession, and competent to pass upon, not only the qualifications of applicants, but also the reputation of schools within the State, engaged in dental education. In performing their duties, the Board is exercising a quasi-judicial function; and, so long as it does not act arbitrarily and illegally, its determinations can not be coerced by the courts through writs of mandamus so far as they involve the exercise of this judicial discretion.

In harmony with this, the court further specifically holds that, the board having, by rules which seemed to it to be altogether proper, fixed a standard by which to determine the standing of dental colleges, and, in so doing, having been guided by the opinions and rules of a National Association, composed of eminent dental men, selected in different States with a view to promoting uniformity of decision and advancing of the profession; and having by these rules tested the diploma presented to them, and determined that it did not emanate from a dental college which at the date of its issuance had brought itself up to the standard, although it might have subsequently done so, the board's finding was warranted by law, and conclusive on the facts. The adoption of the rules of the National Association was in no sense a surrender of the board's power or discretion, but, on the contrary, so far as the court could see, an effort to conform to a system recognized over the United States as conducive to the advancement of the dental science, and promoting the best interests of the profession.

Assistant Medical Inspectors.—The fifteen assistant medical inspectors of Philadelphia have presented the following petition to the city council asking for an increase of salary:

To the Select and Common Councils of the city of Philadelphia—*Gentlemen:* We have the honor to submit for your consideration the following petition:

The Assistant Medical Inspectors are doing their work conscientiously and thoroughly. For more than two years they have labored assiduously for the restriction of contagious diseases in all its details.

The population of the city is great, constantly increasing and spread over a wide expanse of territory.

The Assistant Medical Inspectors have no complaints to make of hard work; neither do they desire any remission or diminution of their labors, however arduous they may be; but take much pleasure in the thought that in the performance of their duties many valuable lives are saved to the citizens of this city.

There are several considerations that the Assistant Medical Inspectors desire to submit to the Councils in support of their request for increased compensation.

1. The nature of the work is such that the Assistant Medical Inspectors are required to be continuously on duty, day and night, Sunday and holidays not even excepted.

2. The list of contagious diseases is increasing, notably consumption has lately been added to the list, and doubtless others will be added in the near future.

3. The small opportunities for private practice must necessarily be sacrificed to their public work.

4. The Assistant Medical Inspectors are required, and stand ready at any time to devote their entire time to the public service, when called upon to do so, as in case of epidemics.

5. The work is so widespread that the expense of transportation from one locality to another requires a very considerable daily outlay of money.

6. There is considerable personal danger to themselves and their families, which justly calls for greater compensation than many other employments.

7. The professional training of the Assistant Medical Inspectors, their medical education and large experience make their work that of experts in sanitation, and yet the compensation of \$3.29 per day is not so great as that paid in mechanical pursuits.

8. The public duties of the Assistant Medical Inspectors cut down and curtail their private practice, for the reason that the public will not knowingly employ physicians whose principal business is with contagious diseases. Practical experience has demonstrated that it is only a matter of a short time before they cease to be regarded by the public as practicing physicians but simply as officials of the Bureau of Health.

9. It is an unquestioned fact that the work of our department has largely decreased the number of contagious diseases in our city. At the present time, in view of the prevalence of smallpox and diphtheria in our city, we are war-

ranted in saying that were it not for the vigilance of the Assistant Medical Inspectors a serious and widespread epidemic would have occurred.

10. The Committee of Fire and Health, recognizing the justice of our claims and the value of our services to the city of Philadelphia, have unanimously recommended an increase in our salary.

Under these circumstances we respectfully request of your honorable bodies that in our efforts as conservators of the public health we be granted an increase in salary commensurate with the character of our work. Very respectfully your obedient servants,

THE ASSISTANT MEDICAL INSPECTORS.

Hospital Notes.

BOARD OF MANAGERS, M. E. HOSPITAL.—The annual dinner of the Board of Managers of the Methodist Episcopal Hospital of Brooklyn, took place November 22. Dr. James M. Buckley presided. The toasts and those who responded were as follows: "Ecclesiastic Fellowship," the Rev. H. C. Farrar; "Brooklyn Journalism," Murat Halsted; "Hospital Experiences," the Rev. J. S. Breckinridge; "Relation of Medicine to Law," G. G. Reynolds; "The Medical Faculty," W. N. Belcher, M.D.; "The Internes," A. D. Bogart; "The ex-Internes," W. X. Campbell.

WOMEN'S HOSPITAL OF NEW YORK.—The annual report of the Women's Hospital of New York, shows the total number of patients treated in the in-door department was 302, of which 262 were free patients. The total number receiving treatment in the out-door department was 5,096; consultations held in the out-door department numbers 10,304.

RESPECTFULLY REFERRED TO THE BOARD OF ASSESSORS.—The Youngstown, Ohio, *Indicator* of November 20 says that the Mahoning County Medical Society have petitioned the County Health Commissioner for a supply of "antitaxin."

THE EPISCOPAL HOSPITAL OF PHILADELPHIA.—The Ingersoll Building of this institution was dedicated November 26. The new building contains the ward intended for the reception and first care of surgical cases. The building is located to the right of the main edifice at the corner of Front Street and Lehigh Avenue; is 55x155 feet, and is three stories high with a basèment and sub-basement. It is made fireproof by all the foundations and division walls being of brick and laid in cement. The walls are of hard brick, with Trenton brown stone trimmings, the whole building costing about \$90,000. The basement is intended for a surgery dispensary. It connects with the main building by an underground vaulted passage. The diet kitchen for the use of the first floor is in the basement. On the left of the entrance hall on the first floor is the men's ward. On the right of the hall a wide corridor connects with the operating-room. On the second floor is a ward for the treatment of patients suffering from burns, a woman's ward and a diet kitchen. The third floor is fitted up in a similar manner with wards for patients, sleeping-rooms for nurses, etc. The new building is complete in every respect for the purposes intended, and will be a great aid to the proper care of accident cases at that institution.

CLEVELAND STATE HOSPITAL.—The annual report of the Superintendent of the Cleveland State Hospital shows the total number of patients under treatment during the year 1,199. At the beginning of the year there were 863 patients in the hospital, 436 males and 427 females, and 176 of the former sex and 160 of the latter were admitted. The average number under treatment was 929; discharged during the year, 263, 131 being males and 132 females. The recoveries were 122. Forty were discharged improved, eighteen unimproved, and eighty-two died. The percentage of recoveries of the number admitted was 36.3.

Louisville Notes.

BOARD OF PUBLIC SAFETY.—The first report of this Board which has been acting under the new city charter for the past year, has been submitted. In it are included a few points of medical interest. It states that the much needed

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ORIGINAL ARTICLES.

ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.
NEW ORLEANS, LA.

Yellow fever (vomito; vomito prieto; vomito negro, fièvre matelotte; febris flava; fièvre jaune; gelbes fieber; febbre grilla; febris icterodes; typhus icterodes; typhus tropicus; typhus d'Amérique; fiebre amarilla; coap de banc; febris maligna biliosa Americana flava; bulam fever; hemogastric pestilence; pestilentia hemogastrica; synochus icterodes; causus; febris flava Americanorum, epanetus malignus flavus; typhus jaune; ichwaites erbrechen westendisches fieber; fiebre yialla; black vomit; malignant yellow fever; pestilential fever; epidemic yellow fever; specific yellow fever.)

DEFINITION.

A pestilential fever, of a continuous and specific type, originally developed in tropical and insular America; confined to definite geographical limits, and dependent in its origin and spread upon definite degrees of temperature, and capable of transportation and propagation on ships and in towns and cities in those portions of North and South America which lie between 45° N. latitude and 35° S. latitude. The disease has been limited chiefly to the coast of tropical America, rather from the number and position of the commercial centers, than from any climatic causes adverse to its propagation elsewhere. It has been imported chiefly from the Antilles, and from the cities of tropical America by ships into the Gulf and Atlantic cities of the United States, and into Cadiz, Carthagena, Barcelona, Gibraltar, Lisbon, Saint Nazain in the department of the lower Loire, and into Plymouth and Southampton in Europe; and it has been imported and become epidemic as far south as Montevideo and Buenos Ayres in South America. As a general rule, it has originated and become endemic in cities situated in low, unhealthy malarious districts on the sea or river coasts of insular and tropical America, and has rarely occurred at an elevation of 2,500 feet above the level of the sea; in Jamaica it has prevailed at Stoney Hill, 1,300 feet above the sea, and at Newcastle 4,000 feet above the sea; according to Alexander Humboldt, it has never ascended in Mexico to 3,044 feet above the level of the sea, below which limit the Mexican oaks do not flourish, showing that the constant average temperature below this is of a tropical character.

In the United States the disease has never in its epidemic form reached an elevation of 500 feet, and it has been observed that its epidemic course or limit coincides to a certain extent with the range of the growth of the live-oak, the cypress and the long moss. The inhabitants of the barren rock of Gibraltar, at an elevation of between 1,400 and 1,439 feet above the

level of the sea, have been desolated by this disease upon more than one occasion. It is certain that yellow fever has prevailed in the celebrated table land of Caracas, 3,000 feet above the level of the sea. In the remarkable epidemic of yellow fever which prevailed in Peru in 1855 and 1856, the disease passed over the barrier of the Andes, committing fearful ravages in Andine and trans-Andine regions, at elevations of 14,000 feet above the level of the sea. The stereotyped expressions of systematic writers, as to the limitation of yellow fever to certain elevations and to the sea and river coasts must in the light of the preceding facts be abandoned.

Yellow fever presents two well defined stages; the first characterized by severe pains in the head, confined chiefly to the orbits and forehead, back and lower extremities, a peculiar shining or drunken appearance in the eyes, rapid circulation, elevated temperature, and increase of those constituents as urea, uric acid, phosphoric acid and sulphuric acid which result from the increased chemic changes induced by the febrile poisons; and which stage may extend from 36 to 150 hours, without any distinct remissions, according to the severity of the disease; the second characterized by depression of the nervous and muscular forces, and of the general and capillary circulation, capillary congestion, slow and intermittent pulse, jaundice, a purplish and yellowish mottled appearance of the surface, urinary suppression, albuminous urine loaded with granular casts of the urinary tubes, fatty degeneration of the heart, liver and kidneys, defibrination of the blood, passive hemorrhages from ears, stomach and bowels, nares, tongue, gums, uterus, vagina, gall bladder and anus, and in extreme cases from the eyes, ears and skin, black vomit, interstitial hemorrhages, delirium, convulsions and coma. In its origin and propagation, it appears not to be dependent on those conditions and causes, which generate malarial paroxysmal fever, from which it differs essentially in symptoms and pathology.

One of the prominent symptoms of the first stage is that rapid increase of the pulse, within the first few hours of the febrile excitement, and the progressive diminution of the beats of the heart, even while the temperature progressively rises; and in like manner, the slow and feeble action of the heart constitutes a prominent and striking symptom of the second stage. Yellow fever, in common with such contagious diseases as smallpox, measles and scarlet fever occurs as a general rule, but once during life, and may be propagated by contagion; it differs, however, from the exanthematous diseases, in that it has never been known to propagate beyond 48° N., and 38° S. latitude, nor below a temperature of 65 degrees F. The symptoms of yellow fever may be divided for description and investigation into:

1. Those manifested during the period of incuba-

tion, or that period of time which elapses between the introduction of the poison inducing the disease and the actual manifestation of the febrile phenomena. As this stage is of uncertain duration, the disease sparing neither age nor sex, those only being exempt from its influence who have, at some former time, been subjected to the action of the yellow fever poison, and its attacks being confined neither to the night or the day, nor to any special state of the system, whether of fasting or repletion, of plethora or anemia, of robust health or chronic disease; and as the disease often attacks suddenly those who are apparently in perfect health, who are seized with intense headache, chill, shivering pain in the limbs and back, followed by rapid elevation of temperature, increased action of the circulation, animated congested countenance, red, glistening suffused eyes, intense thirst, anorexia, uneasiness of the epigastrium, nausea and vomiting; the investigation of the phenomena of the stage of incubation is attended with great difficulty and much uncertainty.

While it must be admitted, that during the time which elapses from the moment of the effective action of the cause, to that of the manifestation of the disease, changes are produced in the blood and nervous system and which, although producing no recognized obstacle to the healthy performance of the functions, are not the less real, and increase up to the moment of the final explosion of the disease; but as to the nature of these changes in the system, we know nothing, and the subject is open for investigation. The difficulty of such an inquiry is clearly recognized, when we consider the want of knowledge of the nature of malaria, of the constituents of emanations from the soil, and of other imputed sources of pestilential diseases; the mist of ignorance and prejudice involving these agents, and exaggerating their influence, and their inferred nature and operation, without further proof of their existence than certain effects which have been imputed to them either upon insufficient data, or even without the smallest evidence.

A sure foundation for the investigation will be reached, when the yellow fever poison is isolated; either from the soil, waters, or atmosphere, or from the diseased human body. Our knowledge has not and will not be advanced by hypothetical discussions as to the mineral, vegetable or animal origin and nature of the yellow fever poison; and the time wasted in such arguments would be much better employed by careful physical, chemic, microscopic and physiologic investigation of the waters, atmosphere and soil and of the minute flora and fauna of those regions and places in which the disease is endemic and epidemic.

2. The symptoms manifested during the exhibition of the first disturbances in the nervous and circulatory systems are characterized by chilly sensations, and changes of temperature, and severe pains in the head and loins, restlessness, mental depression and anorexia. The symptoms of this stage, which may be called that of chill or primary depression, are not uniform; in some cases, and even in those of the greatest violence, chill and chilly sensations are entirely absent; in others, the chill amounts only to a sensation of coldness, sometimes slight; at others, deep, penetrating and stupefying, or alternating with flushes of heat and crawling sensations; while in others, the febrile excitement is preceded by chills of

greater or less severity and duration, with a constriction or contraction of the extreme peripheral vessels and a shriveled appearance of the skin; in some cases again, the disease is ushered in by giddiness bearing some analogy to that produced by inebriating liquors; and in others it has been known to have commenced with convulsions.

The presence or absence of chills and chilly sensations can not, therefore, be regarded as characteristic of yellow fever; and the chills, when most strongly marked, appear to differ materially from the chill of paroxysmal malarial fever, in that there is an absence of uniformity in the phenomena, and that the chill or cold stage of yellow fever partakes rather of the aberrated nervous actions and sensations, referable to the action of the causes producing the intense pain in the head and loins, than that marked depression of the temperature of the periphery and elevation of the temperature of the internal organs, even to the degree of 107 degrees F., which I have shown by careful observation to be characteristic of the true malarial paroxysmal chill.

The chill and chilly sensations of the early stages of yellow fever, appear rather to be related to the same manifestations of aberrated nervous action in the early stages of various acute diseases, as pneumonia, pleuritis and smallpox. As these symptoms are often absent in yellow fever, as they occur in the earlier stages, and as they are in most cases of short duration, it is not often that the physician has the opportunity of investigating the phenomena by means of the thermometer and sphygmograph, and by the careful collection and analysis of the urine during this period.

3. The symptoms of the stage of reaction, or active febrile excitement following the chill and chilly sensations, or arising as it were spontaneously, with but few premonitory symptoms beyond uneasiness and pain in the head, loins, and limbs, and general prostration and languor, characterized by rapid elevation of temperature, which is maintained with slight morning and evening oscillations, and with a progressive descent to the normal standard, for periods varying in different cases, from one to six days. During this stage of active febrile excitement, profound changes are induced by the yellow fever poison, by the products to which it gives rise in the blood and organs. The maximum elevation of temperature is rapidly attained, and may range during the first days of the disease, according to its severity, from 102 degrees F. to 110 degrees F. in the axilla, and it is probable that the internal organs attain a still higher temperature. As a general rule, from the third to the fifth day, the temperature steadily falls and sinks to the normal standard and even below; in some fatal cases it rises again toward the end, rarely, however, reaching or exceeding 104 degrees F., and never attaining the high degree of temperature characteristic of the stage of active febrile excitement.

The supervention of an inflammatory disease or the occurrence of an abscess will, in like manner, cause a progressive elevation of temperature, with slight evening exacerbations; but as a general rule, the secondary elevation of temperature thus caused never attains the maximum of the stage of active febrile excitement.

¹ Observations on some of the Physical, Chemical, Physiological and Pathological Phenomena of Malarial Fever, Transactions AMERICAN MEDICAL ASSOCIATION, 1859.

When malarial paroxysmal fever is engrafted on yellow fever in its later stages, or during the period of convalescence, the temperature during this hot stage may even exceed the maximum of the hot stage of yellow fever, but will be characterized by sudden periodic depressions and elevations, recurring at definite intervals. The pulse, at the commencement of the attack, when the period of reaction or active chemic change has fairly set in, is often rapid (ranging from 100 to 140 per minute), strong, tense and full; in other cases it is rapid but feeble and compressible; the increase in the frequency of the pulse does not, however, as a general rule, continue to correspond with the elevation and oscillations of temperature; and in many cases, the remarkable phenomenon is witnessed of the pulse progressively decreasing in frequency, and even descending below the normal standard, while the temperature is maintained at an elevated degree; and in the examination and comparison of these discrepancies between the frequency and character of the pulse, and the oscillations of the temperature the observer is forced to the conclusion that during the hot stage, some poison or depressing agent is acting upon the heart, or upon the nerves which supply its muscular structures and regulate its actions, thus deranging the nutrition and molecular structure of the muscular fibers. On the other hand, the pulse frequently increases in rapidity, but diminishes in force near the fatal issue.

The occurrence of copious hemorrhages from the stomach and bowels may be attended with sudden depressions of temperature and increase in frequency, but diminution in force and fullness of the pulse.

The stage of febrile excitement is not of fixed duration, and may, in some cases of the gravest character, appear to be comparatively mild and unimportant, attracting so little attention, and the pains, wherever seated, may be so mild, and there may be such an absence of agitation and delirium, and the strength of the patient may be diminished to so slight a degree, that both patient and physician may be deceived and the patient may die without taking to his bed, *on foot*, as it were.

Case 1.—Louis² recounts the case of Dr. Mathias, who died after an illness of four or five days, and who experienced no other symptoms but some pains in the calves of the legs and a suppression of urine. He had no nausea; he did not vomit. His mind was clear through the whole course of the disease. He noticed the continuance of the suppression of urine; dictated three or four letters to a friend; begged him to write rapidly, so that he might sign his name, then devoted a little time to an affectionate intercourse with this friend, and soon after, unable to speak, he thanked his friend with a sign, and in a quarter of an hour he was dead.

Case 2.—In the month of October, 1870, a stout Irishman walked up from the gate of the Charity Hospital of New Orleans, and entered one of the wards on the third floor up stairs, presenting to the casual observer no special marks of disease beyond some congestion of the capillaries of the face and extremities, a dusky, livid hue, a slight increase of heat, and restlessness. A few hours after entering this ward, he vomited about one quart of black vomit, and died in convulsions twenty-four hours after his entrance into the ward. The black vomit ejected during life, as well as the portion which filled the stomach after death, presented the appearance and character of dark grumous blood, was of high specific gravity and alkaline reaction, contained both ammonia and urea, and also an immense number of altered, colored blood corpuscles. Careful microscopic examination with lenses of different powers, ranging from one-quarter to one-eighth of an inch, revealed no animalcules or vegetable

organisms (vibrions and fungi are frequently present in black vomit, but as far as my observations extend, they have nothing to do with its causation). The superior portions of the body of this patient, after death, presented a deep golden yellow color, while the dependent portions presented a purplish, mottled, ecchymosed and congested appearance; the heart was pale, yellow and flabby, and contained many oil globules, and the muscular structures or fibers presented an altered appearance under the microscope; the transverse striæ being less distinct, and the interior of the muscular fibrillæ, as well as the connective tissues, being loaded with oil globules. The kidneys were pale and of a yellow color, resembling that of the heart, and the excretory tubes were filled with albuminous and fibroid granular matter, excretory cells, and oil globules. The bladder contained no urine, there having been complete urinary suppression since the entrance of the patient into the hospital. The liver presented the usual yellow color and bloodless appearance of this organ in yellow fever, and the liver cells contained an abnormal amount of oil.

In these changes yellow fever resembles acute phosphorus poisoning.

The gall-bladder, as is usual in this disease, contained only a small quantity of yellow bile, not exceeding one hundred grains in amount; while in malarial fever, on the other hand, the gall-bladder, after death, is almost universally distended with dark, greenish-black bile of high specific gravity, and generally about one thousand grains in amount.

In some cases of yellow fever which I have observed in New Orleans, the symptoms have rapidly changed from active excitement to utter prostration, and the patients have been speedily destroyed by hemorrhage from the bowels, without any vomiting of the altered blood and gastric secretions which constitute black vomit. I have also observed cases, in which hemorrhage of black blood had taken place in the gall-bladder. In such cases the gall-bladder has been distended with a dark grumous liquid, which upon microscopic and chemic examination proved to be defibrinated blood, without any admixture of bile.

As far as my observations extend, *suppression of urine* is a universally fatal symptom, and is the prime cause, not only of the copious hemorrhages from the stomach and bowels, but also of various alterations of the blood and nervous disturbances, and of the sudden and apparently inexplicable deaths.

Suppression of urine in yellow fever is attended with the accumulation of the constituents usually eliminated by the kidneys, as urea in the blood, brain, liver and heart and muscular organs, as I have demonstrated by numerous analyses. Bile also accumulates in such cases. The presence of the coloring matter of the bile in large amounts in the circulatory fluid may be demonstrated by a simple experiment; thus, if a drop of blood be dropped upon a piece of filtering paper, a brilliant red central spot will mark the presence of the colored blood corpuscles, and this will be surrounded by a bright golden border or ring, due to the absorption of the serum deeply tinged with bile.

The peculiar indifference and even intoxication which mark the cases of suppression of urine are referable chiefly to the retention of the constituents of the urine and the bile.

The changes of the blood in such cases of yellow fever are characterized chiefly by great diminution of the fibrin, which, in some cases, I have found to be not one hundredth of the usual amount; and by the abnormal amounts of urea and ammonia and of the sulphates, phosphates and extractive matters.

I have found the stomach and intestines so charged with ammonia, even when examined within three

² Documents Recueillis par MM. Chervin, Louis et Trouseau, Membres de la Commission Médicale Française envoyée à Gibraltar pour observer l'épidémie de 1828, et par M. le Dr. Barry. Two Vols. Paris, 1830. *Researches on the Yellow Fever of Gibraltar*, by Dr. Ch. A. Jones.

hours after death, that a rod dipped in hydrochloric acid, held over the mucous membrane of the stomach and intestines, gave forth dense white fumes (chlorid of ammonium).

It is without doubt, true, that the poison of yellow fever acts as a direct irritant or poisonous agent upon the mucous membrane of the stomach, not only by deranging its nervous supply and capillary circulation, but also by directly altering the nutrition and secretion of its active cellular elements; but at the same time it is also true that the poison acts equally, if not to a more marked degree, upon the liver and kidneys, thus causing in many cases complete suppression of the function of both organs, and the consequent contamination of the blood with bile, urea and extractive matters and ammonia.

The excrementitious matters thus retained in the blood not only exert a depressing action upon the nervous and circulatory systems, and change the important nutritive actions of the colored blood corpuscles, but the urea, eliminated as such, and as carbonate of ammonia by the gastro-intestinal mucous membrane, alters the constitution of the intestinal and gastric juices, and directly the mucous membrane of the stomach and bowels.

Analogous cases to those just described are witnessed in the action of certain violent poisons, which act alike upon the nervous system and the blood.

It is but just for us to view such cases as a febrile action of an infectious character, deriving its peculiar characters and malignity, from the nature of the cause, which produces such profound disturbances in the nervous system, blood and organs that only a feeble and powerless reaction is possible under the action of so violent a poison.

The action of the poison of yellow fever, during the stage of active febrile excitement, is manifested not only by the intense pain in the head and back, and by the florid congestion of the capillaries of the eyes and skin, and by the loss of appetite and nausea, and by the elevation in the temperature and increase in the frequency of the pulse, but also by the appearance of albumen in the urine, which is rarely absent, and may make its appearance upon the first day of the febrile excitement.

While it is true that the excretory cells and casts of the urinary tubes appear simultaneously with the albumen in the urine, I have also shown by careful analyses of the urine, that the presence of this constituent of the blood in the urine, is not to be referred wholly to acute desquamation of the excretory cells and tubes of the kidney, nor to mere capillary congestion similar in all respects to that in other organs, but equally to the chemic change effected by the poison of yellow fever upon the albumen of the blood.

I have shown by continuous observation and analysis, during different stages of the disease, that the albumen appears in large amounts in cases where there is apparently no failure in the excretory action of the kidneys, and in which the urine was abundant and loaded with urea and other constituents of the urine, and also with bile. While the presence of the blood corpuscles and coloring matters of the blood may be determined by chemic and microscopic investigation of the urine in some cases of yellow fever, at the same time the presence of these constituents of the blood are not uniform and characteristic, as in the cases of that form of severe malarial fever,

which, in our Southern States, is now known as malarial hematuria.

In this latter disease the casts and excretory cells of the kidney tubes may be present in considerable numbers, but only that amount of albumen is present which would correspond to the colored blood corpuscles and coloring matters of the blood escaping at the same time.

In yellow fever, on the other hand, even when blood appears in the urine, the albumen is vastly more abundant than the colored blood corpuscles.

The congestion, so marked upon the mucous membrane of the eyes, and upon the breasts and arms, in some cases, a "subcutaneous rash," extends also to the internal organs, and is best observed in the injected nares, crimson lips, scarlet tip and edges of the tongue, and brilliant congested fauces. The fact that the examination of the congested throat causes nausea and retching, when the tongue is pressed down by the finger or spatula, is of importance as a diagnostic sign; and Blair affirmed that when marked congestion is not observed in the eyes and nares and throat in yellow fever, it will be observed by means of the speculum, in the mucous membrane of the anus and vagina. This intense capillary congestion not only characterizes the mucous membrane of the stomach in yellow fever, but it is even manifested in the pericardium after death.

4. The symptoms manifested during the stage of depression and exhaustion, in which the depressing effects of the preceding changes of the blood and organs induced by the action of the febrile poison and its products are manifold. In cases which terminated favorably, the deleterious substances generated during the stage of febrile excitement are gradually eliminated, and the blood purified and relieved of the altered albuminoid and fibrinous elements, and the organs especially affected by the poison, as the heart, liver and kidneys resume their healthy action.

In cases which terminate fatally, in this stage, the issue appears to be determined mainly by the profound alterations of the blood, the failure of the heart, from acute fatty degeneration, and suppression of the action of the liver and kidneys, and the consequent retention in the blood of urea and bile, the poisonous action of the constituents of the urine and bile upon the blood, and nervous and muscular systems and gastro-intestinal mucous membrane.

There appears to be no just ground for the division of the fourth stage, in accordance with the presence or absence of hemorrhage, jaundice, uremic poisoning and convulsions, for these are simply aggravations of the preceding symptoms, and must be regarded as the maximum phenomena of this stage. Neither is this stage to be regarded as similar to, or identical with the intermission or remission of malarial fever, and as an abortive attempt at the repetition of the febrile stage, in which the disease ends or aborts from adynamic incompetency to carry out the phenomena.

These stages are not of uniform duration, and there may be marked diversity in the manifestations of the symptoms in individual cases, some cases presenting, apparently, but the one stage of febrile excitement, while others, overwhelmed as it were by the poison at once, manifest only the symptoms of blood poisoning, arrest of the action of the heart and nervous system and hopeless prostration.

In mild cases, especially in children, the disease may be so slight as scarcely to attract attention, and convalescence may be established in two or three days; in many cases the stage of febrile excitement continues from two to six days, rarely extending beyond three or four days, and the patient may pass almost imperceptibly into convalescence during the stage of depression; in the severest cases the patient may be carried off in two or three days and die with an elevated temperature; while in other severe cases, which end fatally either from hemorrhage from the stomach and bowels, or from urinary suppression, or from both causes, or from general prostration of the system, derangement of the blood and perverted nutrition characterized by a low adynamic fever, and abscess of the parotids, and the revival of old complaints, and the supervention of some other disease, as malarial fever, the fourth stage may be of long duration, extending over weeks and even months.

It is, however, true as a general rule, that convalescence from yellow fever is comparatively rapid, and in striking contrast with the slow and tedious convalescence of malarial fever. In some cases vomiting may be the preëminent symptom, in others, hemorrhage from the stomach and bowels, or from the gums, eyes, and ears, indicating great alteration of the blood, and especially of the fibrinous element; and in others, cerebral symptoms; but all these symptoms may be referred to certain definite results of the action of the poison of yellow fever.

Yellow fever, according to this view, partakes of the nature of a *continued pestilential fever*, presenting two well-defined stages: The first characterized by *active chemic change in the blood and organs*, attended with elevation of temperature, aberration of nervous phenomena, which may constitute the entire malady, and prove fatal in a manner similar to the infectious fever of smallpox; and the other, a *stage of depression induced both by the sedative action of the febrile poison and by the profound changes excited in the constitution of the blood, and in certain organs, as the heart, liver, and kidneys, and by the direct sedative and poisonous action of the excrementitious matters retained in the blood, in consequence of the failure of action in the liver and kidneys, and by the arrest and perversion of digestion in consequence of the direct action of the yellow fever poison, in causing perverted nervous action of capillary congestion and active desquamation of the secretory cells of the stomach, and in consequence of the elimination of certain constituents from the blood, as the urea and carbonate of ammonia.*

While the phenomena of yellow fever are well marked, and different from those of other diseases, at the same time the duration of the disease and the intensity of the symptoms will depend in each case upon the condition of the system at the time of the introduction of the poison, the various agencies to which the system is subjected during the progress of the disease, as the supply of pure air in comfortable, well-constructed and thoroughly ventilated rooms, or of impure air in filthy, damp and crowded habitations, and in filthy and crowded ships, the diet, medical treatment, climate (whether hot and dry or hot and moist, uniform or subject to great and sudden elevations and depressions of temperature, malarious or unmalarious); but the duration of the disease and the character and intensity of the symptoms will especially depend upon the extent to which the blood

and organs have been involved and altered by the changes excited by the poison.

The various manifestations, as the capillary congestion, depression of the action of the heart, delirium, coma, and convulsions, vomiting, hemorrhage, and urinary suppression, uremic poisoning and jaundice, with biliary poisoning, may all be referred to the action of the poison producing the disease, and should not be erected into distinct types of disease. And even in those sudden and appalling cases in which there is such a modification of symptoms between the stage of active febrile excitement and that of active depression as to produce a deceitful sense of security, in both the medical attendant and patient, in which period of apparent calm and convalescence the patient asks for food, proclaims himself entirely restored to health, and insists upon getting up and walking about, the sudden fatal issue which astounds the friends of the patient, as well as his medical attendant, has been silently but surely induced by the failure of the kidneys to eliminate the poisonous materials from the blood, and the fatal mischief may have been working for hours and days, unobserved and unrecorded by the medical attendant, who has neglected to examine carefully, at stated intervals, the amount and character of the urinary excretion, through which the deleterious products of the poison are mainly eliminated.

While it is true, that few cases of yellow fever resemble each other exactly, some cases being characterized throughout by symptoms of excitement, and others by prostration; in some cases the cerebral symptoms being most marked, in others hemorrhage from the stomach and bowels constituting such prominent symptoms as to give a distinctive feature to the disease; at the same time there appears to be no just ground for the division of the disease into such distinctive types as would lead to the supposition that the cause might differ in different cases, and that the phenomena might not all be referred to the action and results of a definite cause.

The action of the yellow fever poison is the same in all cases, whether mild or severe; the progress and termination of each case, as well as the manifestation of the various symptoms depending upon the extent of the action of the poison, the condition of the system at the time of its introduction, the peculiarities of the constitution, and the supervention of other diseases.

In a word, the action of the yellow fever poison is distinct, and the disease is characterized by definite manifestations, just as each species of plants and animals manifests distinctive laws of development and growth and physical organization, which may be the subject of investigation and accurate description; and while the laws may be modified in their manifestation by varied extraneous causes, the grand distinctive characters are maintained, and may be propagated from age to age.

Yellow fever is a self-limited disease; it runs a definite course and then ceases. When once fairly established in the human system, yellow fever can not be arrested by drugs. On the other hand, it is well established that paroxysmal malarial fever may be arrested and cured by bark and its active principle quinia. Yellow fever may be conducted to a successful issue by the attentive and careful physician, but it can not be arrested.

PERIOD OF INCUBATION OF YELLOW FEVER.

The period between the exposure to the "infected atmosphere" and the manifestation of yellow fever is not of fixed duration, but varies with different individuals; some systems resist for long periods the morbid agents, while, on the other hand, healthy individuals coming into an infected city have been attacked within thirty-six hours. A few hours' exposure to the atmosphere of the city in which yellow fever is endemic may be sufficient for the introduction of the poison into the system. This statement is sustained by the following observations:

Case 3.—A stout, healthy young gentleman, of florid complexion, sanguine temperament, and active habits, resided in a healthy locality in Liberty County, Georgia, thirty miles from Savannah. In the month of September, 1854, while the yellow fever was prevailing, he drove in his carriage into the city, and visited the house in which one of his near relatives had died a few days before with well-marked yellow fever accompanied with black vomit. Entering the city at midday, he remained about four hours (just long enough to secure some business papers relating to the estate of his deceased relative), and returned immediately into the country. In the course of one week this stout young man, in the full vigor of health, was seized with yellow fever, and died with black vomit after an illness of four days. After death, the body presented a deep yellow color, and the dependent portions were mottled from the unequal and excessive capillary congestion. The exposure of a few hours to the atmosphere of the city was in this case sufficient for the introduction of the poison. On the other hand, many individuals living in the infected cities, and holding daily intercourse with the sick, do not manifest symptoms of the disease until near the close of the epidemic; while others, equally exposed, pass through many epidemics without even manifesting a sufficient amount of febrile derangement to require medical treatment. This latter remark applies not only to the natives of southern cities, but also to residents of northern latitudes, who remove to those localities where yellow fever prevails after they have attained their full growth. The period of incubation appears to vary in different epidemics, and among different individuals during the same epidemic, and may extend from twenty-four hours to weeks and even months. In this respect yellow fever is allied to those diseases which are supposed to arise from malarial effluvia, and differs from those well-defined contagious diseases in which the period of latency is well-marked and of definite duration.

During the prosecution of my investigations in yellow fever, notwithstanding frequent contact with the sick and dead, and exposure to the exhalations from the bodies of yellow fever subjects and from the black vomit, excretions, and blood and organs subjected to chemic analysis, I have never experienced well-marked symptoms of this disease until the great epidemic of 1878; although at times, when most exposed to such exhalations, I have suffered with slight fever, loss of appetite, and nausea (these symptoms, however, were not of sufficient severity to cause the intermission of my labors); and such observations have led me to the belief that under certain circumstances the poison of yellow fever may pass through the system, producing slight derangement, without inducing the disease itself.

During the prosecution of similar investigations in smallpox, I have in like manner felt the depressing influence of the poison without manifesting well-marked symptoms of this disease; and upon one occasion, after exposure to the smallpox poison in the crowded tents of a Confederate military smallpox hospital, and after performing a protracted *post-mortem* upon the body of a Confederate soldier who had died with confluent smallpox, I suffered with fever, intense pain in the back and head, and injection of the capillaries of the skin. These symptoms

disappeared, however, at the end of three days. It was evident that the protective influence of the vaccine virus introduced into my arm twenty-five years before was sufficient to cause or allow the passage of the smallpox poison in large amount through the system, with only a partial and mild manifestation of some of the symptoms usual in those unprotected either by vaccination or by a previous attack of smallpox.

In the case of the yellow fever poison, there was no known state of the system artificially produced, as in the case of the smallpox poison, which would account for the elimination of the poison; although that such an elimination must have taken place was manifest from the peculiar train of symptoms attending prolonged exposure to the exhalations of the sick and dead.

Of the various students numbering over one hundred, and many of them fresh from the country, who have observed cases of yellow fever in my wards in the Charity Hospital and witnessed *post-mortem* examinations in the dead house, and chemic and microscopic investigations in my laboratory during the autumnal months of 1870, 1871, 1872, 1873, 1874 and 1875 in New Orleans, only two were attacked with yellow fever. In none of the years specified did yellow fever prevail as an epidemic in the section of the city in which the Charity Hospital is situated. In only a few instances in 1873, did the disease originate among the patients in the wards, who had not been exposed to the infected localities in the city.

There are many persons in the city of New Orleans, who have nursed hundreds of yellow fever patients, stood over them, rubbed and bathed them, inhaled the atmosphere of sick rooms for months, and even washed and shrouded the dead, without ever having a day's sickness. The late Mr. Maybin, a native of Philadelphia, who was distinguished for his devotion to the poor, sick and suffering, informed me that he had passed through all the great epidemics of New Orleans, for a period of over fifty years, including the great epidemics of 1839, 1843, 1844, 1848, 1853, 1854, 1855, 1859, and 1867, without having even a symptom of the disease.

In 1853, many nurses in the Charity Hospital, when two hundred or more died per week, escaped the fever. In the same year, Mr. Logez, one of the carpenters in the Charity Hospital, worked hard all summer, within a few feet of the dead-house where fifteen or twenty bodies were often lying at once awaiting burial, and emitting a nauseating stench, and did not take the disease. Six other carpenters who assisted him took the disease and died. Some of them made the very coffins in which they were buried. The physicians of the Charity Hospital who made careful and thorough *post-mortem* examinations of the bodies in the months of July and August, when the epidemic was at its height, and the bodies in a state of rapid decomposition and offensive, escaped infection or contagion. Over two thousand deaths from yellow fever occurred in the Charity Hospital during the fatal epidemic of 1853. (History of Yellow Fever in New Orleans, 1853, p. 38.)

In *La Republica* of Buenos Ayres, a statement occurs that during the epidemic of 1871 when, according to this paper 17,084 deaths occurred, 350 grave-diggers escaped the fever. The cemeteries are situated on the outskirts of the population. Coffins were exposed for many hours before being interred, from

the press of work. (*Medical Times and Gazette*, August 19, 1871, p. 216.)

According to Dr. Daniel Blair, of British Guiana, in some cases the patients had arrived in this colony and in two weeks died of yellow fever, having been attacked within the first twenty-four hours after arrival. Dr. Blair records the following illustrations:

Miss R. left this colony with her mother and sister in one of Booker Brothers' ships, having been exposed to river influence only the one night previous to departure. All were in good health on embarkation. After being at sea fourteen days they all sickened; Miss R., who had been far advanced in phthisis, died of yellow fever.

Mr. Bramisch had been exposed to the malarial locality of Water Street, at Walmsley and Bowes on Friday. He left town the same day, and sickened with yellow fever on Sunday.

Dr. Reid's exposure and interval between exposure and attack was the same.

Mr. Bolton, of the *Rapid*, was only one night in the malarial district, and within twenty-four hours after proceeding to Sand Hills, was seized with the epidemic.

Thus it would appear that the period of incubation varies, and that some systems can for a longer period throw off the morbid agency; while with others, exposure the most casual and temporary produces immediate effects. A case occurred in the Seamans Hospital, wherein the period of incubation seemed extended to four months being kept latent probably by the phthisis under which the patient was suffering.

Patients previously suffering from intermittent fever, dropsy, iodism (coryza from iodid of potassium), and ptialism have had the epidemic disease engrafted thereon; peritonitis and pneumonia failed to exclude the invasion, and the most inveterate lichen tropicus. It has added itself to delirium tremens and lead colic; it has supervened during the flow of the catamenia. Patients under treatment for anemia, and intermittent fever, sarcocele, scald, diabetes and flesh wounds, fractures, rheumatism, erysipelas, ophthalmia, syphilis, strictures, ulcers, eczema, mosquito wounds, whooping cough, and phthisis, have been attacked and often fatally by yellow fever.

When yellow fever became a parasitic disease, the symptoms were considerably modified at first, but the epidemic disease ultimately absorbed all the other symptoms.

In the epidemics observed by Dr. Blair in British Guiana, the invasion sometimes began with malaria of several days duration. Sometimes this formative stage showed itself in diarrhea; in a few cases it began with apoplectic or paralytic symptoms. Sometimes if the treatment was early adopted, or the patient was suffering from another malady, reverberations, repulse and relapse were observed in the first stage, thus abnormally extending its period. About one-half of the normal cases were so sudden and phenomenal in the seizure, that the exact hour of the attack could be precisely ascertained. The hours of 6 A.M. and 6 P.M. when, in the latitude of Georgetown the most violent atmospheric disturbances of the day occur, were most favorable to the seizure.

The average duration of an attack of the epidemics of British Guiana, ending in convalescence, estimated from 1,158 cases of the *graver* form, and 428 cases of the *milder* form, was 6.34 days for the former and 5.35 for the latter. The average duration of a fatal attack, estimated from 404 cases, was 7.08 days. In these estimates, the day of attack and the day of death, or of convalescence, are reckoned each one

day. Although the maximum and minimum days of duration differed widely from this average, those of the *graver* being 23 and 2, and of the *milder* 13 and 2, and those of the 2,472, yet the vast majority of cases fall in closely with the averages. This coincidence happened always more particularly when the disease was persistent, and the epidemic pulsations most intense. The average, therefore may be assumed as the law of duration, of each class respectively.

According to Dr. Blair, intemperance was occasionally a predisposing cause, by recklessness of exposure; but abstinence, as shown on board the American "teetotal" ships, was no protection. It seemed at the time as if those resident in the infected districts circulated the poison habitually through their systems; that old residents had in an eminent degree the power of eliminating it, and keeping its presence latent—had a tolerance of it; but that newcomers, and particularly those of florid complexions and rigid fiber, were constantly, in reference to the presence of the virus, in a state of tottering equilibrium; so that in them the slightest unfavorable impulse to that balance—the lowering of the vital powers by fatigue, the suppression of any of the preparatory secretions, a shock to either of the nervous centers, or the depressing emotions—were sufficient to excite the latent poisons. (Some Account of the Late Yellow Fever Epidemic of British Guiana, Third Edition, 1852, pp. 60, 61, 69, 70, 72, 74.)

According to Alexander Humboldt, the farm of l'Encero, near Vera Cruz, elevated 3,043 feet above the level of the ocean, is the superior limit of the *vomito*. The Mexican oaks descend no farther than that place, being unable to vegetate in a heat sufficient to develop the germ of yellow fever. Individuals born and brought up at Vera Cruz are not subject to this disease; and it is the same with the inhabitants of Havana, who do not quit their country; but merchants born in the island of Cuba, or who have inhabited it for a great number of years are attacked with the *vomito pireto* when their affairs oblige them to visit this part of Vera Cruz during the months of August and September, when the epidemic is at its height. In the same manner, Spanish Mexicans, natives of Vera Cruz, have been seen to fall victims to the *vomito* at Havana, Jamaica or the United States.

The *vomito* is not regarded as contagious at Vera Cruz. In most countries, the common people consider many diseases as contagious which are of a very different character; but popular opinion in Mexico has never interdicted the stranger not seasoned to the climate from approaching the beds of those attacked by the *vomito*.

The whites and mestizoes who inhabit the interior tableland of Mexico, of which the mean temperature is 60.8 degrees and 62.6 degrees F., and where the thermometer sometimes falls below the freezing point are more liable to contract the *vomito* when they descend from l'Encero to the Plan del Rio, and from there to la Antigua and the port of Vera Cruz, than the Europeans or inhabitants of the United States who come by sea; the latter passing by degrees into the southern latitudes are gradually prepared for the great heats which they experience on landing; but the Spanish Mexicans, on the other hand, change suddenly their climate when in the space of a few hours they are transported from the temperate region to the torrid zone. The mortality is very great, especially

among two classes of men very different in their habits and modes of living; the muleteers (*arrieros*) who are exposed to extraordinary fatigues in descending with their beasts of burden, by tortuous roads like those of St. Gothard, and the recruits destined to complete the garrison of Vera Cruz. Every imaginable care has been bestowed on these unfortunate young men, born on the Mexican tableland at Guanajuato, Toluca, or Pueblo, for the purpose of preserving them from the deleterious miasmata of the coast, but without success; they have been left for several weeks at Xalapa, to season them gradually to a higher temperature; they have descended on horseback, or by night to Vera Cruz, that they might not be exposed to the sun in crossing the arid plains of Antigua; they have been lodged at Vera Cruz in well-aired apartments; but it has never yet been observed that they were attacked with the yellow fever with less rapidity and violence than the soldiers for whom these precautions had not been taken.

In the season when the *vomito* rages with great violence the shortest stay at Vera Cruz, or in the atmosphere which surrounds the city, is sufficient to communicate the disease to persons not seasoned to the climate.

The inhabitants of the City of Mexico when they propose to sail for Europe, dreading the insalubrity of the coast, generally remain at Xalapa till the moment of the departure of their vessel. They set out on their journey in the cool of the night or cross Vera Cruz in a litter, to embark in the boat which awaits them at the Mole; and yet these precautions are sometimes useless, and it happens that these very persons are the only passengers who sink under the *vomito*, during the first days of the passage. It might be admitted that in this case, the disease has been contracted on board the vessel, which remained in the port of Vera Cruz, and which contained deleterious miasmata; but the celerity of the infection is more incontestably proved, by the frequent examples of the better class of Europeans, dead of the *vomito* though on arriving at the Mole, they may have found litters ready to begin the journey to Perote.

Such facts may be held by some to sustain the doctrine that yellow fever is contagious, under all the zones; while those who hold that it is not communicable by immediate contact with the sick and dead, admit that the atmosphere of Vera Cruz contains putrid emanations, which if breathed for the shortest space of time, introduce disorder into all the vital functions.

The most part of the Europeans newly landed feel during their stay at Vera Cruz the first symptoms of the *vomito*, which is announced by a pain in the lumbar regions, by the yellow covering of the conjunctiva, and by signs of congestion toward the head. In some individuals it only declares itself when they arrive at Xalapa, or in the mountains of La Pileta, in the region of pines and oaks, at from 5,248 to 5,904 feet above the level of the ocean. Those who have long resided at Xalapa, deem themselves able to foretell from the features of the travelers who ascend from the coast to the tableland of the interior, whether without their being sensible of it themselves, they contain within them the germ of the disease. Dejection and fever increase the predisposition of the organs to receive the impression of the miasmata; and these same causes render the commencement of the yellow fever more violent

when the patient is imprudently informed of the danger of his situation. In illustration of the preceding statement, Alexander Humboldt cites the following interesting instance:

A person with whom he was on terms of intimate friendship, during his stay at Mexico, had passed only a very short time at Vera Cruz, on his first voyage from Europe to America. He arrived at Xalapa without feeling any sensation indicative of the dangerous state in which he was immediately to be. "You will have the *vomito* this evening," said an Indian barber, gravely to him while he lathered his face; "the soap dries as fast as I put it on; that is a never-failing sign, and for the twenty years that I have been in the practice of shaving the *chapetons*, who pass through this town on their way to Mexico, out of every five, three have died." This sentence of death made a strong impression on the traveler. It was in vain to represent to the Indian that his calculation was exaggerated, and that a great heat of the skin does not prove this infection; the barber persisted in his prognostic, and in reality the disease declared itself a few hours afterward, and the traveler already on his way to Perote, was obliged to be transported to Xalapa, where he nearly fell a victim to the violence of the *vomito*. (Political Essay on the Kingdom of New Spain, London, 1811, Vol. IV, pp. 170-178.)

In regard to the epidemic of Gibraltar in 1804, Sir W. Pym³ states that the *fourth* day was generally the time the contagion seemed to require to show itself; and several instances occurred of strangers who were attacked on the second and third day after their landing at Gibraltar. From the fact that persons were seized on the first day of their landing at Gibraltar, while persons who fled from the garrison were taken ill on the coast of Portugal many days after, induced Mr. Amiel to believe that the disease may be excited into action at any time from the first moment of exposure to a period of fifteen or twenty days. The following statement by Wm. Fergusson, in his "Notes and Recollections," would even show that the disease may be developed in less than twenty-four hours after exposure to the infected atmosphere. At Mark's Hill, "it was the duty of the white troops in both forts to take the guard and duties of the dock yards among the marshes below; and so pestiferous was the atmosphere, that it often occurred to a well seasoned soldier mounting the night-guard in perfect health, to be seized with furious delirium while standing sentry, and when carried back to his barracks on Mark's Hill, to expire in all the horrors of the black vomit, within less than thirty-six hours of the first attack."

Drs. Pausit, Bally, and Francois regarded the period of incubation at Barcelona in 1821, as not exceeding twenty-four hours, or three days at the most; Aujula from twenty-four to thirty-six hours, sometimes from two to seven days, and even as late as from thirty to fifty days.⁴ According to Dr. Harrison, persons who arrived in New Orleans during an epidemic, from the healthiest region, even by the ocean, are subject to attack on the third to the sixth day after their arrival; and Dr. Merrill⁵ states that at the Bay St. Louis in 1820, several persons who arrived while the disease was at its height were attacked in twenty-four hours.

The authority of various other observers, as Lind,

³ Observations on the bular fever which has of late prevailed in the West Indies, on the coast of North America. Gibraltar, Cadiz and other parts of Spain, etc. S. tr., London, 1815, p. 24.

⁴ Pausit.—Observations Sur la Fièvre Jaune fales à Cadiz en 1819, etc. New Orleans Medical and Surgical Journal, March, 1847, p. 569.

⁵ Yellow Fever, by R. La Roche-Mer, Vol. I, p. 510.
Dr. D. O. Saunders, of Memphis, placed the incubation period of the fever of 1873, between twenty-four hours and sixteen days, having seen one case where a gentleman who had been absent all summer was attacked in twenty-four hours after his return, and another who was away from the city was attacked in sixteen days after leaving New Orleans. 1874, p. 800.

John Hunter, R. Jackson, Wallace, Riseuno, Moreau de Jennès, Rush, Townsend, Chisholm, Bryson, might be adduced to sustain the proposition already sufficiently illustrated by the authorities quoted, that the period of incubation of yellow fever is of variable duration. From the preceding facts, the following conclusions may be drawn:

1. Yellow fever differs from such contagious diseases as smallpox, measles and scarlet fever, in the variable duration of the period of incubation.

2. The sudden seizure of many cases after a few hours exposure to the infected atmosphere, indicates the existence in the air of a potent and specific poison, which is most probably introduced through the lungs into the blood.

3. The phenomena of yellow fever in those suddenly exposed to the atmosphere of an infected locality can not be referred to any physical changes of the temperature and electrical condition of the surrounding atmosphere, but must be referred to the action of a specific poison.

4. The propagation of yellow fever from the infected atmosphere of an infected vessel in a healthy city; the communication of the yellow fever from person to person; the spread of the disease from an infected point in a city, however large, over extended areas of said city; and the sudden cessation of epidemics of yellow fever by cold sufficient to produce frost and ice. These and similar facts indicate that the poison of yellow fever is a living germ of animal or vegetable nature or origin.

(To be continued.)

CRANIOPLASTIC OPERATIONS.

Thesis: For admission to Chicago Academy of Medicine.

BY CARL BECK, M.D.

CHICAGO.

The purpose of plastic operations is to remedy defects. Cranioplastic operations have, therefore, to remedy defects of the cranium. The cranium is a bony structure, and operations on such are therefore bone-plastic operations and share more or less of the characteristics, difficulties and the fate of such.

Bone-plastic has been studied attentively of late, but osteoplastic on the cranium has not been the subject of very critical research.

Defects of the cranium can be either congenital or acquired. Teratology and pathology enumerate a large number of instances of such congenital defects. From the monster called anencephalus, hemicephalus, down to porencephalus, through all gradations we have mal-development of the cranium, but these extremely high degrees of defects will not easily be the subjects of a plastic. The individuals thus born are doomed to die early, or they are idiots and not worthy of remedy—for such a creature it is better to be dead than alive. But there are defects of the cranium which allow a normal development of the brain. Such are small defects in the bony part, as present in meningo- or encephalocele—small openings in the skull. Such defects are especially concerned in plastic.

A much larger group than the congenital is the acquired. They can be acquired by trauma or disease. This trauma can either be caused by accident or purpose, and the latter furnishes, with the growing number of surgical operations on the skull and brain, the largest amount of defects. Various dis-

eases may destroy the cranium, and not only the size of the defect in a particular case, but the peculiarity of the disease must be taken into consideration.

After thus reviewing the possibilities of defects from the etiologic standpoint, we will divide the defects into:

1. Congenital.
2. Accidental trauma.
3. Surgical.
4. Morbid.

(a) Tubercular.

(b) Syphilitic.

(c) Cancerous or sarcomatous.

I—CONGENITAL DEFECTS.

Osteoplastic operations, would be considered when a small defect allows the development of a hernia cerebri, meningocele, or encephalocele. A defect of this kind might be situated on any place on the cranium; might be quite large; inaccessible; might be very irregular or small, and almost like an opening made by a trephine. Fig. A, which shows such a defect of the skull, is drawn after a specimen of the Musée Dupuytren. The localities where they are most common are the root of the nose, the external and internal angle of the eye, the orbital, nasal and buccal cavities. Furthermore, between the sutures of the cranium. These defects, if not attacked by the surgeon, will never be covered with bone and they form, therefore, one indication for plastic.

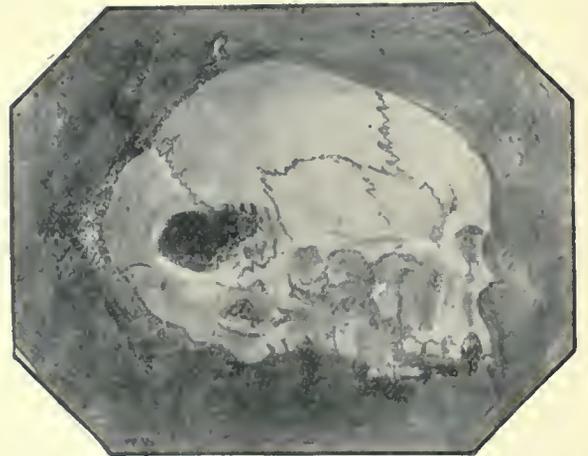


FIG. A.—Defect in skull from encephalocele. (Musée Dupuytren.) Duplay-Réclus. Tr. de Chirurgie.

II—ACCIDENTAL.

All accidents by which complicated comminutive fractures of the skull occur, whereby a part of the bony structure of the skull is lost or is broken out of the continuity, give rise to such a defect. It is not very common that they heal over without being attacked in some way or other by the surgeon; that is, usually, the surgeon removes loose particles, evens edges and corners so as to make the bony wound smooth, so that they would have to be grouped under the third head.

III—SURGICAL.

Defects produced by the surgeon are such as mentioned above. They are very common. All procedures on the skull, whereby parts have been removed, will have, if plastic is not done, a defect. Every opening of the integral cranium for the purpose of dura- or brain-operations or ligature of vessels, if not repaired by plastic leaves a defect.

IV—MORBID.

Tubercular defects are not very common and not

likely to become the subject of a surgical operation. Syphilitic and cancerous defects might be the subjects of quite an extensive plastic.

We now come to the physiology of the parts concerned. The cranium is a bony structure, very much depending on its periosteum. It is not like all bones, having a periosteal covering not only on its outer side, but also on its inner side, for the dura mater certainly acts as a periosteum. We have many proofs of such action. (*Ollier Traité, Exp. et Clin. de la Regeneration des os, etc., Vol. I, page 80,*) says: "The dura mater is a membrane about which the authors have not agreed. Some want to give it the same quality as the periosteum proper, making an internal periosteum of the cranium of it. Others regard it as having no part in the ossification. The study of its development shows, however, that it is united with the bones of the cranium in a very intimate way during the embryonic stage. Furthermore, it is even the seat of pathologic ossifications. In order to decide this question, we proceeded with this membrane in the same way as with the periosteum and have transplanted the same. On young rabbits, we have removed a part of the dura mater of the convexity immediately after death, and we have transplanted this under the skin of the hip. We have obtained bony tissue, mostly in little disseminated granules, sometimes in a mass of the size of a kernel of corn.

This one experimental fact, and another one which I will mention in the report of my cases (Case Chen-sik), and furthermore, the fact that we find hyperostosis of the dura mater during pregnancy, the so-called hyperostosis or osteophytæ gravidarum, prove it to evidence that the dura mater is nothing but a periosteum. From this fact we draw the conclusion that in doing osteoplastic operations on the cranium we have no difference from other osteoplastic operations, but the fact that it is a combination of a very brittle internal bone-plate, tabula vitrea—and a very hard, somewhat elastic external plate with great individual differences and varieties in circulation, thickness and form, give to this bone an exceptional position.

The question whether we can transfer the results of our experimental work on animals directly to the human, is a very important one. It is a well-known fact that a dog will stand almost any operation on the intestine and survive, while in the human being it shows a different refraction. And so it is with the experiment on the cranium and brain. The cranium of the human especially, is so different from that of other animals, that our experiments, as to technique and peculiarities of healing, can not be immediately transferred nor compared to the human. Some plastic operations (autoplastic) especially, will be much easier on the human than on the animal, while others (heteroplastic) will be just the reverse. It is, therefore, hard to decide about the value of some devices and methods which have been used in experiments on dogs, and not yet been employed on patients.

THE METHODS OF PLASTIC.

Plastic has different methods. The ideal of all plastic is to make it as much as is possible, similar to nature, as we are never able to make it equal to nature, even with our best skill and will. To replace a defect or bone by bone again, of similar size and shape, will therefore be the ideal. This may be accomplished in different ways. Either the bone that

has been removed may be replaced right away, with the smallest possible loss of substance, or bone from the same individual, from different parts of his body, may be taken to cover the loss. This procedure is called autoplastic. All the rest of the procedures can be comprised under the name of heteroplastic, and the value of a differentiation between the material—whether from a living subject or whether a dead body—seems to me of little importance, inasmuch as it comes more and more to light that even the transplanted portions from living bodies are not dealt with differently by nature than dead bodies, in the healing process, inasmuch as they all are encysted. It is then only a question, which of those bodies is preferable, and the one that is encysted the quickest and, after encysted, fulfills the purpose of protection the best, is best for transplantation.

We will now go more into the details of these methods.

A—AUTOPLASTY.

1. *Temporary Resection.*—This would be the simplest method of covering a defect, but it is only applicable where we produce the defect temporarily; therefore, in operations for processes in the dura, the vessels, or the brain, where the cranium is healthy. There

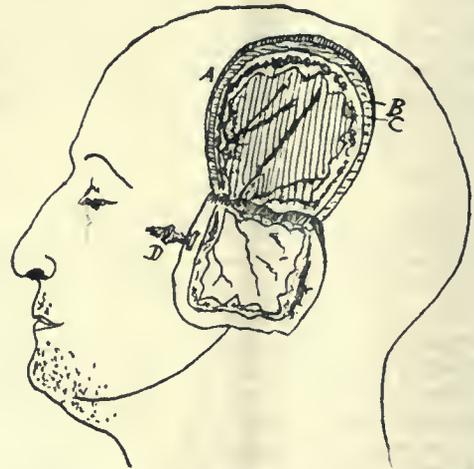


FIG. B.—Temporary resection (Wagner, 1889). A. Incision of the soft parts. B. Space between bony and soft parts. C. Section of bone with both plates. (Chipault.) D. Franck's forceps.

are different methods of temporary resection. One of the first was Wagner's method of skin periosteum bone-flap, in the form of a door of oval shape, with the hinge. It was produced by chisel and mallet.

Usually by this procedure with chisel and mallet (Fig. B.) a great deal of substance of bone is lost, so that the space between the flap and integral bone is left to be filled by cicatrix or a newly formed bone. Modifications of this method are by Müller, Lowenstein, Poirier, Salzer, Bruns, Toison and Chipault. The accompanying figures (Fig C, c, c₂) explain the more important modifications. Of all the methods that have been described, Chipault's seems to be the most appropriate, inasmuch as it does away with one disadvantage—the lack of apposition of flap and integral bone. Without knowledge of Chipault's method, I have used in a special case, a similar procedure for opening of the skull in the case of a brain tumor but I found that the flap, even then, has been moved so violently by the increased pulsation of the dura that it interfered with the healing, and though the periosteum had been very carefully sutured, two weeks after the operation the flap was

as loose as if it had not been in contact with the bone at all. In order to prevent this, I have studied this question and would suggest a modification of the temporary resection, which I will describe in detail as follows (*vide Centralbl. f. Chir.*, 94, No. 44):

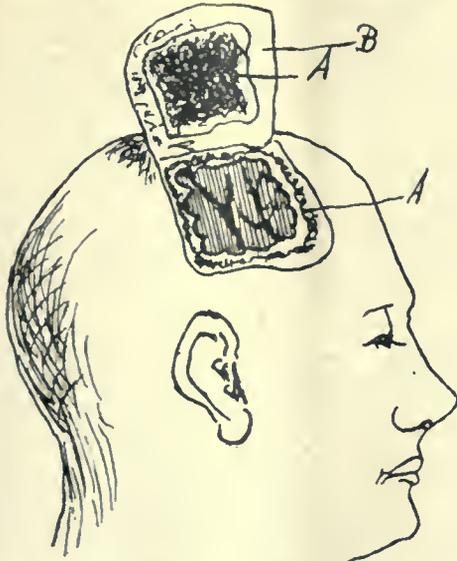


FIG. C.—Temporary resection. (Müller.) A flap with tabula vit. and diploe. B. Soft tissues. The remaining inner table being removed with rougeur.

A more or less rectangular incision with a pedicle in the direction of the larger vessels, is made into the skin and periosteum. The bone is then chiseled in the direction towards the outside, obliquely, through the thickness of the cranium, in the same manner as it is done for Müller-Koönig's osteoplastic, in three directions until the diploë is reached. The edges of the bone, which have been chiseled, are tilted up in

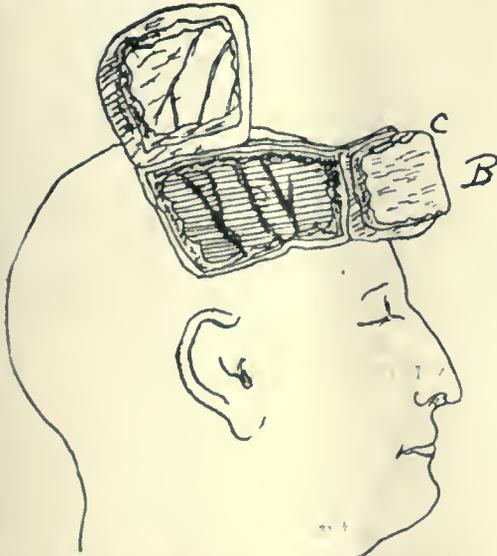


FIG. C 1.—Temporary resection. (Brammaun.) Double flap to enlarge the opening. Flap B must be replaced first on account of its oblique inner border c. (Chipault.)

the manner shown by the accompanying drawing. (Fig. D, D.) In the corners it must be split diagonally a little. When the diploë is reached, a small opening is made by the chisel and hammer down to the dura, and with a narrow gouge a furrow cut out all around, so that the flap is now movable from three sides. This maneuver, complicated as it may appear, is quickly accomplished, if done with some skill. The fourth side of the flap can be simply broken, if

the skull is not very thick, or a chain saw or fret saw may be introduced and the bone sawed through. This procedure has several advantages:

1. It prevents pulsation of the flap.
2. There is, as the transverse cut shows, hardly any

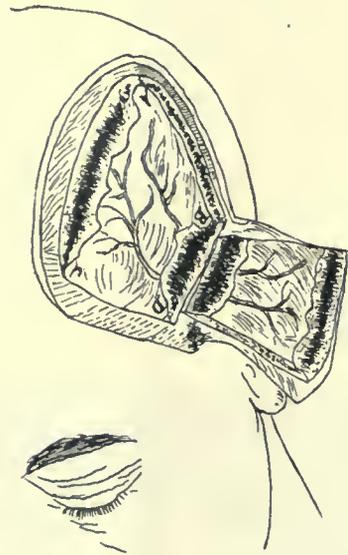


FIG. C 2.—Temporary resection. (Chipault.) On both sides of the replaced osteoplastic flap will remain an open space, A B, C D.

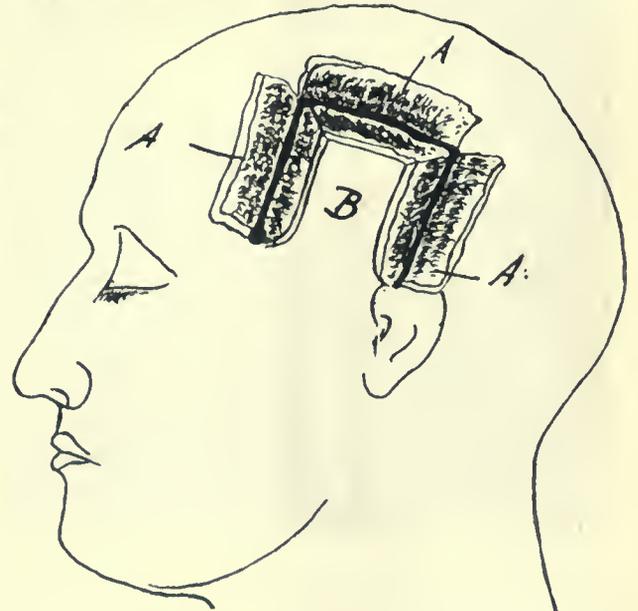
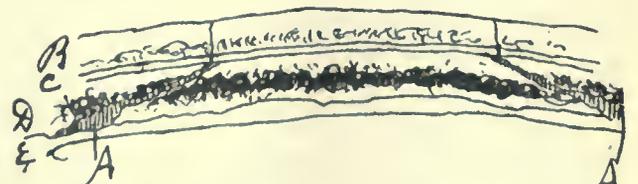


FIG. D.—Temporary resection. (Beck.) A. Obliquely cut and bent up borders containing scalp and skull. B. Flap before turned up.



Transverse section of flap. AA, loss of bone substance; B, scalp; C, perlost.; D, skull; E, dura.

loss of substance, and therefore the healing, as in the case of a fractured bone, without much cicatrix, is most probable.

3. The chiseling and gouging is done much quicker, and with much more simple instruments than if the trephine is used and saws introduced by forceps and

probes, as in the methods of Toison and Chipault.

Thus far, I have been able to do this method only on cadavers and dogs, but I will give it a trial in the next case of brain operation. In the dog it is a very hard procedure, on account of the perfect impossibility of chiseling obliquely down to the diploë, the bone of the dog being so irregular in its thickness. In this respect the human skull has a great advantage, especially over the convexity, where these temporary resections are usually performed. Temporary resection will be the operation of choice in the future because, once started, the opening can be made as large as needed and without any loss of cranial substance, as in the case of trephining. Two or three such flaps can be formed, and half of the skull—or more even—laid bare if necessary.

2. *Implantation of Cranial Fragments.*—This method comprises trephining with replacing the bone plates, as well as the re-implantation of loose fragments in

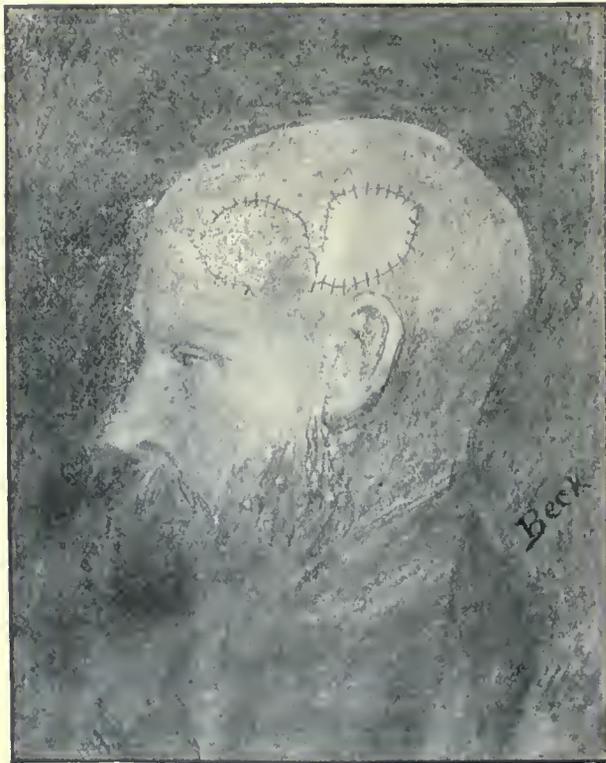


FIG. E.—Bert. Bereman, eight days after operation.

fractures. They both have, physiologically, more or less the same conditions of wound healing. Fragments from fractures, *ceteris paribus*, give even better conditions than the round chips formed by trephine, or the square chips by the chisel and mallet, because the fracture causes a simple breach, while the saw destroys substance between the fragments. The relation between these lesions is the same as between an incised and a ragged wound. The former, if taken under a microscope, will also appear as ragged and lacerated, but the necrosis between the two borders will be much smaller and the substance thrown off much less; the wound healing process, therefore, more simple than in the latter. From this standpoint, I would prefer a chisel and bone-cutting to trephining.

The plastic of this group is done in the following way: The bone is replaced from where it has been

taken, more or less unchanged. In many cases, in fact, these bone fragments, though without periosteum have healed in, and there are numerous observations where they have healed in, not in the manner of foreign bodies—that is, encysted—but with perfect integrity of their substance. They have the great advantage over other foreign bodies which are used in their place, in that they have perfect diploëtic circulation which readily takes in the blood from the neighborhood, as well as many openings in the table for new vessels from the dura. Fragments of fractures have very often some connection with the periosteum, and should therefore not without consideration be torn off or out, but carefully adapted, their periosteum sutured, and the condition rendered as much as possible similar to the condition before. To cut the little fragments into small pieces—little chips—may, at the same time render the nutrition easier, because the plasmatic circulation might get harder through a large chip than through a small one but on the other hand, it might endanger the life of that little bone chip altogether, and the chip might cause an irritation which not only causes this one chip to suppurate out, but also prevents the others from taking good strong hold, as I have observed in a case where I used all bone chips, replacing them as nicely as possible; they suppurated all out.

3. *Transplantation of Bone from other Parts of the Body.*—There are two possibilities again: *a*, transplantation from the neighborhood; *b*, from a distance.

a, Transplantation from the neighborhood, or the so-called autoplasty by the slide of Koënic's which gives so far, splendid results. The method is best described by the following history of a case, whose picture, before and after the operation shows the result:

Bert Bereman; painter; Cook County Hospital, February, 1894. Eighteen years ago this man was struck on his forehead by a rotating crank, and a piece of his skull was chipped out. He was taken to a hospital and a piece of bone, one and one-half inches in diameter removed, and the defect simply left to heal by granulation. A cicatrix which was closely adherent to the dura showing marked depression was the result of this operation. From that time on, the patient had attacks of epilepsy—as frequent as one hundred in a day—and lately so many that he sought refuge in the hospital for surgical cure. The condition before the operation is shown by the photograph. (Fig. D. Photo 3). It was thought that the cicatrix adhering to the dura, and possibly to the brain substance, was the cause of this epilepsy and I decided, therefore, to relieve this scar by dissecting it down to the brain and covering the defect with bone. The scarred tissue was excised at first with the surrounding healthy skin, to the extent shown by the white semi-circular line on the picture. In the center of the free dura mater was a splinter of bone, vertically inserted, which was removed. The incision into the dura was made and the brain underneath inspected. It was found that it was in no place adherent to the dura; that the thin arachnoidæ were whitish and opaque. The blood vessels of the pia mater were somewhat congested but no other pathologic change. The dura mater was therefore, sutured up again, and a flap formed exactly in the manner of Müller-Koënic's suggestion of scalp, periosteum, bone, which was slipped over the defect, implanted carefully, and carefully adapted. A pear-shaped defect with bare diploë was on the place from where the flap was taken. (See Fig. E.) This defect was covered by a free flap which was dissected from the leg of the patient and quickly sutured.

The patient had no attack of epilepsy for a number of days. Müller-Koënic's flap healed by primary union, and so did the free flap, except in its central part, where it sloughed out in the following manner: The borders of the free flap to about one-quarter of an inch, were rose-colored on the second and third day; the central part somewhat paler, but during the following three or four days this central part acquired a pink color. The superficial layers of epidermis

were thrown up by exhalation and a wine-colored fluid formed vesicles; necrosis of the epidermis. While the borders acquired a more and more healthy appearance, the central part grew more and more cyanotic, and after about two weeks, it had all the appearance of necrotic tissue to about one-quarter of the thickness of the flap.

To resume, I would say that the central part of the free flap sloughed out, but not to its whole thickness. Thiersch grafts were used to cover the granulating flap. The epileptic seizures recurred, and the patient left the hospital only slightly improved. The bone flap has grown firmly on its place, and the original depression and defect are filled out with bone.

b. Transplantation from a distance. Such transplantation can be either that of bone, periosteum or cartilage.

Periosteum and bone have been taken from the tibia and transplanted with success. The use of cartilage has been suggested by Sacchi, but so far only done on dogs.



PHOTO. 1.—Josie Chensik, 30 years old. Nekrosis cranii (granuloma supra dur. last?) defectus cranii sxt. Before plastic op.

In the Royal Academy of Genoa, on April 23, 1894, Sacchi reported that he had used cartilage bone plates from the epiphysis of a large young dog, into the defect which had been caused by trephination. The plate is implanted two days after the operation, so that the bony part lies on the dura, while the cartilage is underneath the scalp. In three cases in which this procedure has been used, it held in without fail and a complete firm covering accomplished.

4. *Heteroplasty*.—That means the transplantation of substance from outside of the subject that is operated upon. This substance might be from a living subject (which has been denoted as heterobioplastic), or it might be an inorganic body (heteronekroplastic).

From the experiments and conclusions of later date (Barth and others) we can judge that there is not much difference whether we transplant from a living

subject or an inorganic substance. Both are encysted, and if they heal in aseptically, the only difference that can be noticed is, that the organic from the living subject is encysted with much more difficulty than the inorganic. The reason is very simple. The organic substance has to undergo great changes of nekrobiosis while it is implanted, and it is a much more complicated pathologic process to carry away decaying substance, to assimilate living substance of a different composition and histologic texture, than to surround with a network of proliferating cells an entirely unchangeable foreign body.

The experiments which have been made to ascertain the possibility of healing, appropriate for living substance from a different species into the human, are manifold. During the period of aseptic surgery, bone plates especially have been used to cover defects. McEwen has taken the parietal bone with the center of ossification and periosteum of a six-weeks-old dog to cover a defect of the skull. Ricard and Schmitt, have repeated this experiment. The bone plates of a goose's skull have been used by Jacksch and Kapper to cover defects with, they say, good results. But the instances are too few and besides the cases could not be analyzed afterward, to refute the objection that these plates have been disorganized, re-absorbed, and new bone, calcareous deposits have taken place on the previous defect. Chipault questions the possibility of implanting a living heterobioplastic graft and, I would say, rightfully. The very instructive history of the Case Chensik will prove the impossibility to graft a large living substance;—if we can say *living* for a substance that has been taken away from the organism; we might rather call it organic:

Mrs. Josie Chensik; 30 years old; employed in housework; German; widow; has had one healthy child. Husband, as far as she knows, had been healthy. Up to July, 1883, she enjoyed good health. In July, she noticed a swelling on the right side of her head, which grew considerably and finally broke, discharging a large amount of pus. During the same time an eruption on the skin set in, which disappeared shortly afterward leaving no marks. The swelling caused no pain. The opening where the swelling broke enlarged to the size of a 50-cent piece, leaving the bone bare. The neighborhood of that bare place was discolored, and shortly afterward two other places of the same size had sloughed, so that when I first saw her at the Charity Hospital December, 1893, I noticed three ulcerations on the right side of the parietal region, all of the same size. The skin around them discolored, the bone lying bare, and black from use of bichlorid washes. The bone was apparently necrotic, perforated by a hundred little holes of pin-head size, through which came pus of a very disagreeable odor. This was her condition, and made the patient very offensive, nobody being able to bear her presence. In every other respect she was healthy. There was no trace of syphilis; no tuberculosis in her family. On January 23, she was taken to the Post-Graduate Medical Hospital. Temperature 99.2; pulse 102; the wound discharging considerably; strong odor.

On January 26, operated; ether narcosis. The assistant was Dr. Marie White. The head prepared as usual for brain operations. The scalp, as far as it was discolored, removed, together with the periosteum. The bone underneath looked yellowish white; apparently necrotic. After chiseling away and gouging away the necrotic bone, which was of different thickness and arched inside, a tumor of the appearance of a granuloma presented itself, extending underneath the necrotic bone in ante-posterior direction about four inches; thick in the center and tapering toward all sides. This could be easily peeled off from the underlying dura, except in its central part, where it was quite coherent with the same so that a part of the thickness of the dura had to be removed together with it. However, it did not go through the whole thickness of the dura mater. The bone was gouged away beyond the borders of this, until it was bleeding freely, which symptom showed that it was living bone. There was no demarkation of living and necrotic bone visible. After

these maneuvers, the defect in the scalp measured five and one-half inches by four inches; the bone defect, about one-half inch smaller. The dura mater showed marked pulsation and threatened at times to break through on the thinned portion. The wound was dressed with iodoform gauze, and the patient put to bed. Operation lasted two hours.

Remarks.—From the appearance of the thickened bone and that granulosomatous mass, I was inclined to believe that I had to deal with a syphilitic process, but the microscopic examination left me in doubt. The specimen showed a large amount of spindle cells and new embryonic cells, and even for the well educated eye of a microscopist it would be hard to decide whether the specimen is spindle-celled sarcoma or granuloma. Clinically, the case seemed a syphilitic process; microscopic examination indicated sarcoma. The decursus for the next twelve days, was that of a normal wound healing. Healthy granulation covered the dura and the patient was doing well. Daily dressing. The question arose, how to cover this large defect. The picture which was taken about this time, shows the sloughs that remained after the use of Esmarch's bandage to save blood. (Photo 1).

On the thirteenth day, a second operation was performed,



PHOTO 2.

and an attempt was made to cover the defect by the method of Müller-Koönig's scalp periosteum bone flap. A large skin flap was formed, periosteum incised, and with the chisel an attempt was made to separate the upper table to the extent of the defect, but after hard work of an hour and a half it was seen that this attempt was fruitless, the bone being as brittle as glass and falling off the periosteum; the bone not of the same condition as a healthy bone through the whole scalp; it seemed porous (hyperplastic osteitis). The flap was sutured therefore on its old place again, and the patient put to bed. The healing was by primary union. Again two weeks passed, and the attempt was made to cover the defect by heteroplasty. A dog's skull was shaved and aseptically prepared. Scalp, periosteum and bone flap, to the size of the defect were removed, but when the trial was made to place the same into the defect—whose granulations were thoroughly scraped—it was seen that the very uneven inner surface of the dog's skull would bring about a very dangerous irritation of the dura and the experiment was abandoned. Two days afterward another attempt was made. At

the suggestion of one of my friends, I tried a more even surface; the same being given by the inside of the ribs of a very young dog. A flap, consisting of skin, muscles, ribs (cartilaginous portion), which were very close together was dissected out, the pleura removed, the dura mater of the patient thoroughly scraped, and a fresh flap of the dog, with the raw surface of the perichondrium of the ribs implanted, and the perfectly approximated borders sutured together. No rise in temperature consequent upon the operation, but on the third day, a very offensive odor indicated that the flap had become partly necrotic, and though some portions of the same seemed to indicate a close coherence and some vitality—bleeding when removed—I was obliged to abandon this experiment, to remove the flap.

The patient, though better, left the hospital on the forty-third day, the defect being protected by a firm dressing, but shortly afterward she returned again, being afraid to do the slightest work from fear of perforating the thin membrane covering her brain. Nothing seemed to remain to be done but to cover the granulomatus dura with Thiersch's grafts, giving to it at least a covering of skin. It had to be scraped again, and the Thiersch grafts took wonderfully. For four



PHOTO 3.—Mr. Bert Bereman. Epilepsia traumatica, typ. irreg. Defect, cranii indent. trepanatis taris. Plastic op. (Müller, Koenig, Wagner) with plastic of a large free flap upon denuded surface.

weeks the patient remained in the hospital, after which she returned home. By so often scraping the dura, as we did, this membrane seemed to acquire such a thickness that it seemed to me to give more protection against insult than ever before. The patient came at regular intervals to my office, giving me the chance of watching the remarkable process of regeneration of bone between the Thiersch grafts and the dura. Each graft looked like a fish scale, and that it was not retracted, connective and hardened tissue which gave this firmness, was shown by an incision in two places within the boundaries of the previous defect where I could remove two particles of bone which had newly formed. These little scales of bone closed together and at present the defect is covered to two-thirds of its extent with true bone. There is yet some movability between these plates, but gradually less and less, and the bone is getting unevenly thicker, too, as can be seen on the photograph which gives the final result. (Photo 2).

Resumé.—We had to deal here with a post-operative defect of the scalp, which had closed by reproduction of bone over the dura mater, which has acted here as true periosteum. This repair of bone might be due to that irritation of the dura which has been caused by the frequent scraping of the same.

a. The only possible, but, as it seems for larger grafts, imaginary change of such grafts seems to be the hypothetical possibility to engage circulation through preëxisting channels and use the preëxisting bone structure for protection. But rarely such a circulation in an efficient manner would be established, and decay of even such a tissue as bone, that does not require very much nutrition, would take place and it would be exfoliated, if not re-absorbed. I would therefore, reject, *a priori*, the use of any animal grafts for covering of bone defects.

b. A transition from the animal graft to the entirely inorganic, is the graft of decalcified bone. Kümmer has used such decalcified bone, the preparation of which for this purpose is well known (1891). The very extensive, very careful researches of Dr. Senn about the use of decalcified bone plates and decalcified chips as filling material for cavities of bone, would suggest this material for plastic processes on the skull if they would not share, more or less, the disadvantage of the previous material—the animal grafts. Decalcified bone is, in some way, a substance that can be re-absorbed. It may leave particles which are furnished with new circulatory vessels and therefore encysted. They might become the seat of calcareous deposits but they might be absorbed entirely, and they might act, by decay, as irritating material.

c. The oldest methods, that of transplanting entirely inorganic metallic plates, have been used in some cases on a human. With best results has been used a material that has been recommended by Fraenkel in 1890, and since that time used by Eisensberg, Hinterstoisser, Berger and Potemski. That is the celluloid plate. But inasmuch as this celluloid plate in some cases has been exfoliated or had to be removed on account of accumulation of pus underneath, and inasmuch as it was rather irksome to form and cut a plate exactly corresponding to the defect, it seemed to me worth while to go into some detailed experiments in this direction, the results of which I will now communicate.

In No. 9 of the *Centralblatt für Chirurgie*, Martin of Köln, has reported some experiments of filling cavities of bone with dead material. He used plaster-of-paris and gutta-percha for filling of bones. I have, according to his experiments, used these two materials and some others to fill out defects of the cranium.

Experiment 1.—Plaster-of-paris powder which has been exposed to dry heat in a test tube was kept ready. At first a plate of about half an inch square, on a dog's parietal bone, was chiseled out. This defect was filled with plaster-of-paris, which soon formed, with that slight moisture of the transudation from the defect, a very hard cover which not only filled out the defect perfectly, but also was immovable from the first start, so that when the periosteum had healed over it, it looked almost as normal as before. There was no reaction of infiltration in the neighborhood of this defect. The experiment was made the end of March, 1894.

Experiment 2.—A dog was operated on in this man-

ner: A one-inch square defect in his parietal bone was chiseled out. Gutta-percha plate, as it is used by dentists, was heated in a watch crystal and pressed in, filling out the defect in every pore of the bone, the periosteum drawn over it and the wound sutured. Three weeks afterward, the dog was killed and the following was found: The dura mater on the inside did not show any difference. When drawn off the bone it was found that the plate of gutta-percha had a smooth surface covered with very fine membrane of connective tissue, through which the color of the gutta-percha was transparent. From the outside through the skin, the place could hardly be felt where the gutta-percha was implanted. Encysting structure of fresh connective tissue seemed to have formed between the periosteum and the plate, the result of the implantation or filling being as satisfactory as possible. The plate had been made aseptic by heating before use.

Experiment 3.—A dog operated in the same manner as the first one; an accident produced a heavy hemorrhage from the sinus longitudinalis, which seemed to be uncontrollable. The dog had lost considerable blood, when I employed the filling of plaster-of-paris, which formed, with the blood, a crust that hardened, and checked the hemorrhage in this way. The periosteum was drawn over and the dog, which seemed to the spectators, almost dead when taken off the operating table, rallied wonderfully and is still living. The plaster-of-paris healed in five weeks after the operation.

Experiment 4.—A dog operated in the same manner as the second one; a large defect of an inch and a half square produced and filled by gutta-percha plate. The result is union, the plate encysted and healed; the dog still living. Details since the operation, same as in Experiment 3.

Experiment 5.—Large dog operated in the same manner as Experiment 3, the defect filled out with sealing wax; primary union. The sealing wax encysted; the dog still living.

From these few experiments which gave so uniformly good results, I am very much encouraged to use the materials just mentioned—plaster-of-paris, gutta-percha, sealing wax, celloidin—for plastic purposes in the human in future. They have the advantage that they can be made perfectly aseptic, can be easily procured and always ready, can fill out the defect perfectly and without leakage, and give strong enough protection. The indications in regard to material and method of plastic on cranium, I would formulate in the following manner:

a. Autoplastic is to be used preferably in all possible cases. There should be removed as little as possible of the cranium, and temporary resection in the most efficient way be preferred to any other proceeding.

b. In case of the impossibility of autoplasty, heteroplasty with gutta-percha or plaster-of-paris might be used to great advantage.

c. In rare cases, bone is formed from the dura mater, but we should not rely on such occasional possibility.

Woodman, Spare that Tree.—The Forestry Association of Wisconsin has taken steps to actively push their bill to save the Wisconsin forests. The proposed bill provides for the withdrawal of all forest lands from sale, and will place certain restrictions on cutting timber.

HYDROPS ARTICULORUM INTERMITTENS— REPORT OF A CASE.

Read before the Shelby County (Ind.) Medical Society, Oct. 8, 1894.

BY SAMUEL KENNEDY, PH.G., M.D.
SHELBYVILLE, IND.

I desire to report to this Society a case of hydrops articulorum intermittens. It is a rare disease, as but thirty-three cases previous to this one have been reported, and of these but three were in America. Thus it will be seen that this is the fourth case so far reported in this country and the thirty-fourth on record. The fact of its great rarity makes it all the more interesting, and consequently I have watched this case for many months with intense interest. It is also interesting from the fact that it had been seen by several physicians and invariably pronounced rheumatism. The usual remedies, such as the salicylates, wine of colchicum and other anti-rheumatics, had been administered, but wholly without beneficial results.

After obtaining a detailed description of the case, and making a careful examination, I concluded that it was at least *not* rheumatism. I was for some time at a loss for a diagnosis, but immediately began to look up the literature on this class of diseases, and at last concluded that it could be nothing but intermittent dropsy of the knee-joint. The symptoms in all the cases so far reported are so remarkably uniform that it precludes the possibility of a mistake in diagnosis to one who has become familiar with them.

Excellent articles appear upon this subject in the "Reference Handbook of Medical Sciences," Supplement, page 484, by William Barnes, and one in the *Medical Record* of June 16, 1888, page 657, by A. H. Fridenberg, of New York. Dr. Fridenberg reports two cases and Dr. Barnes one. These with the case I now report, are the *only ones* reported in this country.

Dr. Barnes says: "There is a remarkable uniformity as regards the symptoms in all the cases, they forming a clinical picture so characteristic and typical as to leave no doubt of the diagnosis in any well developed case. The patient notices a slight swelling in one of the larger joints, usually the knee, and perhaps has his attention drawn to it by a feeling of tension or of discomfort, uneasiness, insecurity, or wobbling in the affected part. This rapidly increases, so that usually, in from twenty-four to thirty-six hours the joint is so swollen as to seriously interfere with, if not to entirely inhibit, the normal functions. In a short time, usually a day or two, the swelling begins to subside and in from twenty-four to thirty-six hours more it is entirely gone, leaving the joint to all appearance in as perfect and healthy a condition as before. After an interval of perfect freedom, the swelling again appears and the same phenomena are repeated, and so on for an indefinite period of time. There are no premonitory symptoms or signs indicative of the disturbance. The patient may be and usually is in his customary good or bad health as the case may be. During the attack there are in most cases no signs of constitutional disturbance; the normal functions of the body remain undisturbed. In two cases, those of Bruns and Pletzer, there was a slight rise in the temperature during the initial attack, but not afterward, while Perrin reports a case in which each attack was preceded by slight chills, followed by slight fever ending in perspira-

tion. Simultaneously with this there was a contraction of all the flexors of the upper extremity, also a painful prickling in all the joints of the same limb. A few hours later the swelling began, and with it the above phenomena gradually disappeared."

Dr. Fridenberg says: "The question as to the nature of this interesting disorder can only be answered in a general manner. We need not hesitate to look upon it as a neurosis of vasomotor origin. But we shall be at a loss to define its exact pathology, and even an approximate idea of the seat of lesion can only be a matter of conjecture, not only on account of the imperfect state of our knowledge of the vasomotor origin and distribution, but because no case has so far reached an autopsy. This much we are justified in concluding: Knee-joint swellings are of vasomotor origin. They must be produced by serous exudation from the capillaries of the synovial membrane. In the absence of any permanent disability or injury to the joint or involvement of the deeper structures, we may assume a non-inflammatory change in the vascular blood-pressure and consequent dilatation of the arterioles, due either to stimulation of the dilating or paralysis of the contracting vasomotor nerve-fibers in the vessel walls. As the vasomotor contraction or tones of the arterioles is the more constant and uniform, this latter is probably interfered with or inhibited. Thus dilatation of the capillaries persists, permitting active transudation. When the lost influence of the nerve function is reëstablished, the vessels resume their normal tones, and the equilibrium between secretion and reabsorption is readjusted. The excess of fluid is absorbed as rapidly as produced. This exudation is not of an inflammatory nature. The pain and disability are due to a rapid mechanical distension of the capsule only. It is therefore a passive dropsy, and its transitory character a clinical reflection of a similar process in the nerve centers.

"We can hardly picture to ourselves pathologic changes in the central nervous system of a transitory nature, otherwise than as the result of a disturbance of the vascular supply of the area involved, leading to exudation, edema, and compression of the surrounding nerve tissue. Vasomotor disturbances are characterized by rapid changes in the caliber of vessels, thus favoring local congestions or ischemias. These central changes must be supposed to subside spontaneously, or be in some manner checked, before developing sufficiently to constitute a permanent lesion.

"Can such central disturbances produce joint swellings? When we consider the intimate connection of arthropathies with certain forms of organic spinal disease, with which we have become familiar through Charcot, Weir-Mitchell, Esmarch, Shaffer and Gibney we need not doubt the occurrence of temporary joint disease as a possible consequence of transitory central disturbances. Long before Charcot's writings, Dr. J. K. Mitchell, of Philadelphia, cured a persistent case of subacute 'rheumatic' synovitis in a woman with an angular curvature, after failure of all the usual remedies, by treatment for spinal inflammation. He subsequently treated three similar cases with the same success. He concluded to regard rheumatism as a spinal neurosis.

My case of this interesting and rare affection was met with in Mr. James B., a day laborer of this city. He is an American, having been born and raised in Indiana, and 33

years of age. I was first called to his house upon Sept. 5, 1892, the person (his wife) coming after me stating that he had a "bad case of rheumatism." Upon catechising both the patient and his wife, I elicited the following history: About four years previously he suffered his first attack in left knee, but not in a very severe form. He recovered entirely in four or five days, but has been having similar attacks every twenty-four days since. He said each attack would last from three to five days, the knee become swollen and very painful. He has always had good health with the exception of this trouble. I have now seen him have twenty-five attacks since the first one. The left knee becomes very much swollen and edematous and he suffers excruciating pain. Upon each and every examination I have found fluid in the joint by fluctuations and a floating patella. During three days of each attack he is compelled to lie in bed, and every movement of the knee causes an exacerbation of pain. The effusion is intra-capsular. Each attack now lasts exactly five days, being worst on the third day and gradually subsiding by the fifth. He has a similar attack just twenty-four days from the last day of the previous attack, and they now recur regularly every twenty-four days. During the twenty-four days' intermission he is absolutely free from any trouble with the knee and attends to his work of ditching regularly, except during his attacks.

During the time I have had charge of the case he has had no trouble with any joint except the one mentioned. He can foretell the approach of an attack to the day and almost to the hour, but he says it is by means of sensations that are impossible to describe.

Regarding treatment, I might say he has taken quinia, iron, strychnia, cod-liver oil, ergotin, carbolic acid, electricity, sodium salicylate, sulphur baths and other remedies too numerous to mention, but all with no apparent benefit. Soon after making my diagnosis, I informed the patient of the nature of the affection, and that it would probably take several years to cure him, if at all, and by this means I have been able to keep the case under close surveillance. So far as I am able to learn, there is no trace of syphilis in this case.

In closing this report, I desire to say that I shall try and keep the case under observation and report to you any progress, if any is noted.

79 East Franklin Street.

A CONTRIBUTION TO THE KNOWLEDGE OF BACTERIOLOGIC CHEMISTRY.

Read in the Section on Materia Medica and Pharmacy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY W. T. WENZELL, M.D.
SAN FRANCISCO, CAL.

In the year 1865 a German chemist named Marquardt made the discovery that during the putrefaction of animal matter, a substance was formed which bore a close resemblance to an organic base or alkaloid known to reside in the leaves of the spotted hemlock (*conium maculatum*) known by the name of coniine.

Schwanert, found very soon after, while pursuing a similar investigation of the intestines, liver and spleen of a child who had died suddenly, an organic base which he separated by the Stas-Otto process, and also by a similar search in the human cadaver, a sufficient amount of the alkaloid to enable him to determine its nature. He found that it possessed strongly basic properties, that it blued reddened litmus paper, that it was neutralized by muriatic acid, and that it was precipitated by alkaloidal reagents such as chlorid of platinum, chlorid of gold, iodo-iodid of potassium, phospho-molybdic acid, etc.

To these organic bases Marquardt gave the name septicines, the name indicating their source, being derived from the Greek, "septicos," the literal meaning of the word being to make putrid. In 1869, Bergmann and Dragendorff conjointly confirmed the discovery of Marquardt, but also announced the existence of a second alkaloid in putrid flesh, which was not volatile as the alkaloid first discovered by Marquardt, but was a solid substance crystallizing in the form of needle-shaped crystals. It also responded to the usual properties and tests for organic bases, and physiologic tests instituted with it demonstrated a decided mydriatic effect on the eye, and when introduced into the circulation an increase in the action of the heart was observed, and also a cessation of the peristaltic action of the bowels was noted.

In 1869 two cases of suspected poisoning occurred in Italy, where chemist experts claimed to have found morphin in the body of a lady and delphinin in that of a man. The authorities not being altogether satisfied with the results of the analysis referred the matter to Professor Selmi, an eminent chemist in Turin, by whom it was shown that the alkaloids in question were neither morphin nor delphinin, but that they were cadaver alkaloids analogous to those announced by Marquardt ten years before. Ignoring the claims of priority by Marquardt, Professor Selmi saw fit to change the name of the bases formed during the decomposition or putrefaction of flesh, to ptomaines, the Greek for a dead body or cadaver, a name which has since been exclusively used, for all organic bases derived from this source.

The relations which are at the present time known to exist between bacteria and cadaver alkaloids may be considered as fully established, much of which is owing to the indefatigable researches of Dr. Brieger, who announced that poisonous ptomaines were generated during the growth of pathogenic bacteria. He divided the ptomaines into two classes, toxins and non-toxins accordingly as he considered them derived from pathogenic or non-pathogenic organisms.

Without entering into the subject of the various ptomaines found by Brieger, Selmi, Gautier and others in decomposing animal tissues and animal fluids, it may be well to say that although the bacilli of anthrax, tetanus, tuberculosis, septicemia, the streptococcus of erysipelas, and the gonococcus of gonorrhoea, etc., have been thoroughly studied by bacteriologists, and propagated, yet ptomaines and other products generated during their growth, have not received the share of investigation which their importance demand.

So far as this subject has come to my knowledge, the isolation of ptomaines, has been effected principally, if not altogether from the animal body and putrefying organic substances, and no attempt has been made to ascertain if an organic base is invariably a concomitant of bacteriologic culture. Not only this, but we should also direct our researches, in order to determine, if possible, whether the product of such culture will always give rise to the same identical ptomaine.

The writer must admit the difficulties by which he is confronted, arising in a great measure from the fact that, according to the present state of our knowledge, it is a difficult matter to distinguish even between the ptomaines obtained from well-known pathogenic bacteria. However, we should not be discouraged by these drawbacks, which are inseparable from all

newly developed sciences; but rather hopefully and trustfully look forward for future success. It has been the good fortune of the writer to enlist the coöperation of Dr. Silas Mouser, of San Francisco, whose superior ability and unswerving enthusiasm as a bacteriologist stand unquestioned, to obtain from him such pure cultures as may be required for these investigations. The products of these cultures as usually obtained from tube-cultures, are exceedingly small as to quantity, therefore the work must necessarily be both microchemic and microscopic in its character.

Tube-culture of the Fungus Actinomyces Pathogenic—found in the animal body and course of analysis.—The culture was carefully removed from the culture medium and macerated in water at a temperature of 50 degrees E., to remove adhering particles of the gelatinous culture medium. This process was repeated until the water ceased to give a precipitate on the addition of tannic acid. To this water which held the spores of this fungus in suspension, some sulphate of barium was added and the mixture passed through a filter. The spores with the sulphate of barium remained on the filter, the barium salt being used to stop up the pores of filter to prevent the spores from passing through. The filtered liquid was then tested with the usual reagents for the detection of alkaloids, but with negative results.

The fungus after its treatment with water, was then macerated in ether-alcohol (2 parts ether and 1 part alcohol) for twenty-four hours. The yellow color of the fungus was mostly taken up by this menstruum communicating to it an orange color. On concentrating this solution by the aid of a gentle heat; on cooling, nearly the entire amount of yellow coloring matter separated as an orange-colored flaky substance which was collected on a filter and washed with a small quantity of alcohol. The yellow coloring matter thus obtained proved insoluble in water, sparingly soluble in alcohol, but very soluble in ether and in chloroform. Attempts to obtain crystals from its ethereal or chloroformic solution met with failure. The substance was insoluble in 10 per cent. solution of caustic potassium. When treated with strong nitric acid the yellow color was changed to a blue; exposure to day-light caused the yellow color to fade in a short time.

The ethereal solution of this coloring principle is yellow, while its chloroformic solution presents an orange color. In all of the above stated properties, this coloring agrees with lutein, the coloring matter of the *yolk of eggs*, and which is also found according to Hahn and Staedeler in the *corpora lutea*. On making a spectroscopic examination of this yellow coloring matter, it was found that its absorption spectrum exceeded that of the lutein of yolk in length, and while the chloroformic solution showed only one absorption band, beginning at the Fraunhofer line *b*, causing the absorption of a part of the green, the blue and the purple rays of the spectrum, the spectrum of lutein will be seen to have three absorption bands, one covering the line F, another band situated nearly midway between the lines F and G, and the third band commencing with the line G, and continuing to the end of the spectrum. However, there is no question but that the yellow coloring principle of the actinomycetes is a physical isomere of lutein. (See accompanying spectroscopic illustration.)

The alcoholic filtrate, separated from the yellow coloring matter, was concentrated, water being added

to replace the evaporated alcohol, acidulated with muriatic acid filtered from the yellow coloring matter which had separated. The colorless solution thus obtained was tested for alkaloids as follows:

Mercuric chlorid gave no precipitate.

Platinic chlorid gave an orange precipitate.

Potassium ferrocyanid gave a whitish precipitate.

Tannic acid gave a whitish solution in alcohol.

Iodo-iodid potassium, a brown precipitate, soluble in an excess of the reagent.

Potassium iodo-hydrargyrate a white precipitate.

Palladium chlorid, no precipitate, but on evaporation a double salt in the form of a Maltese cross and square plates was obtained.

Potassium ferrieyanid with ferric chlorid gave rise to the production of Prussian blue.

The filter which contained the spores of this fungus, together with barium sulphate, was incinerated with nitric acid to get rid of all of the carbonaceous residue and finally heated to a dull red heat. On dissolving the residue in dilute nitric acid, filtering and adding the concentrated solution to the molybdic solution, a comparatively large amount of the yellow precipitate indicating phosphoric acid was obtained.

From the foregoing analysis it will be seen that the fungus actinomyces contains a ptomaine, a yellow coloring principle isomeric with lutein. And that the spores contain a relatively large amount of phosphorus in an undetermined state of combination, a fact which the author desires to place on record, pending future research on phosphorus and its relation to organic life.

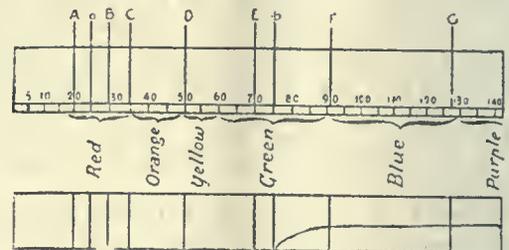


FIG. 1.—Lutein from actinomycosis.



FIG. 2.—Lutein from yolk of eggs.

Bacterium of Green Pus—A Pure Tube Culture.—The culture was carefully removed from the culture medium. On examination the culture was found to consist of a mass of microscopic fibrous crystals, mixed with the bacteria of pus. The crystals were found to be insoluble in water but readily soluble in alcohol. The preliminary examination furnished the means to determine a procedure for conducting the analysis. The entire culture was treated with water in a similar way as the actinomycetes, and for a similar purpose, and aside from testing the filtrates with tannic acid, testing was also made for phosphoric acid by evaporating a portion of filtrate, igniting, re-dissolving in dilute nitric acid and testing with molybdic solution. This last testing was adopted to remove all traces of any substance from the bacteria that might contain phosphorus as a phosphate or in some other organic combination, the ultimate object being a search for phosphorus in the bacteria.

The residue on the filter left after the exhaustion by water of everything soluble in it, was then subjected to the action of ether-alcohol by which a solution was obtained, which when a drop of it was allowed to evaporate on a glass slide and examined with a

microscope was found to leave a residue composed of transparent colorless acicular crystals arranged in stellar aggregations. When platinic chlorid was added to the ether-alcoholic solution, a precipitate appeared, which changed in a short time to yellow octohedral crystals; evidently a double salt of the ptomaine generated during the growth of the bacteria of pus.

The entire bulk of the ether-alcoholic solution was evaporated to dryness and re-dissolved in alcohol for further investigation, when the accidental loss of the solution prevented further work in this direction.

The filter containing the bacteria together with barium sulphate was incinerated and finally ignited and dissolved in dilute nitric acid, the process being conducted similarly as in the case of actinomyces. On applying the molybdic test a sufficient amount of the yellow ammonium molybdic phosphate was obtained to show conclusively that phosphorus in some form is a normal constituent of the bacterium of pus.

THE RELATIONS OF MATTER AND MIND.

Read at the Annual Meeting of the Indiana State Medical Society,
May 16, 1894.

BY JAS. F. HIBBERD, M.D., LL.D.

RICHMOND, IND.

In the near future the most important and useful progress in medicine will be along biologic lines. Biology is the science of living things; in the broader sense covering all vital processes; teaches the phenomena concerning the genesis, the development, decline and death of all vital organisms.

To my mind it is a self-evident proposition that a physician should fully understand the cytogenesis, the morphology, the histology, the anatomy, the physiology and the pathology of man, and as man is a microcosm of animated nature it is but a corollary that a perfect physician must be a thorough biologist.

In the matter of the biology of the human mind there is abroad a great popular misunderstanding, and I am apt to believe that physicians have not given such attention to the relations of matter and mind as to leave no shadow of dubiety in the premises in their own minds.

No student of current mental conditions has failed to recognize the difficulty of accounting for the incongruities of mental manifestations met with in all classes of people, and certainly no physician of experience but has been puzzled in many instances to draw the line between physical disease and so-called mind disorders. Much of the uncertainty in these cases is due to the fact that we have not sufficiently mastered the physics or the functions of the nervous organization in which the mind originates. In this state of knowledge it has been beyond our ability to point out definitely the true relation to hypnotism, to spiritualism, clairvoyance, Christian science, faith cures and a long list of similar disturbances to ordinary normal mental operations. It is my contention that all these are understandable erratic operations of the mind as emanating from the nervous organization, and it is the intent of this dissertation to indicate how I arrive at this conclusion. I beg to premise that in this study the definition of psychology is restricted to its etymologic signification, to-wit, the science of the soul, quite a distinct thing from the somatic mind as herein elucidated, and that in this discussion I do not enter the realm of psychology.

When one attempts the analysis of the relation of matter and mind by a study of it, as it exists in the human adult, one fails of success most signally. The relation here is so involved, its manifestations so diverse, so extensive and apparently so mysterious that its essential nature can not be made out by such a study, and yet this has been almost the exclusive field cultivated by investigators of metaphysics since the time of Aristotle with the constant result of endless disagreements and confounding confusion. Accordingly, for a satisfactory elucidation of this relation we must pass the schoolmen, depart from scholasticism, and make use of modern scientific methods of investigating involved problems, devoting ourselves to seeking the simplest form in which the relation of matter and mind exhibits itself and following its development, step by step, in its ascending scale until it reaches its maximum in enlightened man.

The amœba is the lowest organism that exhibits the essential characteristics of animal life and its genesis is in protoplasm. The amœba is conceded on all hands to be an animal, and I will seek in it the first link of the chain of nervous energy that extends through all forms of animal development up to man, and still continues to extend in man as witnessed in his expanding knowledge and increasing enlightenment. The amœba is a single cell whose habitat is water containing protoplasm, and at rest and not under pressure, is globular. If it desires food it projects from its surface a pseudopod, a finger-like process, from its general substance. If this feeler finds nothing the animal wants, the pseudopod is retracted into the general mass of the amœba. This may be repeated indefinitely and from any part of the cell, and when the pseudopod finds something seemingly suitable to its needs the body of the amœba follows up the pseudopod, and if the something, on examination, turns out to be a morsel of food, laps itself about the morsel, secretes a digestive juice, dissolves and absorbs the nutritious part of it, then unwraps its body and releases the indigestible refuse. When sufficiently developed to procreate its species the amœba divides by fission, making two organisms with identical structure and functions; each of which follows precisely the same career as the parent and has posterity in like manner to continue the family.

Here, then, is an animal of low degree, representing in miniature all the essential phenomena of the most exalted animal creation; *e. g.*, it has volition—it wills to move and at once projects a pseudopod; it has judgment—it meets a morsel of something, seizes and examines it; if found to be food appropriates it, if not food discards it; it has secretion and absorption—it pours out a digestive fluid, dissolves its food into a peptone which it absorbs and assimilates; it has growth and reproduction—it develops by appropriating food, and reaching the procreative stage, divides, creating two amœba. Are not these functions of the amœba all of the essential functions of human beings? Are not the differences between the amœba and man, differences of degree and mode of manifestation and not of kind? Does not the amœba, a single microscopic cell of undifferentiated protoplasm, exhibit in every part of its organism all the attributes that promote the life and perpetuate the species of man who is but a community of untold billions of cells differentiated into departments and organs, such that each function has its assigned cells

to perform every special service? In short, if man is a microcosm of the cosmos, is not the amœba with equal appropriateness a microcosm of the man?

If protoplasm is the blastema of the amœba whence comes protoplasm? To answer this basic query, I must call attention to leading facts in the dynamics of physics operating to fashion the world as we find it, such as will indicate my line of argument. I must, however, confine my rehearsal to some of the more salient points; to recite all that would support my contention would require a volume, while my privileges of time and space will be exhausted in a few paragraphs.

There are about seventy elements that constitute the world, but only a small percentage of them are met with in a simple or uncombined state. These elements the Creator has made up of atoms and has endowed the atoms with ceaseless oscillatory motion. When the atoms of two elements are conjugated under chemic affinity a new substance is formed, wherein each element has lost its distinctive atoms and motions, forming molecules that have their distinctive characteristics. These new substances are subject to the law of chemic affinity and are as ready to conjugate under proper conditions as were their parent elements, and thus these conjugations go on almost *ad infinitum*. These continuing conjugations of atoms and molecules are the effect of a primal law of the Creator impressed upon matter in the beginning, the mandate being that neither atom nor molecule shall ever rest, and by reason of perpetual motion shall work perpetual progress. Every step in this progress modified the environment and every modification of the environment invited phases of the conjugation of molecules not possible under any previous condition. When these progressive conjugations had continued for eons, the face of our globe had reached a condition wherein four of the elements, to-wit, oxygen, hydrogen, nitrogen and carbon combined to form a semi-fluid, slimy mass and this slime was primary protoplasm. The primal law of progress, forcible as ever, wrought modifications in this protoplasm and in time a speck of it segregated and became a cell in which was manifested an advanced phase of matter in motion, known as vital activity, notable in that the cell absorbed surrounding material and converted it into its own substance. This is a point to claim acutest attention. It marks the first step in the operation of the primal law of matter and motion beyond the simple, never-failing conjugation of atoms and molecules whenever conditions favored, and always in definite proportions and with unvarying results limited to the act of union. True, this first step was but a slight departure; the surrounding material from which the new-born cell absorbed its pabulum was the protoplasm from which it was just segregated, which, already cognate, required but slight assimilation to become identical with the cell substance, but, nevertheless, this step was the initial one in the mode of motion in matter that has produced all the marvelous forms and colors and motions of the vegetable kingdom, as well as the still more wondrous developments in the animal kingdom.

The initial cell was without a nucleus and was known as a moner, but the energy creating it continuing, further developments followed, a nucleus was formed, presently more elements were incorporated completing the plasm of the amœba which then appeared. Nor did harmonious progress halt or waver

with the amœba; development continued in it until its congeners were many.

Thus was the amœba born, and further progress of animal organisms to higher classes was by the aggregation of cells in greater and greater numbers and their differentiation into organs and systems for special but associated service. As has been illustrated, the amœba was undifferentiated protoplasm but it had voluntary motion, exercised equally by every part of its body, while in the higher animals motion is the service of the muscular tissue. The amœba had secretion but no glands; in the higher animals are many secretions, each produced by a special glandular structure. It exhibited consentient autonomy in all its parts; this is secured in the higher animals only through the most intricate nervous organization. With the increase of associated cells and differentiation of function in the more than 300,000 species of the animal kingdom, the development of the nervous system progresses *pari passu* with the other systems and, finally, in man it still continues its evolution, at least of function, while all other cognate departments appear to have attained their limits. As a whole, the scale of progress has been uniform—there are no cataclysmic phenomena in biology. There are, however, needs of animals that have caused the cultivation and achievement of special diversions of nervous energy with corresponding development of cells to answer the demand, *e. g.*, the eagle can see its prey from an unknown elevation; the dog can follow a selected scent when mingled with numerous other closely related scents, and so on. Even in different individuals of the same species there are marked divergences from the average normal, illustrated in the arithmetical juvenile prodigy who adds up five columns of four digits each, at the same time, and in the musical monstrosity known as "Blind Tom." All these specialized sense developments are due to the influence of the environment on the direction the primal energy in matter and motion may take when acting through protoplasm.

In the further consideration of the relations of matter and somatic mind, we will abandon the anatomy of the nervous system and study its physiology, adopting the classification of Hulings-Jackson who divides it into lowest, middle and highest levels. The lowest level is the old spinal system of Marshall Hall, composed of centers that preside over the automatic activities of the body. The middle level consists of the motor area of Ferrier and others, in the central cortical region of the hemispheres. The highest level is represented in the anterior and posterior regions of the hemispheres and, like the centers of the other levels is sensori-motor. The centers of the lowest level may act independently of the centers above it. The centers of the middle level can act independently of the highest centers but are necessarily associated with the centers of the lowest level. The highest level is the supreme commandant of the nervous system, but its centers can only exercise physical force through the centers of the levels below it. Its marked distinctness is being the seat of the somatic mind, and the anterior region of the hemispheres is more specialized in this behalf than the posterior, where the mixed motor function predominates.

In this connection it is important to understand that the brains of men differ in form, size and force

one from all others, as the bodies of men differ in form, size and force, one from all others, and in like manner the sundry regions of the brain differ as the sundry organs of the body differ; in short, as there are no two human bodies precisely alike, so there are no two human brains precisely alike, and by the same token no two somatic minds alike.

The mind is made up of departments or sections that usually act in more or less harmonious concert but may, and in truth do often, manifest exalted function in one department and depressed activity in another department, and these varying conditions frequently change under changing environment and stimulation. If we gain a clear concept of these pregnant facts we will have but little trouble in understanding that the occult mental phenomena, claimed as a special endowment of supernal power is simply the unbalanced erratic activity of a perturbed physical brain.

In numerous instances one department of the mind has been exalted, with apparently a corresponding and related depression in another department, and under this condition the functioning of the stimulated center is so intense that it overrides the function of other centers of the highest level, indeed dominates them all to the extent of suppressing all consciousness of every act not under the dominion of the excited center, as *e. g.*, in catalepsy, somnambulism, hypnotism and numerous minor and more transient manifestations during excited passions. In other instances, several centers have undue functioning and together disturb the average normal activity of the mind, inducing hysteria, spiritualism, clairvoyance, Christian science and quite a catalogue of other morbid conditions of varying intensity and duration, covering the superstitions of the world, countless in number and inconceivably discordant in form, extent and direction.

These errors of function of the intellectual nerve cells of the anterior region of the cerebral hemispheres are not always of this gross and distinct character, indeed, generally, they are in the first departure an almost imperceptible step, a mere shading of error, growing deeper and darker in many sad instances, until the somatic mind is entirely obliterated.

The etiology of these erratic phases of the somatic mind is as varied as the manifestations and not constant in any number of them. The physical structure of man is not identical in any two persons and the nervous tissue, both macroscopic and microscopic is morphologically as irregular as other systems; this undoubtedly accounts entirely for some of the defects of function and is a coadjutor more or less potent in many.

The environment is responsible for much that presents in these cases, teaching both by observed example and covert influence. The inmates of a French juvenile institution suffered from an invasion of catalepsy, epileptiform seizures and other neuroses, and the distemper was arrested only by the exhibition of incandescent metal instruments prepared to cauterize the next victim of the disorder. But in no case are such derangements either induced or relieved by the will power of one person over another, except through spoken word or suggestive motion. The greatest misconception touching hypnotism arises from the widely entertained popular belief that a hypnotist can control a hypnotee by will power alone,

whereas it has been abundantly proven that the hypnotist can not influence the hypnotee through the exercise of unassisted will power, but only through present suggestion or previous arrangement.

In the history of the amœba it was shown that the cell exercised the attributes of a living animal by all parts of its protoplasm, and that the development of the higher animals, including man, was by an increase of cells and their association and differentiation into tissues, organs and systems each with special functions. It is, however, important to understand that in the increase of cells and increase of better defined function the individual cells retained something of the original attributes and attitude of the amœba, illustrated in man as in all the higher animals, by the fact that the cells of every tissue select the pabulum for the tissue from the general supply; thus the cells of bone select from the current of blood the material for bone, absorb and convert it into bone; the cells of muscle select the appropriate instrument for muscular tissue and transform it into muscle; and the nerve cells arrest from the circulation only the substances to maintain nervous tissue; and in all these instances this service is performed by virtue of the inherent discriminating energy of the cells independently of the highest, the middle or the lowest levels of the nervous system; this energy being the lineal descendant through protoplasm and the amœba of the primal energy of matter in motion, here, as in all intermediate organisms between moner and man, modified by the surroundings, and harmonized by the higher nervous levels of the system.

In all past time, the origin and nature of consciousness has been the most abstruse problem in metaphysiology. The origin of mental energy in man, inculcated in this dissertation, affords a solution of the problem. Neither the amœba nor the cells of the tissues of man can seize the floating particle of matter, examine it, and decide whether or not it is fit for food without knowing the particle was there and the purpose for which it was examined, and knowing is an act of consciousness. The difference between their consciousness and that arising from the anterior convolutions of the hemispheres is one of degree and not of kind. The former is evanescent, serves its purpose for the occasion and vanishes unregistered; the latter is permanent, always ready for action while the brain is intact and registers its service in the memory.

Do not these converging testimonies focus the truth in the proposition that the somatic mind of man is clearly enough the highest manifestation and legitimate sequence of the operation of the primal law of matter and motion, impressed by the Creator in the beginning on the elements of the earth?

SECTARIANISM IN MEDICINE—DISTINCTIVE FEATURES OF EXISTING MEDICAL SECTS.

Read before the Practitioners' Club, Nov. 26, 1894.

BY EDWIN J. KUII, M.D.
CHICAGO.

The three sects recognized in the community in which we live are the regular profession, the homeopathic and eclectic.

In denoting the regular profession as a sect, I am

conscious of a violation of the meaning of the term, sect. A sect is a body of persons who have separated from others in view of some special doctrine or doctrines. Now, the regular profession has no separate doctrine or doctrines, nor has it separated from anybody.

When you cut off a piece of a dog's tail, you do not cut off the dog from the tail, but the tail from the dog. For it is a fact well recognized by the profoundest experts of natural history, that it is the dog who wags the tail, and not the tail who wags the dog.

The regular profession has been stigmatized by certain apostates as the "old school." The spirit is the same as that of a man who designates the mother who has borne him, and given him life, and nursed him at her breast, and fostered and raised him, as the "old woman."

This idea of decrepitude and senility has been foisted upon the public and is given popular credence.

It appears to me, however, that the old school of medicine is, in spite of its age, rather frisky and vigorous. William Harvey, it must be confessed, has been dead for some time; and John Hunter and Edward Jenner, if they had lived, would unfortunately figure as gentlemen rather advanced in years and with a crick in the back. But, fortunately, the science they have enriched has outlived them.

Science is a mother of unlimited fecundity and vitality. Old as she is, she seems as far from her climacteric as when she was first born. At every age and every year this "old school" breeds new progeny, who bound into the arena and wrest new knowledge from the silence and mystery of the universe. Cruveilhier, Rokitansky and Virchow are her children who stood parent to pathology; Laennec and Skoda to physical diagnosis; Hebra to dermatology; Semmelweiss and Oliver Wendell Holmes to the most appalling menace to maternity; Helmholtz and Albrecht von Graefe, Czernak, Marion Sims, Jackson, Morton and Simpson, Lister, Charcot and Weir Mitchell, Koch and his pupils, each and every one became a leader and builder in his special domain.

The structure of medical knowledge, as that of all knowledge, will never become complete. The infinite vastness of science is its guarantee against stagnation and age. The medical body to which we belong forms a strong and indissoluble brotherhood with the natural sciences. We would defy any body of scientists to lay larger claims than ours upon Helmholtz. He belongs equally to us and to them.

Robert Mayer, the country physician, has given to physics the law of conservation of energy; and it was before a combined body of naturalists and physicians at Heidelberg, in the year 1889, that the much lamented Heinrich Hertz, of Bonn University, proclaimed his wonderful investigations on the unity of the phenomena of light and electricity, thereby giving the most brilliant experimental proof ever recorded in physics of the correctness of the purely mathematical doctrines of Thompson and Maxwell. In this manner does science enrich medicine, and medicine science.

Rational medicine, as we all know, has no dogmatic system and no pope. Whoever gives us knowledge that will bear the test of critical scrutiny is welcome. What we are after is the truth! We do not bow to authority. The rejection of tuberculin was none the less emphatic because Koch fathered it. And Koch, who established a great principle of toxin effect, but

no cure for tuberculosis, took a rest cure in Egypt and sat at the foot of the pyramids and gazed into the eyes of the sphinx.

How different with homeopathy. The stuffed prophet still lives, and his disciples bow before the fetich. Homeopathy stands or falls with its pope. No Hahnemann, no homeopathy! And still, how inconvenient this gentleman has become to his followers. His itch pathology and other paraphernalia have been discarded; his disciples with evasive eyes can be found in drug stores buying ounces of taboed drugs, such as calomel, phenacetin, hypodermic tablets of morphia, etc., etc. The teachings for which their name stands have been renounced, but the name is still carried. And why is this done? Why is it that homeopathy, whose speedy extinction Oliver Wendell Holmes predicted fifty years ago, is still flourishing in this country at least? If homeopathy is a delusion why does it take people so long to find it out? The reasons are manifold but clear. Man is an animal who likes to be deceived. Everybody has a secret love for the marvelous. The marvelous is the most beloved child of faith.

A story is related of a bright young physician who strove for years, honestly but unsuccessfully, to acquire success. He was finally obliged to give up in sheer despair, and to masquerade as a quack. This brought him the success he had failed to acquire by legitimate means.

To most people their medical preference is a sort of physical religion; a religion of the body and of disease. They have the homeopathic creed because their grandmother had it or their neighbors have it. The doctor of their choice may have a lovely complexion or such charming manners, or may be a great light in the church.

"Unfortunately, among the guardians of our morals, the ministers, are to be found the most ardent supporters of quackery in its various forms."

Then most of the calls which physicians receive are for minor ailments, which cure themselves under favorable conditions. Pellets or tinctures of an attenuation, which expressed in figures, exceed the most extravagant vagaries of a demented paralytic, are given under the pretense of effecting a cure. "During the entire course of the sickness, pellets and tinctures are faithfully administered; the attention of the patient is assiduously called to their use and imagined effect, and every improvement in his condition attributed to their influence."

Then there is, as I said before, the surreptitious substitution of rational drugs and doses for the homeopathic ones. The hypodermic syringe, in the hands of the homeopath, requires the same hypodermic tablet for the allaying of pain as we use. The homeopathic surgeon, oculist and obstetrician has, provided he possesses average intelligence, recourse to all the methods used by rational medicine. His affiliation with homeopathy, therefore, can only emanate from dishonest motives. He maligns his parent, disowns his name, but allows the parent to support him. They have been likened to medical highwaymen, who with one hand grasp the throat of the profession and with the other appropriate its possessions. If the theory of "*similia*" were really correct, which it has been abundantly proven not to be, it could be practiced by honest men under an honest name. I can, therefore, not recognize the slightest defense for homeopathy as a sect.

"Hahnemann, driven from the court of science, appealed to the people. His cause has been kept a popular one ever since. His disciples have ever avoided a scientific discussion of their doctrines. In view of these facts, how can an intelligent person or lover of true science countenance homeopathy for a moment? If he does, his conduct is indefensible."

With the riper experience of years of practice I have become convinced, although I once held different views, that such recognition of homeopathy as meeting practitioners of that system in consultation is an indorsement of their absurd doctrines and an inconsistent practice. It is to be supposed, also, that those who thus compromise themselves have some motive other than pure benevolence or tolerance.

It does not bespeak well for the intelligence of the American public in medical matters, that homeopathy has received such general recognition and broad encouragement in our country. In Germany, where the medical profession stands probably on the highest level, a homeopath is so rare a phenomenon as to form a promising nucleus for a dime museum. There are no homeopathic schools in Germany, and but one in Great Britain. In Great Britain and Ireland with their 35,000,000 inhabitants there are but 275 homeopaths. The United States, however, are a perfect hotbed of this quackery. It is computed that one-eighth of our practitioners are homeopaths.

The faith in homeopathy must, therefore, be considered a remarkable anomaly of our century. It is a superstition of equal mental obliquity as the belief in witchcraft, in Perkin's Tractors, in the divine right of kings, in the infallibility of the Pope or in the Democratic party.

We shall now proceed to a consideration of the distinctive features of the last existing medical sect, namely, the eclectic. The very few eclectics with whom I am acquainted wear a long beard and ride down town on a bicycle. An eclectic is, therefore, a gentleman with a long beard, who rides down town on a bicycle. In addition to this he is supposed to treat both by rational medicine and by irrational medicine, namely, homeopathy. Or, in other words, "you pay your money and take your choice."

I can not conclude these remarks without saying some uncomplimentary things about the regular profession. One of the most pernicious practices of the regular profession is excessive medication. Most of us have accustomed the public to consider a prescription the equivalent for a fee. When a patient consults us we are supposed to dive into our pockets for prescription blanks. This absurd practice injures the patient, injures the profession, helps the homeopath and increases the so-called silent majority.

Then there is another point: Those men to whom is intrusted the education of the thousands of young men who are newly created physicians, are not always guided by the highest motives. Our medical colleges are in a large measure responsible for the existence of those medical scalpers who hover around the limbo of our sacred profession under the name of homeopaths and eclectics, or even regular physicians. Our students are graduated with some capacity for good and a great capacity for harm. It was a favorite saying of Billroth's that it was his highest ambition to educate students to such a level that they could not do any harm. "*Non nocere*" is the device which should be inscribed upon the banner of medi-

cine. Raise your standard of medical education and you will crush out medical sects.

NOTE.—I wish to acknowledge my indebtedness to Dr. W. W. Brownling, from whose article, "Modern Homeopathy," I have quoted.

THE DISEASE OF INEBRIETY.

ITS STUDY FROM THE STANDPOINT OF THE EXPERIENCE OF AMERICAN PHYSICIANS OF EMINENCE WHO HAVE WORKED IN THIS FIELD OF RESEARCH.

BY EDWARD C. MANN, M.D.

NEW YORK CITY.

(Continued from page 853.)

HEREDITY.

"In referring to the influence of alcohol," says Prof. Willard Parker, "we must not omit to speak of the condition of the offspring of the inebriate. The inheritance is a sad one. A tendency to the disease of the parent is induced, as strong if not stronger than that of consumption, cancer or gout. The tendency referred to has its origin in the nervous system. The unfortunate children of the inebriate come into the world with a defective organization of the nerves."

There is a class in every community of which we have before spoken, how numerous, it is not easy to say; the inherited mobility of whose nervous organization predisposes them to fall into this diseased condition with an almost positive certainty. "It is a fact," says a recent writer, "that drunkenness or dipsomania is a physical disease, depending on some molecular change in the nerve tissue, the direct effect of alcoholic poisoning; and the 'gemmules' of this tissue, when transmitted, become active factors in the formation of character." "It is important," says another writer, "to keep in view that the person afflicted with a tendency to drunkenness obeys a law of his members more potent than his will."

Heredity, then, is another fruitful cause why the drinking habit continues amid such abundant evidence of its terrible results. In the presence of the facts and statements coming to us from varied and most reliable sources, what appalling dimensions does our subject assume? Well might Dr. Richardson, of London, say in view of them: "The most solemn fact of all, bearing upon the mental aberrations produced by alcohol, and upon the physical, not less than upon the mental, is that the mischief inflicted on man by his own act and deed, can not fail to be transmitted to those who descend from him, and who are thus irresponsibly afflicted. Among the inscrutable designs of nature none is more manifest than this, that physical vice like physical virtue descends in line. It is, I say, a solemn reflection for every man and woman that whatsoever we do to ourselves, so as to modify our own physical conformation and mental type for good or evil, is passed on to generations that are yet to be. Not one of the transmitted wrongs, physical or mental, is more certainly passed on to the yet unborn than the wrongs that are inflicted by alcohol. We, therefore, who live to reform the present age in this respect, are stretching forth our powers to the next, to purify it, to beautify it, and to lead it toward that millennial happiness and blessedness which, in the fullness of time, shall visit this earth making it, under increasing light and knowledge, a garden of human delight, a 'paradise regained.'"

Another cause why drinking habits prevail is found in the ignorance or skepticism of the masses of the people. Notwithstanding the abundant testimony on these points, neither the majority of the medical profession, of the ministers of religion, nor of the public, have hitherto accepted these truths, or regulated their conduct in accordance with them. This ignorance must be dispelled, this skepticism overcome. The experience of man in all ages is that, when the convictions of the intellect are at variance with his habits, desires and appetites, he requires "line upon line and precept upon precept" to move and keep him in the right path. In these views I find my apology for reiterating, as I have done, facts and principles so often and ably stated and demonstrated by others.

Reliable statistics lead to the conclusion that two-thirds of our pauperism, disease and crime have their origin in this prolific source. In the endeavor to form some proper estimate of the far-reaching influences of this agent, we must not forget how nearly the complicated and all-important questions of the prevention and punishment of crime and of individual and social responsibility are related to this subject. They have already attracted the attention of students of medico-legal science, which is doubtless destined to be modified in the future by the study of them. Moreover, in this country, inebriety has already passed into the legislation of numerous States, and the duty of Legislatures in reference to it excites increasing attention. Nor have the annual squandering of six hundred millions of dollars (\$600,000,000), with its harvest of want and woe, and sixty thousand deaths, escaped the notice of statesmen. In the House of Representatives of our Congress, at its session in 1877, an elaborate bill was introduced by a very prominent and influential member, by the provisions of which he hoped to greatly diminish these evils. In Great Britain there has been and now exists, with a quickened activity, an influential association for promoting legislation for the "control of habitual drunkards"—legislation for the aid of institutions based upon the specific views and dogmas upon which our American asylums are founded. In Australia, the Colonial government has already enacted such laws and the home parliament has sanctioned the action. In France, in 1877, *La Temperance* made its appearance, and gives evidence that it will do good work in the cause. These are indications that the minds of the medical profession are taking the true direction and that, relinquishing the errors of the past, many of them are awakening.

The church is awaking to the moral bearing of these questions. Witness the position of the bishop and clergy of Central New York, listening with respectful attention and approval to the teachings of our associate, Dr. Wey. In the city of Buffalo there was a great demonstration, sanctioned and led by the bishop and priests of the Roman Catholic Church, which, if I am not in error, has no precedent in the history of this movement in this country, while Cardinal Satolli is heart and soul for temperance. The vast influence thus exerted we can hardly estimate. In the same city, a few days since, the pastor of a large and influential Protestant church made the following remarks: "In England, where the evil is even more marked than with us, the Established Church, so long indifferent to the danger, has begun to arm herself for the conflict. The clergy are man-

ifesting a zeal never before seen. Canon Duckworth, one of the royal chaplains, and Canon Farrar, among the most brilliant of English writers, have spoken decidedly in favor of total abstinence. For men brought up as they have been, holding the positions to which they have been raised by royal favor, to take this stand, requires an amount of moral heroism which unfortunately but few Christians possess. Never in the history of the great University at Oxford had a temperance lecture been delivered from its pulpit till Canon Farrar preached there a few years ago. When the Church of England is zealous on the subject of temperance we may know that the evil is of gigantic proportions."

Surely, in all these movements, we may find cause for the hope that remedies adequate to the removal of this overshadowing calamity will become universally known and applied. That the American Association for the Cure of Inebriates has already done much to disseminate the knowledge of its vastness and of the methods of its prevention and cure we need not doubt. We may be but one of the forces at work in this cause, but we are far from being an unimportant one. The seed we sow is springing up and must in due time bear an abundant harvest. May we not, then, without the appearance of indecorous self-assertion claim to hold the place—not of "advanced students" only, but also of instructors to those who truly desire to be informed on these engrossing themes; and go on with our appropriate work with renewed diligence, confidence and hope? As certainly as the "good days we look for" shall irradiate the earth, so certainly shall this stupendous obstacle to their advent be taken away; for the era of universal peace and purity can never visit a race debased and embruted by this prolific source of moral and physical degradation. Dr. Mason once said respecting the study of the disease of inebriety: "This is a vast field into which we have entered, and in which we may hope to reap the reward of true laborers; which on high authority, we learn is apportioned in accordance with their sincere purposes and persevering efforts rather than with their success." Dr. Mason was preëminently a "true laborer," and for his zeal, sincerity, philanthropy and perseverance in his efforts for the prevention of the evils of intemperance to his fellow-men we doubt not that he is now reaping a rich reward, and that ere now he has heard the words: "Well done, thou good and faithful servant."

Dr. Geo. Burr, of Binghamton, N. Y., in writing on the "Pathology of Inebriety," thus expressed himself, and his views are worthy of careful consideration and attention: "Inebriety has at length come to be regarded as a disease. Under the names of dipsomania (thirst craziness), or methomania (an irresistible desire to drink), it has found a place in the catalogue of diseases. It is not, however, a new-fangled notion, or a novel idea, to regard the intemperate use of ardent spirits as the result of a morbid condition." Nearly sixty years ago, Dr. Rush referred drunkenness to a morbid state of the will. To effectively treat the subjects of this disease he recommended "the establishment of a hospital in every city and town in the United States for the exclusive reception of hard drinkers." "They are," he remarks, "as much objects of public humanity and charity as mad people." Esquirol distinctly recognizes the existence of a disordered condition of the

system, which leads certain individuals to the abuse of fermented drinks. "There are cases," he continues, "in which drunkenness is the effect of accidental disturbance of the physical and moral sensibility, which no longer leaves to man liberty of action." Dr. Robert Jamieson, of Aberdeen, speaks of the propensity to drunkenness as "a morbid impulse, forming a variety of moral insanity, referred to under the name of dipsomania." In 1833, Dr. Woodward, of the Worcester (Mass.) Insane Asylum, in a series of essays, maintained that intemperance was a disease, and declared, from his own experience in the management of many hundreds of intemperate persons who had committed crimes which rendered confinement necessary, or who were insane in consequence of this habit, that this disease was amenable to treatment, and that "a large proportion of the intemperate in a well-conducted institution would be radically cured, and would again go into society with health reestablished, diseased appetites removed, with principles of temperance well grounded and thoroughly understood, so that they would be afterward safe and sober men." Dr. Isaac Ray, while he was inclined to believe that this condition is the effect of a long-continued voluntary habit, yet affirmed that "there is strong evidence in favor of the idea that they (the pathologic changes) in turn become efficient causes, and act powerfully in maintaining this habit, even in spite of the resistance of the will."

Opinions of a more recent date confirming this view, might be quoted *ad libitum*; but the foregoing are sufficient to establish the proposition laid down that it is no novel or newfangled idea which refers the phenomena of drunkenness to morbid causes and to a diseased state of the system. In considering the subject of inebriety as a disease, we must bear in mind that it is the propensity or desire to indulge in the use of ardent spirits, and not the habit of drinking to excess, or drunkenness, and its subsequent effects upon the economy of the human system that is to be regarded as the morbid condition. A broad distinction must be made between the two. The latter is but the development of the former. The propensity when under the influence of exciting causes arouses the appetite, overcomes the will, blunts the moral sensibilities and makes everything else subservient to its demands. The habit is the natural sequence of the growth and development of the propensity. The one bears the same relation to the other that the eruption of smallpox bears to the contagion of that disease, or the several stages of an intermittent fever, to the poison of malaria. The delusions of the insane are but the morbid phenomena of a mind disordered; so the love of the bowl, and the self-destructive acts of the inebriate are likewise the manifestations of a condition of the organism that may well be regarded as diseased. What is the true pathology of this disease? Where is its seat? Why do men drink? What is the secret of that terrible propensity which impels them to put forth their hand to take the intoxicating cup? To answer these questions fully and satisfactorily requires a degree of knowledge relative to the intricate and complicated operation of his own organism at which man has not yet arrived. That the seat of the disease is much more remote, and that it is more intimately related to the ultimate and more recondite operations of the economy than the opinions which have usually been held would

lead us to believe, we can not but admit; but in what tissue and by what change of structure do we have the first intimation of the morbid propensity to drink? The early stages make no revelations. The unhealthy sensations that first call for alcoholic stimuli make no changes that can be located. As in some forms of insanity, the knife of the anatomist would be unable to reveal the slightest aberration from a normal condition in any of the structures. It is only when the propensity has gained the ascendancy, when the habit of excessive drinking has become established that we begin to find the morbid changes and the anatomic lesions.

A careful study of the phenomena of inebriety, and a just appreciation of its symptoms will enable us, however, to obtain an inkling, at least, of the true pathology of this terrible malady and curse. The more prominent symptoms of inebriety are great nervous irritability or restlessness, unnatural sensations, an uncontrollable desire for strong drink, and a disposition to frequent fits of intoxication from the use of ardent spirits. These all indicate that the nervous tissue is the seat of the morbid influence. The symptoms enumerated are those of morbid sensation, of perverted taste and appetite, of disorder especially in that portion of the nervous mass in which is evolved the desire for alimentary material or hunger and thirst. The disordered sensation and perverted taste are not unlike the emotional and intellectual disturbances that characterize insanity, and more especially are they similar to the hallucinations of the insane, to those impressions made upon the eye and ear, which give rise to sights and sounds entirely imaginary. Disorder of the nerves of taste creates a desire for strong alcoholic beverages which nothing else will satisfy. The same disorder affecting the apparatus of hearing, conveys the impression of supernatural voices or of strange and anomalous sounds. In the morbid manifestations of one we have methomania or drunkenness; in the other we have perversion of the moral sense, homicidal impulse, hallucinations, delusions, etc.

The seat of the abnormal sensations in this disease, according to Professor Reid, is in the encephalon and not in the stomach or in the pneumogastric nerves. This opinion is formed from the fact, which he ascertained, that the sensations of hunger and thirst continued after both these nerves had been divided. . . . In the anatomic structures, then, the seat of the morbid propensity to drink must be referred to that portion of the brain which takes cognizance of the nutritive operations of the body; to the nerves of taste, viz., the third branch of the fifth pair; and to the glosso-pharyngeal, or one of the eighth pair; to the trunks of the pneumogastric nerves, and to their terminal branches upon the mucous membrane of the stomach. It is probable that in the earlier stages, only a part of these structures is involved; but that, as the disease advances and the habit becomes fixed, the healthy operation of the entire apparatus is perverted and changed. In what the morbid condition consists, what molecular changes in the nerve substance are characteristic of this disease, as has already been remarked, has not yet been revealed to us. That there is some such change we have good reason to believe. . . . Of a certain grade of diseased tastes and appetites we have examples in the capricious demands of the stomach in chlorotic females, in certain longings

during the period of gestation, in the voracious appetite often seen in dyspepsia, and in the thirst of diabetes. These conditions are generally transient, or, if persistent they rarely exceed certain limits. Instances have occurred, however, of the grossest excess in devouring slate, clay, chalk and other similar substances by females whose appetites and taste had become perverted by disease. The opium habit, as it is termed, is another instance of morbid appetite, depending upon causes similar to those exciting inebriety; and there are few physicians, I apprehend, who have not witnessed instances of extensive disorder, manifested by excessive fondness for coffee and tea.

There is a natural desire of man for stimulants, which under proper subordination and moderately indulged in, could be a source of enjoyment and pleasure. It is this propensity becoming diseased that causes the uncontrollable desire for strong drink which gives rise to the phenomena, and which entails upon the unfortunate subject of the attack all the evils of inebriety.

Inebriety presents itself under various phases and assumes diverse characteristics. One class of inebriates are termed constant drinkers. In them, the propensity seems to be always present, urging the subject of it to daily indulgence. The use of alcoholic drinks with this class is a continuous habit, and as the disease progresses, in its later stages, every night finds the victim in a state of intoxication. Persons of this class are solitary drinkers. The propensity is not excited by either social or convivial incentives, but the indulgence is caused by an irresistible desire for drink. This form of inebriety is the most obstinate and the prospect of reform or cure is much less than in some others, and it is only by the strongest restraint and the most persistent efforts that any improvement can be made.

Another class of inebriates are subject to paroxysms of drunkenness, with intervals of greater or less duration, when they are entirely free from the habit, and feel no propensity to drink. The attacks are periodical in their character, and in this respect they are not dissimilar to other forms of periodic disease. The intervals vary materially in duration, some lasting only a week, others continue a month, a year, and even longer periods have been noticed. Dr. Van Arden, of Auburn, related to me a case in that city where a period of eight years elapsed before the paroxysm of drunkenness returned. The periodic form is probably the most common. A large proportion of the drunkenness under observation is of this character. The paroxysms appear to be excited by opportunities for gratifying them, such as visits from the country to our larger towns, the frequenting of drinking places, etc.

(To be continued.)

SOCIETY PROCEEDINGS.

Southern Surgical and Gynecological Association.

Seventh Annual Meeting held in Charleston, S. C.,
Nov. 13, 14 and 15, 1894.

FIRST DAY—MORNING SESSION.

The Association was called to order by the President, Dr. C. Kollock, of Cheraw.
Prayer by the Rev. Dr. Campbell, of Charleston.

An Address of Welcome was delivered by the Mayor of Charleston.

Dr. BAODIE, of Charleston, followed with an Address of Welcome on behalf of the local profession, and President Kollock responded in behalf of the Association.

Dr. WM. E. PARKER, of New Orleans, read a

MEMORIAL ADDRESS

On Dr. Warren Stone, which was prepared by the late Dr. A. B. Miles, of New Orleans. He said as Professor of Surgery in the University of Louisiana for thirty-five years, as surgeon to the Charity Hospital for thirty-eight, and as general practitioner from 1832 to 1872, whose experience covered eighteen epidemics of yellow fever and cholera in New Orleans, the name of Warren Stone is impressed indelibly upon the local history of a remarkable period. In his surgical clinics he taught the advanced surgery of the old school. He taught the principles of drainage in suppurative arthritis, in hepatic abscesses and in pyothorax. He advocated resection of the rib to facilitate the drainage in suppurative pleuritis. Whether in operative work or in the liberation of pus he made free incisions. He was among the first in the cure of aneurism of the vertebral artery. In the surgery of the arteries he was an expert. During fourteen years of his work at the Charity Hospital, he labored without an anesthetic. Realizing the difficulties under which he labored, he was ready to welcome the new era in surgery then about to dawn. The lives of many men are mirrored in their books and published papers, but the writings of Dr. Stone give but meager knowledge of his work, or his position as an authority on surgery in the South. No man in the profession of Louisiana was ever so universally beloved as Dr. Stone. In his relations with other physicians he was gentle and considerate; never intrusive or aggressive. Many of the physicians in Louisiana to-day who knew him in life, speak of him affectionately as "Old Stone," and always with some expression of endearment and respect. His position in New Orleans may be compared with that of Physick in Philadelphia, Mott in New York, Lister in London, and Velpeau in Paris.

Dr. J. B. S. HOLMES, of Atlanta, read a paper,

GONORRHEA IN WOMEN.

He said there was no disease that affected women that should engage the serious and thoughtful consideration of the physician more than gonorrhoea. The author then, after quoting Tait and Sinclair on gonorrhoea, said he had no doubt but that many of the chronic diseases of the ovaries and tubes that came under the observation of gynecologists were due to this disease. In the majority of cases the poor woman was ignorant of the fact that she had had or has any specific disease. Indeed, her husband might tell the physician that months or even years before his marriage he was a subject of gonorrhoea, which was cured and had since shown no evidence of a return. The essayist could conceive of nothing more dangerous than curetting the uterus in the presence of immense pus tubes with pelvic adhesions. The drawing down of the organ necessary for curettagge may break up pelvic adhesions and pour out the contents of pus sacs into the peritoneal cavity, which would result in the majority of cases in death to the woman. If her life is saved at all, it will only be done by a prompt abdominal section, with thorough irrigation and drainage of the abdomen. Then why not, in the first instance, when pus is detected, promptly remove it by surgical interference? We then treat the woman rationally and give her the very best and only chance of relief and restoration to health.

Dr. GEORGE J. ENGELMANN, of St. Louis, called attention to the importance of differentiating between latent or chronic gonorrhoea and the acute form of the disease. He does not look upon acute gonorrhoea as a dangerous disease in women, but he does the latent or chronic form. He has not seen serious results from the acute form, but it is the infection which is not observed from a supposedly cured gonorrhoea in the male which produces the suffering in women.

Dr. BEDFORD BROWN, of Alexandria, Va., took exception to the statement made by Dr. Engelmann in regard to the non-danger of acute gonorrhoea in females, and cited the case of a female in which acute gonorrhoea ran its course, terminating finally in fatal nephritis. In this case there was first urethritis, then cystitis, ureteritis, pyelitis, and acute nephritis.

Dr. RICHARD DOUGLAS, of Nashville, thought Dr. Engelmann had sounded the key-note in that there is quite a difference in the infection from acute gonorrhoea and the latent

form of the disease. Infection from the latter was a mixed infection, not only with the gonococcus, but with the streptococcus and staphylococcus also, and that accounts somewhat for the virulence of the trouble. That gonorrhoea is the cause of uterine fibroids, he could scarcely accept, although he thought Dr. Price was the author of that idea.

DR. JOSEPH TABER JOHNSON, of Washington, D. C., said in the treatment of pus tubes the result of gonorrhoeal infection, the very radical suggestion of Dr. Holmes was correct, viz., to resort to abdominal section, as he was satisfied that gonorrhoeal pus tubes were incurable by conservative measures. In addition to the removal of pus tubes, if present on both sides, the uterus should be removed also, because it is through the infected mucous membrane of the uterus that the tubes themselves have become infected.

DR. WILLIAM P. NICOLSON, of Atlanta, said the general surgeon was concerned in the treatment of gonorrhoea as well as the specialist. We are told that a urethra has been inflamed and subsequently restored to its normal condition, and yet years afterwards the man transmits gonorrhoea to his wife. It is hard for him to accept such a doctrine. If a man goes for months and years with a gonorrhoea absolutely producing no effect whatever, if he is not well, how are we to tell him that he is not? We are told by the essayist that gonorrhoea is contracted by the female when there is absolutely no evidence whatever of disturbance in the urethra of the male, or that there is no trouble by which he can propagate disease.

DR. A. M. CARTLEDGE, of Louisville, thought the essayist failed to differentiate between cases of subacute and chronic salpingitis and the cases of acute infection from gonorrhoea. He threw out the suggestion that physicians were not fully conscious of the great prevalence of artificial abortions in young married women of the better as well as lower class, and he believes that in these cases of secondary infection from pathogenic organisms we have a more fertile source for the development of tubular and ovarian disease than from gonorrhoea.

DR. W. E. B. DAVIS, of Birmingham, Ala., considered the disease a dangerous one. The views of Tait, however, in regard to gonorrhoea were extreme. We have a frequent cause of tubal disease in the puerperal state, in delivery at term or in premature deliveries, frequently in artificial abortions, brought about by mechanical means. More or less infection occurs after all cases of abortion, but if the patient is in good condition at the time, she will not be materially affected. If we have a soil that is favorable for the development of septic germs we will get a severe inflammation—a mixed infection.

DR. W. D. HAUGARD, of Nashville, desired to place himself on record as opposed to the removal of the uterus and tubes for pyosalpinx as the result of gonorrhoea, believing that by dilatation and judicious curetting, patients can be relieved of an endometritis produced by gonorrhoea.

DR. JOHN D. S. DAVIS, of Birmingham, Ala., emphasized the importance of using the microscope in connection with gonorrhoea and carefully examining the pus. Experience has demonstrated that the latent effects of gonorrhoea were not always directly due to the gonococcus *per se*, but to a mixed infection; that is, we have an inflammation as a result of the gonococcus, which is fired up by another infection from the streptococcus. When we have a mixed infection we have as a result pus tubes, suppurative peritonitis, and finally death of the patient if surgical interference is not resorted to.

DR. HUNTER MCGUIRE, of Richmond, entered a protest against the doctrine that a man can have gonorrhoea and not get well. As for the idea that a man who has had gonorrhoea should not get married, it is preposterous. He had seen thousands of cases get well and remain so.

DR. HOLMES, in closing, said he was aware that many cases of acute gonorrhoea resulted in no secondary trouble, because they were recognized early and cured by judicious treatment. He wished to be understood as not indorsing the views of Mr. Tait, that gonorrhoea in the male was never cured, but he insisted that general practitioners were often too careless in advising patients to get married who have been the subjects of gonorrhoea.

SOME CASES OF ACUTE INTESTINAL OBSTRUCTION, WITH DEDUCTIONS

was the title of a paper read by DR. A. MORGAN CARTLEDGE, of Louisville, in which he reported six cases, three of which terminated fatally. The author said that the limited number of operated cases reported in his paper, together with an individual observation of probably as many more not

subjected to operation, conform to the accepted belief of the hopeless nature of acute intestinal obstruction unless treated by early laparotomy. While the author does not contend that we can dispense with opium in the treatment of these cases, certainly where obstruction is in the least suspected we should withhold its use until a diagnosis can be made. Certainly the practice of masking every abdominal condition characterized by pain with opium is far too prevalent, and its practice gains additional calamity as surgery advances in knowledge which offers relief of these very conditions concealed by the cloak of opium and ignorance. The practical and cardinal points in avoiding a fatal delay and making an early diagnosis, are to be found in: Sudden abdominal pain; a rapidly accelerating pulse; the vomiting of much more fluid in a given time than is taken by the mouth; the green-tinged character of this fluid; the anxious expression of countenance when no opium has been used, the fact that although enema may be stained by the contents of the colon there is no expulsive movement of the bowels, and the passage of no gas. The burning question now is to educate men to know that action to be successful must be quick; that timely aid depends upon the man who first sees the case; that when a physician from any reason suspects that a patient's bowels will not move, he should drop everything else and center all his time and attention upon that patient. He should not waste his gray matter by trying to determine if it be a probable intussusception, volvulus, band, diverticulum or what not—leave that for the operation to determine; it is the most reliable way to find out.

In the afternoon, the members of the Association were taken on a special train to Professor Shephard's tea plantation and to the Forest Inn.

SECOND DAY—MORNING SESSION.

DR. F. W. McRAY, of Atlanta, Ga., read a paper entitled
HERNIA OF THE DIAPHRAGM WITH REPORT OF A CASE.

The author brought this subject before the Association for consideration, not alone because it offered an inviting field for experiment and investigation, but also because of a recent interesting case where, without warning, he was forced to meet the emergency without time for research into the literature of the subject; and while he was not then sustained by a knowledge of the opinions of the leading authorities, he finds from subsequent investigation that the course pursued was in accord with the recommendations of such eminent authorities as Laennec, Bowditch, Guthrie and Marcy. In the case reported, strangulation had occurred five days prior to the doctor's visit. Had an early diagnosis been made, he feels sure the strangulation could have been relieved and the patient's life prolonged. The opening in the diaphragm was accessible, and he believes it could have been closed with a fair chance of permanent recovery. The case serves to emphasize the necessity for early operation in all cases of acute obstruction of the bowels.

DR. LOUIS McLANE TIFFANY, of Baltimore, Md., read a paper entitled

GUNSHOT WOUND OF THE SPLEEN AND KIDNEY—ABDOMINAL SECTION—HEMOSTASIS BY DEEP SUTURE—RECOVERY.

The patient was a male negro, 20 years of age. Two hours previous to entering the University Hospital, March 21, 1894, he had been shot with a small caliber rifle from a distance of twenty feet, the weapon being directly behind him, and he being erect. His urine was slightly albuminous; the pulse, temperature and respiration normal. There was a bullet wound three inches to the left of the spine just below the last rib, from which blood oozed. After properly cleansing the wound it was enlarged, and it was found that the kidney had been injured and that a bullet had passed onward, presumptively into the peritoneal cavity. The wound was filled lightly with gauze by the resident physician, and Dr. Tiffany was notified. External examination of the abdomen by touch and palpation revealed nothing, not even painfulness. The patient was anesthetized, laid on the belly, and the wound after being enlarged was examined. The upper portion of the left kidney was perforated, and dark blood flowed from the peritoneal cavity beyond. This large wound was filled with gauze, the patient turned on the back, and the abdomen freely opened along the left semilunar line. A moderate amount of blood was free in the peritoneal cavity; no wound of the intestine could be discovered, but the spleen was found perforated, blood flowing freely from the wound of entrance, as well as from the wound of exit; the latter wound, in the concavity of the organ, was slightly the larger of the two. The perforation

through the spleen was about three inches from the free lower border. Unwilling to subject the patient to splenectomy, the essayist attempted to arrest the bleeding in the following manner: A long needle threaded with silk was passed entirely through the spleen, central to and parallel with the bullet track; the long ligature was then tied over the free border of the organ so as to press the surfaces of the wound together tightly enough to arrest bleeding, yet not to tear through the splenic tissue; the ends of the ligature were cut short, the peritoneal cavity cleaned by copious irrigation with hot water and the abdominal wound closed. The kidney was tamponed with gauze through the dorsal wound. Convalescence was uneventful; the anterior wound healed by primary union; urine flowed freely from the dorsal wound for two days only, union by granulation taking place. The patient left the hospital well, April 22. In this case, the wound being small, hemorrhage was not profuse, and no abdominal organ save the spleen was wounded.

DR. WILLIAM PERRIN NICOLSON, of Atlanta, Ga., next presented a paper upon the report of a

SEVERE CASE OF NEVUS

which was cured by the use of galvano-puncture. The case was one of a large growth occupying the groove from the angle of the jaw, up to and covering a portion of the ear, and extending out upon the cheek, the entire tumor being almost the size of a hen's egg. Dr. Nicolson formulated the following conclusions as having been reached in the long period covered in the treatment of this case:

1. That while this treatment may not be applicable to all cases, in many of those that are reached by difficult dissection, and are subject to dangerous hemorrhage, as well as an unsightly looking scar, this is undoubtedly to be preferred to any other surgical proceeding. The time required in a cure is more than balanced by the entire preservation of the skin and the absence of danger from operative work.

2. That as to the quantity and quality of the current to be employed, as many as six cells of a zinc-carbon battery may be sufficient in small growths, while twelve cells of the same is perhaps the maximum to which it should be carried if the current from the positive pole alone should be employed.

3. The method of applying needles. Various forms of needles may be employed, but the ordinary steel needle gives equally satisfactory results, as the eschar produced in the skin at the point of entrance is not sufficient to amount to anything and the needles can thus be changed at each sitting. That only one of them should be inserted into the tumor, while the negative pole should be attached to a sponge electrode moistened with a salt solution, and placed upon some indifferent point, care being taken to remove it from point to point in order to prevent blistering the skin.

4. Method of attacking the tumor. Better results are obtained by passing the needle in from a periphery of the growth on a line horizontal with the skin, and in directions radiating from the circumference towards the center. Several of these punctures should be made at each operation. The length of the entire sitting should not extend to more than twenty minutes or half an hour, while intervals of two to three weeks, or longer, should be left between operations to know whether there may not be a progressive shrinking away of the tumor.

5. As to the method of cure. He thought that several elements entered into attaining the result, of which the coagulum of the blood was one, and perhaps the least. The two remaining elements were the subsequent contractions of the small eschar produced in radiating lines from the tumor, and the effect of the current upon the vasomotor nerve supply. He felt sure that a thorough trial of this method as to the settling of the various points considered, would result in its adoption in the treatment of perhaps a large majority of these cases where we have a large elevated blood tumor with which to deal. He also believed that perhaps pricking the surface with the needle attached to a positive pole of the battery, might result in a series of small scars, which would result in removing the ugly port wine marks so common in this trouble.

OPERATION FOR COMPLETE PERINEAL LACERATION.

This paper was read by DR. JOSEPH PRICE, of Philadelphia, in which he said that there are many men who, essaying to be authorities on the surgical diseases of the major order, have no conception whatever of injuries of the perineum and cervix so far as their intelligent repair is concerned. Indeed, there are many with a large obstetrical practice, who labor under the delusion that they have never ruptured a peritoneum, and that all their patients have entirely normal perineae. This misconception is due to improper

teaching more than to any other cause. Perineal lacerations, unless extending through the skin to or through the sphincter, may escape detection unless by thorough digital examination. All these tears should be approached as distinct surgical lesions to be repaired in the line of their anatomic destruction, and not as cosmetic operations, whose object is to obtain superficial appearances without regard to perfection and utility. Heaping up of tissue outside the lines of resistance and tension, or mere thickening of mucous membrane and skin does not make a true perineum, neither does a set of outside sutures, however much they may draw the parts together, afford any anatomic counterpart of a perineum. From this basis all the so-called outside flap splitting operations for perineal tears are only puckering operations, bringing parts within the sutures that have never been severed, and in many cases taking them out of their proper relations. Big sutures, heavy ligatures, clumsy instruments have no more place here than in other surgery. The ordinary short strong sewing needle, fills the bill exactly in most cases, though the Emmet stryfine short needle for general use is preferable. Silkworm gut or silver wire is the preferable suture. The Emmet operation as originally suggested, and afterwards modified by its distinguished devisor, is the foundation for all successful operations on the lacerated perineum, either with or without sphincter tear. Dr. Price, in closing, said the tears of perineae are often unavoidable, but their restoration is always possible, and their neglect is criminal.

After the reading of Dr. Price's paper, Dr. Engelmann took the Chair and PRESIDENT KOLLOCK delivered his

ANNUAL ADDRESS.

He first thanked the Association for the honor conferred upon him in electing him President. He then alluded to the death of Drs. William T. Briggs, of Nashville, and A. B. Miles, of New Orleans. Dr. Briggs' life had been one of usefulness. He had done excellent and remarkably brilliant work, and had achieved an enviable reputation. Dr. Miles, who had been made Professor of Surgery in Tulane University, was a man full of youthful activity and manly vigor, who by patient study and diligent research, aided by a brilliant intellect, had won for himself a high position in the profession, and in the estimation of his fellow men. "To know him was to admire and love him." His life was gentle and the elements so mixed in him, that Nature might stand up and say to all the world, "This was a man."

While in all branches of gynecology good progress had been made, he noted with pleasure that surgery had had its triumphs. Many reports of cases show enlarged experience and continual improvement in the treatment of appendicitis, hernia, intestinal obstruction, and many other ills that flesh is heir to.

OBSERVATIONS ON THE ACTION OF CHLOROFORM ON THE FUNCTIONS OF THE HUMAN BRAIN AND SPINAL CORD, AS WITNESSED IN EXTENSIVE INJURIES OF THE CRANIUM AND BRAIN.

DR. BEDFORD BROWN, of Alexandria, Va., read a paper on this subject. Dr. Brown cites the history of two cases of extensive compound comminuted fracture of the os frontis and serious injury and destruction of a portion of the frontal lobes of the brain as the basis of his paper. One of these cases of injury was caused by the kick of a newly shod horse, the other by a spent grapeshot in battle. The subjects of both of these injuries retained perfectly their powers of consciousness and sensation. The history of the first case was published in the October number of the *American Journal of Medical Sciences*, 1860, and occurred in the summer of that year. The fracture in that case involved a large portion of the os frontis. The fractured bones were driven back into the substance of the brain quite an inch in depth, lacerating the frontal lobes extensively. There was a loss of about two tablespoonfuls of brain. During the operation, which lasted more than an hour, the patient was placed under a compound of chloroform three parts, ether one part, four different times. Through this large opening in the skull the brain could be seen clearly and its varying changes of action under chloroform could be observed perfectly. The invariable action of the anesthetic was to suppress hemorrhage, to quiet cerebral pulsation and to positively reduce circulation in the brain and arterial tension. These peculiar effects were observed as many as three or four different times. When the patient was threatened with collapse from chloroform, stimulants injected in the rectum produced increased circulation and arterial tension in the brain promptly. Any struggling, mental excitement, or resistance while inhaling

chloroform caused marked increase in cerebral circulation and pulsation with increase of hemorrhage.

The second case was that of a Confederate soldier, who in battle received a spent grapeshot in his forehead, causing an extensive compound comminuted fracture of the os frontis, driving the fractured bones back more than an inch into the frontal lobes. The wound in the skull was quite two inches in diameter, and more than an inch in depth. This patient was subjected to chloroform three times during the operation which lasted an hour. The action of chloroform on the functions of the brain in this was similar to that in the first. When under full anesthesia each time the cerebral hemorrhage ceased, the cerebral pulsations diminished to a mere tremor, and the arterial circulation was markedly reduced. This occurred three different times during the operation. The action of alcoholic stimulants resorted to in this case to prevent collapse from chloroform increased the cerebral pulsations and circulation in a positive manner.

HYDRO-PYONEPHROSIS—SUCCESSFUL REMOVAL OF A FORTY POUND TUMOR OF THE KIDNEY.

By DR. JOSEPH TABER JOHNSON, of Washington, D. C. The patient was 63 years of age, and had inherited and possessed until five years ago a remarkably good constitution. At this time a lump appeared in his right side in the region of the liver and was supposed up to the date of the operation to be caused by enlargement and abscess of that organ. This lump slowly increased in size and the patient had gradually lost flesh and strength until the date of the removal of the lump, when he could not have weighed more than 80 pounds. At no time did he suffer from pain, and only a few weeks with fever. There were several points of interest in this case, viz., failure of a number of good men to make a diagnosis, though the patient was under observation for nearly five years. Failure of repeated examinations of the urine to detect the slightest evidence of disease of the kidney. The only explanation the writer suggests is that the disease at the time of analysis and subsequently had so destroyed the function of the kidney as to prevent the escape of any urine at all, and that the specimen examined came from the other organ, which fortunately was healthy. Failure of such large quantities of foul smelling pus to produce more sepsis. Absence all through the history of pain or fever. The median line incision, the separate ligation of the renal vessels, and the ligation and dropping of the ureter.

The writer is aware that the lumbar incision is preferred by nearly all nephrectomists, and that they frequently bring out the cut end of the ureter and fasten it to the abdomen. While the lumbar incision may be best in small tumors and other disease of the kidneys it certainly could not have succeeded, the author believes, in a case of the magnitude of the one here reported, not only on account of its great size, but also on account of its being so extensively adherent to the omentum and abdominal wall. The colon had to be carefully separated from the anterior surface of the tumor.

Dr. W. L. ROBINSON, of Danville, Va., read a paper entitled

REPORT OF CASES.

He reported two gunshot wounds of the abdomen, lacerating the liver and bowel. In neither case were the symptoms commensurate with the injury; neither shock, hemorrhage, nor pulse portrayed the necessity for operation. Yet in view of the 92 per cent. mortality of gunshot wounds of the abdomen without operation, he did not hesitate. The first case came so near dying on the table, and his light being imperfect (at 12 o'clock at night) he only found the liver wound, failing to find the hole in the posterior border of the hepatic flexure of the colon. The patient died in three days. His second case was operated on promptly, and the injury in the transverse and descending colon was promptly repaired with the Murphy button. The man was on a spree and had had no action from the bowels for three days. He pressed out much fecal matter, but should have taken more time and ruptured the bowel as far as practicable. For two days no unfavorable symptoms presented themselves, but on the night of the second day tympanites and pain began. He suggested to his associates the propriety of reopening the abdomen, but enemata and grain doses of calomel were tried. This, the author considered, was his fatal mistake, for the waiting of ten hours had lost him the chance of a life-saving operation. He reopened and with medium trocar emptied the bowels of gas, but exudative lymph was manifest on bowels, and obstruction of button by feces existed. The button held its tissue firmly, and no leakage had occurred. He washed out the cavity, but patient died in ten hours of shock.

MOVABLE KIDNEY.

This paper was read by DR. GEO. BEN JOHNSTON, of Richmond, Va. At the outset the author emphasized three propositions: 1, movable kidney is extremely common; 2, it is capable of producing very distressing symptoms, and in many instances is a menace to life; 3, it is curable by a simple and safe operation. The author's own experience with movable kidney from a surgical standpoint extends back a little more than three years. Prior to the first nephrorrhaphy, which he performed in May, 1891, those cases he had met with were given little or no thought. Since the date mentioned, he has looked with more interest on his cases, and has come to marvel at the frequency of the malady. He has examined a limited number of persons likely to be the subjects of movable kidney since his first operation for its relief, and in a comparatively small number of subjects he has encountered twenty-seven cases. Edebohls, who has studied 500 cases fixes the rate at 1 for every 5 or 6 women examined. Linder gives about the same rate. Osler makes no statistics, but mentions it as a common occurrence in his hospital wards. The records of these observers and Dr. Johnston's cases justify the assertion that it is a common malady. It occurs more often in women. He had never seen one in a male subject. Age is a factor in its production. His own cases have been in subjects varying in age from 20 to 35 years. In only one instance has he seen it in a woman over 40. Both kidneys may be movable at the same time. The right is the one that is affected in the preponderating majority of the observed cases. This is accounted for by the relation of the kidney to the liver on this side. Two anatomic facts help to explain the preponderance of the right over left kidney displacement: 1, the greater length of the right renal artery; and 2, the firmer attachments of the left kidney. The author has twice seen a movable kidney follow obstruction of the ureter. It happened that both of these cases were on the left side. The increased weight of the kidney due to accumulated urine and congestion must have played an important part in the etiology of the dislocation in these two cases. In many cases of movable kidney, there are no symptoms. In others, the symptoms are extremely distressing, producing great mental disquietude, as well as intense physical suffering. In a proportion of cases the symptoms are grave. Torsion of the ureter is common, partial occlusion by bending is not uncommon, inducing a distension of the pelvis by dammed up urine. Hydronephrosis may follow. Calculus is thus invited by reason of poor drainage. Apart from tumors of the kidney itself, the condition most likely to be mistaken for movable kidney is distended gall bladder.

Nephrorrhaphy is not indicated in every case of dislocated kidney, but only in such cases as manifest distressing or dangerous symptoms. When gastro-intestinal disturbance impairs the general health, when nervous symptoms are severe, when the dragging abdominal pains are constant, when disease of other organs is simulated, when hydronephrosis is threatened, when one or more attacks of torsion have occurred, the operation is imperative. The author then outlined his method of operating on movable kidney, and closed his paper with a report of seventeen cases.

Dr. RICHARD DOUGLAS, of Nashville, followed with a paper entitled

ACUTE PERITONITIS.

Appreciating the condition under which the colon bacillus may escape from its natural habitat and become actively pathogenic, and knowing the supply is unlimited, the dose being governed alone by the integrity of the bowel, naturally we accord to this bacillus the first place in the causation of peritonitis. In obedience to the teachings of experimental work, the surgeon must accept the classification of Pawloski of two forms of peritonitis: 1, that produced by chemic agents with which we are not concerned; 2, that produced by infection. The latter is more tangible. It is fully in accord with our ideas of the genesis of the disease. It harmonizes with clinical work. With Mordecai Price, the author agrees that every case of general peritonitis has a demonstrable cause, and that cause is septic in character. Pathologic manifestations of peritoneal infection are subject to many variations which, in a great measure, indicate the violence of the poison and guide us in forming a prognosis, but to simplify matters, the author considered it under two heads, which illustrated the microscopic and macroscopic changes the result of general peritonitis.

It is an indisputable fact that the type and virulence of the inflammation are largely dependent upon the origin

hence in our bedside work we may consider the subject under the following etiologic classification:

| | | |
|-------------------------|------------|---|
| Infection from without. | Immediate | { This is the direct infection of the peritoneal membrane through penetrating wounds of the abdomen, either accidental or surgical. |
| | Mediate | { This form embraces all cases of contamination of the peritoneum occurring from extension of adjacent infected areas, as leakage from mural abscesses, or puerperal infection. |
| Infection from within. | Immediate. | { Visceral perforation or rupture and direct inoculation of the peritoneal membrane with escaping contents, as in perforating typhoid or gastric ulcer, appendicitis, or rupture of gut or bladder. |
| | Mediate. | { Infection by emigration of micro-organisms through visceral wall of impaired resistance as in incarcerated hernia, intestinal obstruction, ruptured ovarian cyst. |

The author then reported a few illustrated cases. One case was reported of general purulent peritonitis. The patient recovered and the author considers that it was due entirely to free incisions, thorough irrigation and ample drainage.

THIRD DAY—MORNING SESSION.

HISTORY OF VAGINAL EXTIRPATION OF THE UTERUS.

DR. GEO. J. ENOELMANN, of St. Louis, read a paper on this subject, in which he stated that at the New Orleans meeting of the Association he was deeply interested in vaginal hysterectomy, which he presumed was a comparatively new operation with very recent modifications; but Dr. Lewis, of that city called his attention to an old French pamphlet, showing that the operation had been done in the '20's. Since then he had found it was done still earlier precisely as it is done to-day, the operation having developed step by step.

DR. LEWIS, of New Orleans, in the discussion stated that the first vaginal hysterectomy was performed by Dr. Dabourg in the little town of Autell, France.

DR. EDMOND SOUCHON, of New Orleans, read a paper entitled

REMINISCENCES OF DR. J. MARION SIMS IN PARIS.

In 1860, Dr. Souchon had just entered into the study of medicine in Paris, and was attached to the service of Professor Velpeau. In the spring of the following year, he by accident met Dr. Sims who had come to Paris with a letter to Velpeau from Valentine Mott, of New York. At this time Dr. Sims knew nobody in Paris and could not speak a word of French, so that the meeting of young Souchon was a very great help to him in his intercourse with Velpeau and the other surgeons of the French capital. Sim's great object was to get a case on which to demonstrate the success of his operation for vesico-vaginal fistula. Velpeau procured a case which Sims operated successfully before a large audience of students, doctors and professors in the operating theater of the old Charitè. The ovation Dr. Sims received was very great and gave him the start that made him the universal surgeon we all know him to have been. Wherever he traveled and located he had more calls than he could attend to. This success, however, was not without hard moments, for twice he met cases that came very near terminating disastrously from the effects of chloroform. But their final recovery only increased the admiration of all for his fine qualities as a surgeon. Dr. Souchon relates in his paper several instances of Dr. Sims' generosity and gives a graphic account of the generous and sublime manner in which Dr. Sims came to his rescue in a trying moment of great distress. Dr. Souchon's paper ends in words of highest praise, enthusiasm and love for the great and good man, Dr. Sims.

DR. GEO. H. NOBLE, of Atlanta, Ga., read a paper entitled
A CASE OF CARCINOMA OF THE PARTURIENT UTERUS, REMOVED
THREE DAYS AFTER CONFINEMENT—RECOVERY.

The specimen presented was one of carcinoma of the parturient uterus removed by vaginal hysterectomy three days after labor. The woman had previously been confined, sustaining a laceration of the cervix uteri, which perhaps was a factor in the cause of the disease. In the first few months of the last pregnancy the patient was treated locally by her family physician; but there was nothing to cause a suspicion of malignancy. Almost the entire vaginal portion of the cervix was destroyed, less than one-fourth of its circumference remaining intact. The induration extended deep

into the uterine tissue, but could not be felt beyond the limits of that organ. The roughened ulcerated surface was easily traced for a considerable distance within the cervix, the os being dilated to about five centimeters in diameter. Her condition was unpromising, and surgical interference was clearly interdicted, so the os and vagina were cleansed thoroughly and lightly dressed with gauze. She was then placed profoundly under the influence of morphia sulphate with a view to arresting labor, securing rest, and recuperation sufficient to permit evacuation of the uterus, which occurred spontaneously twelve hours later. The child was poorly nourished and lived only a few weeks, finally dying of inanition.

What is the advantage of hysterectomy over Porro's operation, and if hysterectomy is preferable should the vaginal or abdominal method be given precedence over the other? To the first question the author answered that hysterectomy undoubtedly promises more to the mother than a Porro operation in cases where the disease is confined to the uterus, and he asserts that when the cancerous mass can be successfully removed, it is the duty of the surgeon to do it, as Porro's method merely bridges the woman over the puerperal state and leaves her to her fate. In radical removal there is a promise of cure.

In answer to the second question, the author said it is evident that the method of operating must depend largely upon the character of each individual case. Thus the vaginal operation may be done when it is desirable to take advantage of the diminished liability to shock, even though the large size of the uterus may render the operation more tedious. The main point in the paper was to show the feasibility of hysterectomy in the puerperal state for cancer of the uterus, as the case reported clearly demonstrated, even though it is too early to claim immunity from the return of the disease.

LIGATION OF ARTERIES

By DR. JOHN A. WYETH of New York. The author said that in August, 1894, in an operation for the removal of a malignant neoplasm of the left upper jaw, which involved the spheno-maxillary fissure and part of the orbital cavity, it became necessary as a preliminary operation to ligate the external artery. In cutting down upon this vessel by the usual incision—the point of bifurcation of the common carotid artery being, as demonstrated by him in a study of 121 subjects, opposite the upper border of the thyroid cartilage—he found quite a network of veins crossing from the median line of the neck to the internal jugular immediately over the point of ligation, and spreading from one-half an inch above down to the bifurcation of the common carotid. As it would have taken some time to apply a double ligature to each one of these veins, and as the author, on account of the bad general condition of the patient desired to expedite matters as much as possible, he resorted to this expedient: By catching hold of the sheath of the common carotid and at the same time making gentle traction upon the lowermost of these veins with a blunt hook in an upward direction, he found that with his aneurism needle, armed with a good-sized catgut ligature, he could slip this instrument around the artery just in the crotch of bifurcation of the common into the external and internal carotids. Having every confidence in the healing power of arteries ligated under aseptic conditions, especially those tied with animal ligatures—in preference catgut—the ligature was applied at this point, and immediately tightened. It was so close to the common trunk that it also occluded the superior thyroid branch which is given off as a rule just at this point, and which he saw within the grasp of the ligature as he tightened it. The wound was immediately closed without drainage and sealed by iodoformized collodion dressing. The operation on the jaw was completed with an insignificant loss of blood, and on the fifteenth day after the operation the patient left the private infirmary in New York City for his home in the western part of the State. There was no hemorrhage following this deligation. About five years ago, in a similar operation, a ligature was applied at this point with equal success. The speaker did not relate these two cases for any bearing they might have upon the safety of ligation of the external carotid artery, since that question had long been settled. But the reason for narrating these two cases was to bring before the Association a consideration of the inflammatory changes which occur in arteries which have been ligated, and to discuss at length the best methods to pursue in these operations to secure the greatest safety to the patient. In tying arteries, an important point to consider is the selection of a ligature. It seems to the author that in the animal ligatures, and especially in well prepared and

properly aseptized catgut is found the best ligature material. For the last ten years he had used catgut almost without exception, only once or twice using silk, and then in the ligation of the large venous trunk close to the root of the neck, in which he was fearful that the animal ligature might slip, from the blood pressure in the act of vomiting, as the patients came out from under the influence of the anesthetic.

Porta in four hundred experiments, found that in from one to two years, 70 per cent of catgut ligature had become absorbed; 36 per cent., of silk, 66 per cent. of hemp or flax, and 20 per cent. of horse hair. Order of rapidity; catgut, hemp, silk, horse hair.

SIMULTANEOUS APPEARANCE OF CANCER IN BREAST AND UTERUS.

This paper was read by DR. JAMES EVANS, of Florence, S. C. The subject of this interesting manifestation of the disease was a lady 53 years of age, married and the mother of six children. A striking peculiarity in the history of the case, was, that when the disease was most active and destructive in the breast, it rather checked and retarded its tendency in this direction in the uterus. Excision of the cervix and removal of the breast were proposed; but declined. The author closed by saying that although there is a very general consensus of opinion among surgeons that the most successful treatment of cancer affecting the breast and uterus is early and radical removal by the knife, yet it is doubtful in the opinion of the author if operation is advisable when the disease appears in multiple form and in distant organs. When the disease is confined solely to the uterus and recognized at an early stage of its invasion, the prompt removal of the organ is usually followed by permanent recovery; in fact, recurrence less often takes place than removal from any other organ or part of the body.

DR. W. E. PARKER, of New Orleans, reported seven cases of

VARICOCELE

treated by incision, ligation and shortening of the scrotum. An incision, varying in length according to the size of the varicocele is made, and the scrotum shortened by converting the wound from a longitudinal to a transverse one. All cases recovered with union by first intention, and are still doing well, the period since the first operation being seven months. At the conclusion, he gave the following general indications for the treatment of varicocele: The milder forms should be treated with a suspensory bandage with proper attention to diet, exercise and bowels. A varicocele should be operated upon: 1, if it is of large size; 2, if it is painful; 3, if marked nervous symptoms be present; 4, if the testicle is atrophying; 5, if the varicocele is increasing rapidly; 6, if it is an obstacle to entering a public service; 7, if, on account of a patient's occupation, a suspensory is troublesome and he desires an operation.

DR. RUFUS B. HALL, of Cincinnati, Ohio, read a paper entitled

FIBROID TUMOR OF THE UTERUS WITH SUPPURATING OVARY DISCHARGING PER RECTUM.

As a preface to his report, Dr. Hall said the subject of operative treatment for fibroid tumor of the uterus is one in which the keenest interest is manifested by men engaged in abdominal surgery. The main points in the technique of the operation have been practically settled, but certain minor details in operative procedure are capable of improvement. Complications occasionally arise, which tax to the utmost the skill of the operator. The following case was reported in detail, as illustrating a number of these complications: The patient, aged 44, was known to have a fibroid tumor for five years. She had suffered from sepsis for five weeks previous to the operation. In addition to the fibroid tumor was a large suppurating ovary holding about two pints of pus, which was discharged per rectum every eight or ten days. The suppurating ovary was densely adherent, and after its removal disclosed a large opening in the rectum. The operation included total extirpation of the fibroid uterus with the suppurating ovary, and repair of the intestinal rent. There was no leakage of the injured bowel after the operation. The patient recovered.

The Doctor drew the following conclusions: The question of operation during sepsis is one that will admit of discussion both *pro* and *con*, but in the end it must be decided by the merits of the individual case and not by rule. As to technique, total extirpation was given the preference, as it gives the ideal condition both theoretically and practically for after treatment. The Baer method was condemned as it does not give thorough drainage—a thing absolutely neces-

sary where there are extensive raw surfaces which have been bathed in pus, and no peritoneum to close off the general peritoneal cavity. The strengthening of the suture line with a tag of adventitious tissue was advised. The packing of the pelvis with gauze to protect the cavity from intestinal leakage should any occur, and to prevent intestinal adhesions, was recommended. The gauze is usually removed on the fourth day and peroxid of hydrogen used as a wash for the cavity several times daily. Again, forcible dilatation of the sphincter ani muscle to cause incontinence, thus relieving the intra-intestinal pressure from accumulating gases, the Doctor says, adds greatly to the chances for recovery. He first employed it for this purpose on Feb. 6, 1893, in an operation for extra-uterine pregnancy with extensive bowel injury, the patient recovering. He says, so far as he knows, he is the first man to practice forcible dilatation for this purpose.

DR. J. G. EARNEST, of Atlanta, Ga., contributed a short paper in which he reported some complicated cases of pelvic surgery. Two cases were detailed simply to illustrate a method of treatment that under certain circumstances is safer for the patient and just as apt to give relief of symptoms as total extirpation of the tumor; also to emphasize a growing conviction the author has, that intestinal adhesions are frequently tinkered with when it would be best to leave them alone. The essayist was no advocate of timid or imperfect surgery, but in cases where the tumor can be effectually dealt with without disturbing old, thoroughly organized adhesions, which the history and condition of the patient clearly show to be harmless, and in view of the fact that if those adhesions are loosened they will almost certainly anchor at some other point where they may be a source of constant annoyance, or even produce a fatal obstruction of the bowel, he believes it best to leave them undisturbed.

THE REMOVAL OF AN INTRA-UTERINE FIBROID TUMOR BY MORCELLEMENT WITHOUT HEMORRHAGE.

DR. HERBERT M. NASH, of Norfolk, Va., read a short paper on this subject. In September, 1892, he saw in consultation Mrs. A., aged about 42 years, the subject of intractable hemorrhages from the uterus, lasting from two to three weeks of each month, and which had been habitual for several years. The uterus could be plainly felt above the pubes, and by the conjoined method, sound and so forth, the diagnosis of intrauterine fibroid was made. Not wishing at that time any radical procedure, she continued under the care of her physician, whose best efforts to control the hemorrhage proved fruitless. On July 11, 1893, she entered the hospital for surgical treatment. On August 26, the essayist operated under ether. It was found quite impossible to dilate the os to the extent desired, but there was room enough for manipulation without dividing the cervix, and no difficulty was found in seizing the presenting mass—the attachment of which to the uterine walls had been made out to be sessile—with a strong volsellum. Upon making traction with some force, in order to determine the best method of procedure, the tissue gave way, and the withdrawn part of the detached mass was quite large, but no bleeding followed. This fact decided the Doctor to proceed by morcellement, and with the forceps, scissors, and the instrument he exhibited, the whole growth was removed piecemeal, and with only a slightly colored serous discharge. The previous packing had been so effectual that the growth itself, and indeed the uterine walls appeared to have been exsanguinated. The fragments removed, when under strong compression, presented a mass of fibroid tissue nearly as large as an ordinary cocoanut. When the patient left the hospital, the uterus had contracted firmly and measured a fraction over three and one-half inches in depth, occupied its proper position in the pelvis, and the patient is to-day entirely well with perfectly normal functions.

The following officers were elected:

President, Dr. Louis McLane Tiffany, of Baltimore, Md.

First Vice-President, Dr. Ernest S. Lewis, of New Orleans, La.

Second Vice-President, Dr. Manning Simons, of Charleston, S. C.

Treasurer, Dr. Richard Douglas, of Nashville, Tenn.

Secretary, Dr. W. E. B. Davis, of Birmingham, Ala.

After introducing and adopting resolutions of thanks, the Association adjourned to meet in the City of Washington, D. C., the second Tuesday in November, 1895.

Blank Applications for membership in the Association at the JOURNAL office.

Mississippi Valley Medical Association.

Abstract of the Proceedings of the Twentieth Annual Meeting, held at Hot Springs, Ark., Nov. 20-23, 1894.
(Continued from page 872).

FOURTH DAY—MORNING SESSION.

DR. ROBERT C. HEFLEBOWER, of Cincinnati, read a paper on

THE REMOVAL OF THE AUDITORY OSSICLES FOR THE RELIEF OF CHRONIC DEAFNESS AND OTHER ABNORMAL CONDITIONS.

After a thorough and exhaustive review of the history of operations to relieve chronic deafness, from the earliest date to the present time, the author passed to the indications for the operation. He believes that it is indicated in deafness caused by chronic catarrhal processes, as well as headache, vertigo, tinnitus, etc., accompanying this condition, adhesions and chronic suppuration from the middle ear, especially when the ossicles are necrotic. In seven cases reported, where the operation was made to relieve either deafness or tinnitus, or both, there were good results. In closing, the writer says: From my experience with this class of ear cases, I would draw the following conclusions:

1. No bad results attend the excision of the malleus and the incus, but the removal of the stapes is not without the most serious danger, both to life and hearing.
2. That the removal of the malleus and incus alone is far preferable to the removal of the stapes.
3. The operation is of extreme service in chronic suppuration in suitable cases, frequently avoiding mastoid and other serious disturbances of an equally serious nature.
4. It should be performed in cases where there is a high perforation, or where the membrana flaccida is perforated and where the ossicles are necrotic.
5. Tinnitus, headaches of ear origin and vertigo are relieved.
6. In suitable cases it is invaluable for relieving deafness, whether from chronic suppuration or from chronic catarrh and sclerosis.

Dr. H. C. DALTON, formerly Superintendent of the St. Louis City Hospital, read a paper on

STAB WOUND OF PERICARDIUM.

In which he gave the history of a case upon which he operated for that injury. The patient, 22 years of age, entered the hospital Sept. 6, 1891, having been stabbed in the left breast an hour before admission. A wound half an inch in length was found, an inch and a half above the nipple. As there was no hemorrhage from the wound and the patient's general condition was good, an antiseptic dressing was applied and the patient put to bed. Percussion of heart and lung gave normal results. The temperature was 99.5 F., pulse 110; respiration 28. Ten hours after admission to the hospital, his temperature rose to 101, pulse 112, respiration 40, and superficial. Percussion then gave dullness over entire left side. The dressing was removed and blood and air gushed from the wound with each inspiration. The patient was chloroformed and six inches of the fourth rib removed. The bleeding intercostal artery was tied. The pleural cavity was full of clotted and fluid blood, which, together with air, gushed from the wound with alarming force with each inspiration. The patient was turned upon the side and the blood washed from the cavity. A transverse wound of the pericardium, two inches in length, was then seen. At the inner angle of the wound the pericardium was penetrated to the extent of half an inch. By the use of two pairs of long forceps, Dr. Dalton was able to grasp the pericardium a little beyond each angle of the wound and bring it well up to the surgical wound. With a long needle holder, armed with a sharply curved needle and catgut, he succeeded in closing the wound with continuous suture. Great difficulty was experienced in following the up and down movements of the pericardium caused by the heart pulsations. The pleural cavity was then thoroughly irrigated with hot sterilized water and the surgical wound closed without drainage. During the operation the pulse was 140, respiration 60. Several times during the operation the patient appeared to be dying but was revived by hypodermatic injections of whisky and strychnin. One hour after the operation the pulse was 100, temperature 99 and respiration 28. As there did not seem to be an unusual amount of fluid in the pericardium, the Doctor made no extended examination in this direction, the patient's condition being so grave as to necessitate the completion of the operation at the earliest possible moment. The heart itself was not penetrated to any appreciable extent. The patient made a rapid recovery.

The remainder of the Doctor's paper consisted of a discussion of stab wounds of the thorax in general. He insisted that in all penetrating stab wounds of the thorax, in which the wounds were low down anteriorly and laterally, a rib should be resected in order to see if the peritoneum had been penetrated through the diaphragm, in which case he strongly advised that a laparotomy be done. He stated, however, that in case the liver should prove to be cut, the better plan would be to resect a rib, split up the diaphragm and sew up the liver from above. He cited a case which he had reported in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Nov. 15, 1890, in which he had operated successfully in a case of this kind. The same patient also had a wound of the ileum. In order to reach this wound, he made a median incision. The patient recovered. He referred to a case reported in the *Medical Mirror*, in which he adopted this plan. In this case, the knife blade passed through the thorax and diaphragm, penetrating the spleen. He resected a rib and found omentum protruding through the diaphragm. The wound was then closed, and the abdomen opened by an incision four inches long, an inch below the costal border. This revealed a wound of the spleen which he closed by catgut suture. The patient recovered.

THE NEATEST CIRCUMCISION.

By Dr. BRANSFORD LEWIS, of St. Louis. The author detailed a method of doing that operation for which he claimed many advantages in celerity, ease and exactitude of performance, and rapidity of healing. The operation was done with the assistance of two instruments presented by the author, a clamp and prepucator, which enabled the operator to carry out the following steps of procedure: 1, after cleansing the penis and encircling it with a small rubber band, the prepucator is drawn strongly forward, the traction being applied to its inner surface by means of the serrated tractor, mentioned; 2, the glans penis being repressed, the curved, fenestrated clamp is applied; 3, with these as a support and guide, 10 per cent. cocain solution is injected between the two layers of foreskin, anterior to the clamp—no danger of cocain poisoning occurring, since both clamp and rubber constrictor lie between it and the general circulation; 4, after effective anesthesia has been secured, six double length (ten inch) catgut sutures are run clear through the clamp-fenestra and the four layers of foreskin; 5, with strong scissors the latter is cut off at one sweep; 6, tractor and clamp being removed, the double length sutures being divided, and two additional sutures being placed at the dorsal and frenal sites, previously occupied by the tractor; 7, the vessels are secured and sutures tied all around, making a circumcision that is at once symmetrical, precise and admirable, leading to prompt union and a satisfactory result.

This operation does away with inaccuracy, appended cutting of the mucous layer, and slowness or replacing of suturing, etc. Patients read the newspaper while it is being done.

Drawings illustrating the steps of the procedure and of the instruments (made by the A. S. Aloe Co., of St. Louis,) were also presented by the author.

THE TREATMENT AND MANAGEMENT OF CORPOREAL ENDOMETRITIS AND A WORD AS TO PROPHYLAXIS IN TUBAL AND OVARIAN DISEASES

Was the title of a paper read by Dr. WILLIAM H. HUMISTON, of Cleveland, Ohio, in which the author said that nine-tenths of all cases that he treats suffer from some form of endometritis, and its baleful influence on the sympathetic nervous system is marked and manifested by numerous and varied symptoms. Clinically the author recognizes three forms of endometritis—simple, septic and hemorrhagic. These forms were dwelt upon. The first and important principle in treatment is to relieve the passive congestion of the uterus, and this is accomplished by medicated tampons. The first tampon should be medicated with boro-glycerin, iodo-glycerin or ichthyol-glycerin and supported by sterilized, non-absorbent cotton tampons. The depleting effect of the medicated tampon is marked, and a notable relief is felt at once. The septic cases must be treated on modern surgical principles—rest, asepsis, drainage and curetting. When the cases are diagnosed early, and the proper treatment instituted, the author says the abdominal surgeon will not have his belt hanging full of suppurating tubes and ovaries.

Dr. S. E. GANT, of Kansas City, followed with a paper entitled "A Few Remarks on the Early History of Rectal Diseases."

Dr. FRANK WOODBURY, of Philadelphia, contributed a paper entitled

HEADACHES OF EXTRA-CRANIAL ORIGIN,

Which was read by Dr. I. N. Love in the absence of the author.

Dr. E. R. HAUGHTON, of Midland, Texas, read a paper on "Surgical Treatment of Injuries of the Head, Trephining for Blood Clots and Pressure;" and Dr. E. H. McCULLERS, of St. Louis, followed with another paper entitled "Exercise Essential to the Proper Development and Maintenance of Function."

Dr. G. FRANK LYDSTON, of Chicago, contributed a paper entitled

REMARKS ON THE RELATION OF RESIDUAL URINE TO VESICAL IRRITATION, ESPECIALLY IN PROSTATIQUES.

The author said it is generally accepted that most of the symptomatic disturbances incidental to certain chronic bladder diseases, especially in cases of prostatic enlargement, are dependent upon the accumulation of residual urine. The author has long been impressed with the idea that residual urine, *per se*, is not as important a factor in genito-urinary irritation as is ordinarily believed. He is satisfied that in a large proportion of adult males there is always a greater or less residuum of urine remaining in the bladder after micturition. If prostatic enlargement or other obstruction attacking the mouth of the bladder develop, we have the typical accumulation of residual urine characteristic of such cases. It will then be seen that there may be at varying periods of life extreme differences in the degree of accumulation of residual urine. The author believes that the residual urine is simply an incident upon which, if taken alone, the symptoms of vesical irritation in no wise depend. Ideally perfect drainage of the *bas fond* can only be accomplished by thorough drainage from above the tube through the trigone and out of the rectum. There were certain objections to this method which the author said it was not necessary to dilate upon. He simply stated as his opinion that only by some such procedure can the *bas fond* be thoroughly drained.

Dr. HANAU W. LOEB, of St. Louis, reported a very interesting case of

DOUBLE NASAL ATRESIA DUE TO SMALLPOX.

The author said we read with remarkable monotony, of failure after failure in the treatment of webbed fingers and conditions due to the deposit of scar tissue. We realize quite readily the almost futility of the treatment for the permanent relief of cicatricial contractions and adhesions resulting from syphilitic lesions of the pharynx, palate, and larynx, so that while no great skill was claimed in the management of the case reported in the paper, yet the patient's condition after a year and a half of observation merited attention.

LAPAROTOMY FOR PELVIC DISEASES NO LONGER A NECESSITY.

Was read by Dr. R. STANSBURY SUTTON, of Pittsburg. The assertion found in the text of this paper was founded upon the following argument: 1, we have a substitute for laparotomy in total extirpation of the uterus and appendages by the vagina, either with or without morcellement; 2, the operation has already been proven to be effectual and successful by Péan, Segond, Jacobs and others in Europe, and Henrotin, Engelmann, Sutton, Edebohls and others in the United States; 3, total extirpation of the uterus and appendages per vaginam gives a lower mortality than laparotomy for the removal of the appendages alone. Morcellement of small fibroid tumors gives a lower mortality than laparotomy for the removal of similar tumors; 4, these operations by the vagina shorten the convalescence of patients, who are out of bed on the seventh day; 5, in all cases of gonorrhoeal, tubercular or other infectious type of endometritis with chronic salpingitis and chronic ovaritis, a cure is not effected save by total extirpation of the uterus and appendages. The vaginal route is the best; 6, in all cases of fibroid tumors of the uterus, not reaching above or quite to the umbilicus, when the uterus must be sacrificed, total extirpation of the organ, tumor and appendages by morcellement can be best effected per vaginam; 7, small cysts of the ovary or broad ligament, or solid tumors of the ovary can be reached and by morcellement and puncture removed through the vault of the vagina, leaving the uterus and opposite ovary intact; 8, in all cases of pyosalpinx or of multiple pus centers with coexisting solidification of the pelvic roof, total extirpation by morcellement per vaginam is the only feasible operation, and it cures the patient; 9, total extirpation per vaginam is followed by a cure in the greatest majority of cases as compared with laparotomy; 10, the following sequelæ after laparotomy do not occur after total extirpation per vaginam: Cancer of the uterus, adenoma of the uterus,

tuberculosis of the uterus, gonorrhoeal affection, hemorrhages of the uterus, filthy catarrhal discharges from the uterus, ventral hernia, fecal and other fistulas, the mark of a wound on the abdomen. The nerve storms subsequent to total extirpation are not as great as after laparotomy. The patient is restored to perfect health; this is not the case in more than 50 per cent. of laparotomies for pelvic diseases; 11, the bacteriology of infectious diseases demands removal of the uterus with the appendages; 12, total extirpation per vaginam is in strict conformity to anatomic relations; 13, the physiologic results following total extirpation are free from jarrings, and the patient is functionally a smoothly running mechanism; 14, laparotomy for these diseases is followed by all manner of physiologic disturbances which affect the vascular, muscular, nervous and digestive systems; 15, in the face of this argument, laparotomy for pelvic disease is no longer a necessity, but in the author's opinion should be abandoned except in very rare instances indeed.

MODERN SURGICAL TECHNIQUE.

By Dr. HENRY O. MARCY, of Boston. The essayist in his paper first emphasizes the importance of a most careful bacteriologic training on the part of him who would become proficient in surgical practice. In the preparation of the operating room, Dr. Marcy points out the ease and safety with which an ordinary living room, by preference the kitchen, is made comparatively sterile, when from necessity the surgeon is called upon to act promptly and suddenly. In abdominal wounds, where irrigation is not advised, he substitutes for it a slowly flowing stream of oxygen gas from a compressed cylinder. This sterile gas is heavier than atmospheric air which it displaces, and as a consequence renders the wound less likely to infection from the products of respiration and atmospheric contamination. Dr. Marcy reiterates his well-known views upon the value of tendon sutures, buried in all aseptic wounds for the approximation and reinforcement of the structures, emphasizing the importance of abandoning the drainage tube in all aseptic wounds and hermetically sealing the same with iodoform collodion. Aseptic wounds made in aseptic structures, aseptically closed and sealed are always followed by primary union.

The Committee appointed to consider the recommendations contained in the President's Annual Address submitted the following report:

1. While this Association is loyal to the last degree in its affiliations and associations with the members of the regular profession, it still believes that it is not derogatory for a scientific physician to hold a patent on a mechanical or surgical device that proves of benefit to suffering mankind. It sees no reason why the genius and talent of an inventive physician should not be protected by law as well as that of any other man.

2. This Association, if it would demonstrate its usefulness and perpetuity must insist upon the application of business principles in the management of its business department. It therefore insists that every member shall pay his dues annually and with promptitude or else he must be suspended from the exercise of further privileges. To this end the Secretary is directed to drop all names from the roll who decline to pay their dues after two years.

3. The Association for the present will adhere to the plan of general sessions, reserving the right to divide into sections in the future whenever a necessity therefor shall arise.

4. This Association does not believe that the genius of its organization would be attained by reference to a committee, of the papers offered at its annual meetings, with a view to determine which shall be read; but it recommends that authors of papers furnish the Secretary with abstracts of the same, not to contain more than eight hundred words, at least ten days before each meeting.

5. The Association does not feel that a change in the date of its annual meetings is advisable.

6. This Association unites in urging upon the Congress of the United States the propriety of appropriating sufficient funds for the proper maintenance and support of a medical school at Washington, whose purpose shall be the instruction and training of physicians entering the army in regard to requirements of the practice of medicine and surgery in the military service of the United States.

7. This Association believes that in the proper education of physicians by adequate preliminary training and a college curriculum of four years and a final examination for license by the State, lies a true solution of many, if not all, the much controverted questions of ethics; and that in the present day a further agitation of these questions by debate

on the floor of societies met together for scientific advancement is unwise and injudicious.

8. This Association recognizes the fact that it owes to Col. H. C. Townsend and Chas. E. Ware, of the Missouri Pacific Railway, a debt of gratitude for courtesies extended in the preparation for and conduct of this meeting, and as a slight recognition thereof it hereby elects them to honorary membership.

(Signed.) WILLIAM WARREN POTTER, M.D., Chairman,
I. N. LOVE, M.D.,
T. H. STUCKY, M.D.,
A. S. GARNETT, M.D.,
CHAS. B. PARKER.

The Committee on Nominations made the following report: President, Dr. W. N. Wishard, of Indianapolis. First Vice-President, Dr. Thomas E. Holland, of Hot Springs.

Second Vice-President, Dr. Chas. B. Parker, of Cleveland. Secretary, Dr. Frederick C. Woodburn, of Indianapolis. Treasurer, Dr. Harold N. Moyer, of Chicago. Judicial Council, Drs. W. F. Barelay, of Pittsburg, and A. H. Meisenbach, of St. Louis.

Place of meeting, Detroit. Time, September, 1895. Chairman of Committee of Arrangements, Dr. H. O. Walker, of Detroit.

DR. WALKER then offered the following resolutions which were unanimously adopted:

Mr. President:—I take the liberty to assume a pleasant duty. Words can not but fail to express what is now in the minds of all of us, that we have had a glorious time in Hot Springs. The twentieth annual meeting of this Association will ever be remembered as the best in its history, replete with scientific profit, mingled with unstinted hospitality.

I, therefore, move that the thanks and appreciation of this Association be tendered to the profession and citizens of Hot Springs, especially to Dr. Thomas E. Holland, the Chairman of the Committee of Arrangements, for his untiring labors in our behalf. To Col. H. C. Townsend and Mr. Chas. E. Ware, of the Missouri Pacific Railway; Col. and Mrs. Woodhull of the Army and Navy Hospital; Dr. and Mrs. A. H. Garnett, Maj. and Mrs. Alfred Whittington; Mr. and Mrs. S. A. Douglass; Mesdames S. H. Stitt and Bancroft; Mr. and Mrs. I. T. Hay, of the Arlington Hotel, and Mr. R. E. Jackson, of the Park Hotel.

Resolved, That it is the sense of this Committee, that in the future the Chairman of the Committee of Arrangements select a committee of three as censors of program to act as a committee on revision, and that every paper or its abstract to be read before this Association in the future, must be in the hands of said committee twenty days before the time of meeting, and must be approved by said committee before being put on the program.

(Signed.) I. N. LOVE, M.D., Chairman.
H. O. WALKER, M.D., Secretary.

On the adoption of the above resolution of thanks, very timely and appropriate speeches were made by Drs. J. C. Culbertson, of Cincinnati, and Chas. H. Hughes, of St. Louis, in which they referred to the hospitality of the citizens of Hot Springs in beautiful language.

On motion, the Association then adjourned to meet in Detroit in 1895.

NECROLOGY.

JOHN MILLS BROWNE, M.D., ex-Surgeon-General U. S. Navy, Dec. 7, 1894. He was born in Hinsdale, N. H., May 10, 1831, and was graduated from the Medical Department of Harvard University in 1852. In the following year he entered the Navy as an Assistant Surgeon and performed his first duty on board the steamship *Warren*. He was promoted to the rank of Passed Assistant Surgeon in 1858, and was made Surgeon in 1861. While serving as Surgeon of the *Kearsarge*, the famous engagement occurred off the coast of France, which resulted in the sinking of the *Alabama*. Ten years later he advanced to the rank of Medical Inspector, and in October, 1878, was promoted to the rank of Medical Director. He was appointed by President Harrison Surgeon-General of the United States Navy, and on the expiration of his term was reappointed and served until his retirement, one year and a half ago. He took high rank in Masonic

circles, was a thirty-third degree Mason, and succeeded the late Albert Pike as Chief of the Scottish Rite for the Southern jurisdiction of the United States.

He was a genial and companionable man who lived without reproach and died without fear. He was not only one of the ablest of his corps, but one known to be absolutely just in all his dealings with his brother officers and mankind in general.

CHAS. PINCKNEY GAGE, M.D., Concord, N. H. He was born in Hopkinton in 1811 and was graduated at the Cincinnati Medical College in 1837. After graduation he spent considerable time in the hospitals and in clinical study in Cincinnati, remaining until 1838, when he removed to Concord, where he has since resided. He was a delegate to the convention for the formation of the AMERICAN MEDICAL ASSOCIATION in 1846, and attended the Baltimore meeting in 1848.

EZRA SLOCUM CARR, M.D., of Pasadena, Cal.—A. W. Lapham, M.D., of Victoria, Ill., November 29.—John Evans, M.D., of Richmond, Ind., aged 84.—W. H. Hart, M.D., of Pittsburg, Pa.—Wm. J. Hunnicke, M.D., of St. Louis, November 30.

SOCIETY NEWS.

Northumberland County (Pa.) Medical Society.—The annual meeting of the Northumberland County Medical Society was held at Sunbury, Pa. The following officers were elected for the ensuing year: President, G. W. Furey, East Sunbury; Vice-President, T. F. Gilbert, Elysburg; Secretary, Wm. B. Stoner, Sunbury.

The Wayne County (Mich.) Medical Society will hold a special meeting in Detroit December 17.

A Dinner to President Maclean.—A dinner was tendered to Dr. Donald Maclean, of Detroit, at the Russell House in that city, December 4. The toasts and those who responded follow: "The Welcome Guest," Dr. Maclean. Dr. T. A. McGraw, who was scheduled for the subject "Fraternity," was unable to be present and Acting Health Officer Webber was appointed as his substitute, who responded in a fitting manner. Dr. C. T. Newkirk, of Bay City, told all about the friendship that exists in the medical profession, and Dr. C. B. Nancrede responded to the toast, "Fellowcraft." Dr. Cogshall, of Flint, appeared as a substitute for Dr. O. P. Barber, and spoke about "Fellowship," while G. E. Frothingham, Sr., told about the "Fidelity" that exists in the medical profession, and Dr. C. G. Jennings about the "Felicity" of being doctors. The speeches were above the average and the themes apparently to the liking of the doctors. Frederick Mills played several violin solos and other artists furnished excellent music. All in all, it was an occasion that will long be remembered by those who attended. A number of ladies occupied seats near the doors and listened to the responses to the toasts and the musical selections.

Financial Loss from Tuberculosis.—It has been computed—on somewhat the same principle that was applied by Dr. Benjamin Lee to the smallpox epidemic in Philadelphia—that there is a money loss, from consumption alone, in England amounting to \$72,000 for every 1,000,000 children born.

Medical Courage Honored.—Dr. Mary Bradford, an American missionary to Persia, is about to receive the highly complimentary present of a hospital, to be conducted by herself. It is the outcome of her very courageous course during the cholera epidemic of 1892. She remained at her post through the entire epidemic. Some wealthy merchants, who recognize the heroic qualities of the lady's conduct, have undertaken to build and equip this hospital as a kind of reward of merit.

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MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Henry P. Newman, Venetian Building, Chicago, Ill., sending him a certificate or statement that the applicant is in good standing in his own Society, signed by the President and Secretary of said Society. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership.

On receipt of the subscription the weekly JOURNAL of the Association will be forwarded regularly.

Gentlemen already members of the Association should send their annual subscription to the Treasurer, or direct to the JOURNAL office.

All communications and manuscript of whatever character, intended for publication in the JOURNAL, should be addressed to the Editor, and all communications relative to the business of the JOURNAL, proof sheets returned, or in regard to subscriptions, should be addressed to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 86 Fifth Avenue, Chicago.

SATURDAY, DECEMBER 15, 1894.

THE FAILURE OF THE ERYSIPELAS TOXINS.

"Every delay is hateful, but it gives wisdom."—PUBLIUS SYRUS.

There is no longer much question of the entire failure of the toxin injections, as a cure for sarcomata and malignant growths. During the last six months the alleged remedy has been faithfully tried by many surgeons, but so far not a single well authenticated case of recovery has been reported, so far as our reading has extended, and the personal experience of surgeons of our acquaintance with whom we have conversed, demonstrates that in all cases in which they tried the erysipelas toxin the result was no improvement.

We can readily understand and sympathize with the great desire to rescue from impending death, sufferers from an incurable disease, but science demands that its truths shall be positively demonstrated before being accepted. The medical profession, for centuries conservative in acceptance of new doctrines, has been startled out of its usual practice by the brilliant discoveries of bacteriology, and it now seems as if any assertion, no matter how absurd, needs only some strong voice or lucid pen, to make the profession swallow it greedily. It is the age of the sensation monger, and the seeker after notoriety may enjoy a temporary celebrity by a very easy process. He has only to announce the sure cure of some hitherto incurable disease by some foreign chemic product, or microbial mystery and the thing is done. The celebrity may be short-lived and suffering humanity deluded by false hopes, but the story was a pleasant one while it lasted.

The plain duty of the profession is clear. We should patiently wait until those having the facili-

ties for investigation complete their work, and bearing in mind the infirmities of poor, weak, human nature, we should not accept as conclusive, reported cures by any single investigator no matter how prominent. We should demand that these cures be corroborated by other observers, making investigations independently.

In the matter of the diphtheria cures, we must remember that while statistics show a relatively large proportion of alleged cases prove to be diphtheria by bacteriologic examination, still of this number many recover by natural processes under ordinary therapeutic measures. It will take much time before the commercial supply of antitoxin is at all adequate to the demand, and before it can be produced in this country. Let us, therefore, wait patiently, as long before our horses are properly immunized, our foreign leaders may have prepared even a greater bolus for us to swallow.

A TIMELY TOPIC.

"Shall the State maintain supervision of the propagation of vaccine virus?" is one of the subjects discussed at the National Conference of State Boards of Health, held in Washington during the current week. At this writing the JOURNAL is not advised of the result of the discussion; but it is safe to assume—the members of the Conference being practical sanitarians and men of at least average intelligence—that the answer has been an emphatic affirmative.

The topic is a timely one. Whatever of doubt exists at the close of the Jennerian century as to the value of vaccination is largely, if not solely, due—first, to the use of inert or impure virus; and, second, to want of care in the performance of the operation. Both these causes have been dwelt upon by every writer on vaccination from the time of JENNER himself. The late DR. RAUCH, especially, attributed to these causes the growing neglect of the practice and the opposition to its compulsory enforcement, and boldly asserted that it was not justifiable to compel vaccination when the supply and quality of vaccine material could not be controlled and guaranteed by competent authority; when many physicians, to say nothing of the laity, treated the operation as a mere scratching of the skin; and when the majority of medical colleges regarded it as too insignificant to require a single lecture, and graduated as physicians men who had never seen a vaccine vesicle.

Leaving the anti-vaccinationists out of the question—as belonging to that category of people who require no cause or reason to be "ag'in the government" except that there is a government—it remains that there is still a doubt of the exact value of vaccination after nearly a hundred years' experience. Within the past few months the Royal Commission on Vaccination has made another report of its labors,

but still without expressing any opinion on the evidence it has accumulated. This Commission, presided over by LORD HERSCHEL and SIR JAMES PAGET, has been holding weekly sessions since 1887, and the perplexing nature of its labors, owing to the conflicting testimony presented, still delays a verdict, notwithstanding the vaccination laws are suspended awaiting it. And within the past few weeks DR. CROOKSHANK, Professor of Comparative Pathology and Bacteriology in King's College, has delivered an address before the Medical Society of his College, in which he denies that vaccination has any value at all to protect against smallpox, or at most that "of 'issues' against the plague."

PROFESSOR CROOKSHANK's disbelief, as well as the deferred verdict of the Royal Commission, is due to failure to define "vaccination." Not everything that is so called is really vaccination, and when CROOKSHANK claims to have found seventy different varieties of cicatrices or "marks," produced by different kinds of virus on different individuals, of different constitutions, ages and nationalities, he reveals the *crux* of the situation. These different "marks" are the sufficient proof that CROOKSHANK was not dealing with properly vaccinated individuals. A perfect vaccination—and nothing short of perfection should be considered—with perfect virus, either humanized or bovine, results, to quote DR. MARTIN, "in the production of a scar as distinct and defined as if stamped by a sharply-cut die, and the scars of a hundred such vaccinations are almost as like each other as the impressions on a hundred coins fresh from the mint." To secure such a scar, which only is evidence of a protective vaccination—the first essential is a perfect vaccine, and experience proves that the unregulated propagation of vaccine virus does not furnish this *sine qua non*.

This Conference of State Boards of Health will not have been held in vain if it shall have devised some method by which the first essential condition of compulsory vaccination, as laid down by DR. ELISHA HARRIS, may be complied with, to-wit: "That the quality of the vaccine lymph shall be absolutely perfect, and that the insuring of this uniform excellence shall not be permitted to be subject to uncertainty or to any kind of capricious judgment."

THE IMMIGRATION SERVICE.

The Superintendent of Immigration HON. HERMAN STUMP, has issued his annual report from which it appears that in the year ended June 30, 1894, 288,020 immigrants arrived in this country, a decrease of 152,173 as compared with the year 1893, and the decrease for the preceding year was 141,044. The total decrease for the two years is 293,807. SUPERINTENDENT STUMP thus accounts for the decrease:

"The decrease in 1893 was caused by the suspension of immigration on account of cholera, and the decrease in 1894

is largely to be attributed to the stagnant condition of our business enterprises, owing to financial causes and the consequent absence of demand for both skilled and unskilled labor; but at the same time it must be borne in mind that much of this decrease is to be attributed to the efficient execution of the immigration laws, by the strict inspection and prompt deportation of the prohibited classes, as each person deported to the country whence he came deters many from making the attempt to land here, and also the refusal of steamship transportation lines to sell tickets or embark undesirable persons in foreign countries.

"The inability to procure transportation prevents hundreds from reaching our shores who now apply for tickets and are refused passage by the steamship agents at the homes of those contemplating immigration; thus demonstrating that the act of March 3, 1893, is both wise and humane, and secures to our country a greatly restricted immigration, and those who succeed in coming are of the better class of European peasantry. There seems to be no doubt that as the present system of inspection (*viz*: First, at the home of the emigrant; second, at the port of embarkation, and third, upon his arrival in this country) becomes better understood and is more vigilantly executed it will be more remedial and far-reaching in its effects and can from time to time be improved by such regulations and Congressional amendments as practical experience demonstrates; consequently the volume of immigration will be restricted upon a wholesome basis and the condition of those arriving will continue to improve.

"To show how the inspection of intended immigrants at their homes is enforced, it is only necessary to recollect that by law the steamship companies are required to transport to the country whence they come all immigrants who on inspection are refused a landing in the United States. So many of late years have been returned, that it has proved a considerable expense to them, and in order to avoid this they have made certain regulations defining the classes who should be refused transportation by their agents, and prescribing penalties for booking immigrants prohibited landing in the United States, of which the following is an extract:

Extract from instructions of the North German Lloyd, White Star Line, Hamburg-American Packet Company, Cunard Line, Netherlands, American, Red Star Line, French Line, and Anchor Line and other steamship companies to their agents.

"Such emigrants as are liable to become a burden to the State, paupers, criminals, consumptives, and those suffering with loathsome and contagious diseases; the blind, lame, deaf and dumb, and crippled persons, women with children without any relatives in this country, single females in pregnant condition, single females with children.

"We beg to advise you that the law will be enforced strictly. In view of this, we request you to use the utmost care in accepting emigrants for transportation, and in doubtful cases to consult us, giving all the details and conditions before you enter into a contract. If we approve the acceptance of a passenger or passengers you will be in no way held responsible, but if you enter into a contract for transportation of emigrants, of whom with a certain degree of attention you could have known beforehand that they would come under that class of emigrants which are refused admittance to America, we will be compelled to charge you 80 marks for every adult for return transportation, and also the transportation costs from the port to the home of the passenger."

"For your further information I append to this report a full circular of one of the above-named companies to its agents in foreign countries.

"The principal steamship lines have endeavored to book only such steerage passengers as should be admitted, and have shown a desire to observe the law in every respect; the results of which are plainly evident in the class of immigrants now arriving. At the same time it is to be expected that they will continue to secure as many passengers as possible. Their steerage business to this country this year was very light, and had it not been for the unusual number returning to their foreign homes it would have proved to them a financial loss.

"When it is considered that each of the above lines has several thousand agents located in every section of Europe from which emigration flows, whose duty it is to inspect each and every one contemplating emigration before selling a passage ticket to the United States under the penalties prescribed in the above regulations, it is evident they will exercise the utmost caution. And this inspection is most valuable, being based upon self-interest and the agent's desire to shield his company from the responsibility imposed upon it

by our laws in embarking persons belonging to the prohibited classes, and is more valuable because he may be, and generally is, personally acquainted with the immigrant and his surroundings."

It is certainly gratifying to see that not only is there a diminution in the number of immigrants, but that there is an actual exportation of this class. The United States has been overburdened for many years past, and this will be a much needed relief. The Commissioner, while not furnishing the statistics, is of opinion that for the past year, more steerage passengers have left our shores than have come in, through our seaports.

The medical inspection at Ellis Island, under the direction of SURGEON WM. A. WHEELER, of the Marine-Hospital Service shows the work of the Medical Examiners as follows:

| | |
|---|---------|
| Steerage passengers inspected upon arrival | 281,662 |
| Physically examined, certified, and sent to hospital | 1,081 |
| Physically examined, certified, and sent before the board of special inquiry for action | 527 |
| Physically examined and recorded (for minor defects). | 1,630 |
| Landed cases applying for relief which were certified and sent to hospital for treatment | 471 |
| Landed cases applying for relief which were physically examined and certified for deportation | 215 |
| Landed cases applying for hospital relief, examined and rejected. | 151 |

That officer's report to the New York Commissioner is published and we here reproduce it:

ELLIS ISLAND, N. Y., July 12, 1894.

SIR:—The following is a report of the work done by the medical department of the immigration service at Ellis Island during the year ending June 30, 1894:

Since our last report there have been no changes in the medical staff either connected with the office or the hospital. Some important and greatly needed changes, however, have been made in the hospital buildings which were recommended last year, in addition to which the hospital has been provided with a complete steam disinfector, fully capable of meeting all requirements. It will be noticed that we have this year treated all of our insane cases at Ellis Island. This we have found to be practicable since they are few in number, and it is very much in the interests of economy. The only cases not treated on the island are those of small-pox, diphtheria, and scarlet fever, and unless a suitable building were provided, well isolated, it would not be possible to properly care for them. During the past year there have been but fifteen of these cases, and, should that number be not increased, it is doubtful if any better arrangement could be made than the one we now have with the Health Department of the city of New York.

My recommendation of last year that a contagious hospital be built at Ellis Island for these very cases was based upon the larger number occurring during the previous years. It is very gratifying to find that for various reasons the number of such cases is annually diminishing and with it the need of a separate contagious hospital on Ellis Island.

Our buildings have been painted and are to-day in a good state of preservation. The roofs of the kitchen, dining rooms, and hospital C have been painted by our attendants, also the inside of the male and female wards. The roof of the executive building needs painting, which our attendants can not do, owing to its high pitch and their lack of experience.

The walls of hospital C will soon need to be sealed with rock plaster, as they are becoming infested with vermin which it is impossible to dislodge. In that respect the plastering of the partitions of the male and female wards has been an unqualified success.

THE COMMISSIONER OF IMMIGRATION,
Port of New York, N. Y.

TO WHOM THANKS ARE DUE.—The HON. SHELBY M. CULLOM, U. S. Senator from Illinois, has kindly sent the JOURNAL a copy of the *Congressional Record* for the last two years, and we are also under obligations to that Senator for various public documents. This

Senator has always been keenly alive to the wants and wishes of the medical profession.

CORRESPONDENCE.

Modern Insanity.

ORAN, Mo., Dec. 4, 1894.

To the Editor:—If an individual shows marked superiority in any line of thought he is pronounced *insane*. The doctor, lawyer, preacher or tradesman who excels all others in his special line is said to be "cranky." The teacher who excels all other teachers is said to be "eccentric." The modern aggressive evangelist is also "insane." The inventor like unto Edison, he too, is "insane." Anything outside of the ordinary is pronounced insanity. The excessive user of narcotics is called a "narcomaniac." The individual who drinks excessive quantities of alcohol is said to be "insane." The individual who appropriates goods which do not belong to him is said to be a "kleptomaniac." In fact, any excess in any line of conduct, whether good or bad, is pronounced insanity.

In olden times, if a man showed any superiority over his fellow-men he was given credit for it. If he was a great scholar he was thought to be more intelligent than others with less knowledge. Men in different callings who showed marked superiority were called great men; some, like Solomon, were called wise men; others, like Christ, were called good men. Men who committed great crimes were called criminals. Men who drank excessive quantities of liquor were called drunkards. Young people were taught to imitate the good and great men and to abhor the criminal and drunkard. These notions are all changed now. We no longer have good or great men. A genius is now defined as a man who has one or more talents highly developed, while his other talents have been neglected. A genius and an insane man now mean one and the same thing. In olden times an insane man was thought to have lost some mental quality once possessed, but this notion seems to have been erroneous. Men do not lose mental power any more; they only allow some sense or talent to be too much developed. This unbalances the fellow and he becomes insane.

Modern insanity is easily diagnosed and is said to be very curable, especially under hospital treatment. A few doses of animal extracts and antitoxins do the work. The antitoxins stop excessive action of all kinds. The animal extracts develop the undeveloped talents or senses, thus producing the ordinary. This modern insanity works a revolution in science, the arts and education. The rising generation will be taught that being wise, good or bad is symptomatic of insanity and a dangerous thing to do. The main thing is to be ordinary. Reading the Bible or hard study of any kind is dangerous. Going to school more than one day in a week would have a tendency to produce literary insanity. Preaching more than one discourse a month would produce Jonesism. Listening to a brass band more than a few moments at a time is extremely dangerous. Do not go to church at all. Religious insanity is the worst form. Attend baseball and football games often; this exercises all the senses equally. Prize fighting never produces insanity. No prize fighter ever went crazy. See to it that you do not go into excess in any line; just continue to be ordinary. Education is a great factor in producing insanity. Curious! What old-time people thought was intelligence turns out to be only modern insanity. Idleness is the thing to look after; especially to keep the mind idle. Do not think. Thinking has caused more insanity than all other things combined. Industry also has a baneful effect. Whatever you do, don't work.

W. P. HOWLE, M.D.

Teaching in Medical Colleges.

WAUKEGAN, ILL., Dec. 9, 1894.

To the Editor:—Allow me to make some suggestions relative to systematic instruction in medical colleges. This matter is forced upon our attention by the criticisms of medical teaching by students from other schools. The time has come when a systematic grouping of subjects to be taught should be adopted by all schools that desire to be known as eminent centers of learning. This system has been adopted by some of the literary and scientific institutions of our country; but it is far from being universal. In medical colleges the plan has scarcely received a serious thought. Only a few schools where medical men are trained have arranged for such united, such systematic work.

The president or dean of a college of medicine should know what is taught in every department, in every chair. This would entail a vast amount of work upon one man, and to aid him in his task the appointment of head professors in the different departments may be made, as is done in some of the universities. The work then can be so systematized that unwarranted repetitions will not occur. Not long ago a gentleman told me that within a short time he had listened to four different teachers in the same institution and each succeeding one was lecturing upon the same subject that he had heard at the first lecture. It has been said by those who do not favor such classified division of work that there is no danger of giving medical students too much of any one subject. That may be true, but there is danger that some important subjects will be omitted; and to avoid these omissions a closer classification and supervision of work is necessary.

The sub-dean or head professor of the department of materia medica and therapeutics should assign the work to be done by the professors of medical botany, materia medica, general therapeutics, electro-therapeutics, pharmacology, et cetera.

The Department of Public Health or Preventive Medicine should be divided into general pathology, general etiology, bacteriology, special animal pathology, practical hygiene, and state medicine, at least. Anatomy, medicine, surgery and other departments should be likewise subdivided and the work so assigned that each subject will be exhaustively presented and needless repetitions prevented.

When such a plan as this is adopted in our medical colleges, we may hope to send out men more competent to deal with the practical work of the physician. The suggestions that have been lately made in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION relative to advanced standing and higher work in the Department of Public Health could then be practically carried out, and the medical profession would take a long stride forward.

J. M. G. CARTER, M.D.

The Antiseptic Treatment of Typhoid.

FREEMONT, ILL., Dec. 4, 1894.

To the Editor:—Dr. John Eliot Woodbridge, of Youngstown, Ohio, has published during the last year, in several medical journals, among them the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, such a glowing and enthusiastic paper on the treatment of typhoid fever, that, contrary to my conservative habits, I have been lately giving it a trial. The treatment, it seems to me, if not beneficial is absolutely harmful. The first part of his prescription containing podophyllin, calomel, guaiacol, thymol, menthol, eucalyptol, if given to the extent that the author recommends, will certainly have a tendency to weaken the patient and lessen his chances of recovery, unless it acts at the same time as a germ killer and thus lessens the virulence of the disease. In my hands, so far, the remedy has failed to produce that marked change in the temperature curve, that Dr. Woodbridge's charts show in his own practice. In fact, in a vig-

orous young woman, after two weeks' trial of the treatment, I have still a temperature of 105 F. under the tongue every afternoon, unless I combat the excessive heat of body with frequent spongings and bathings, which I have done from the outset.

My motive in writing these brief lines, is to solicit a correspondence, from the profession as to their experience with this new treatment of this terrible disease.

I hope, Mr. Editor, you will see the importance of getting the experience of others in this matter, and allow me the space in your JOURNAL for this end.

Hoping I may hear from others of the profession, who have undoubtedly like myself been trying Dr. Woodbridge's treatment,

I am yours very truly,

W. S. CALDWELL, M.D.

The Index Medicus.

PHILADELPHIA, PA., Dec. 3, 1894.

To the Editor:—I have learned that the Index Medicus will cease to be published with the February number, owing to lack of support and the fact that a large number of its subscribers are delinquent, unless an effort is made to continue it.

The value of this publication to those who do any work at all in connection with medical literature is so great that I take the liberty of writing to you to express the hope that you will not only become a subscriber, but will urge other of your professional friends to do so. It is particularly necessary that the Index Medicus should be continued owing to the fact that after the completion of the supplementary volume of the Index Catalogue of the Surgeon-General's Library, there will be no record of contemporary medical literature and he who desires to keep pace with it, or who wishes to study a particular subject will have to resort to the laborious task of seeking in various journals that which he desires if the publication of the Index Medicus ceases.

It will be possible to continue the Index Medicus if 500 new subscribers are obtained. The subscription price is \$10 per annum which should be sent to Mr. George S. Davis, publisher of the Index Medicus, Box 470, Detroit, Mich.

As the Index Medicus can never be made a success from a commercial point of view because of the peculiar scope of its work, I have no hesitancy in making you acquainted with these facts, and I earnestly hope that you will insert a notice emphasizing the importance of this matter in the columns of our journal.

Yours truly,

H. A. HARE, M.D.

Photographs of Members.

DUNKIRK, IND., Dec. 3, 1894.

To the Editor:—Please explain the use of the photographs of members of the ASSOCIATION as requested in the JOURNAL of last week.

Respectfully,

J. B. GARBER, M.D.

ANSWER.—It is proposed to keep them on file in the JOURNAL office, for reproduction in the columns of the JOURNAL from time to time as occasion may require.

No Diphtheria at Brocton.

BROCTON, ILL., Dec. 11, 1894.

To the Editor:—As to the prevalence of diphtheria at Brocton and Five Points, Ill., will say there is not a case at this time that I know of at either place, and I have had charge of most of the cases. Our school at Brocton was closed for three weeks, but has been opened for two weeks since. There were two deaths from diphtheria here, or one physician called it such and the other asserted it was not. I never saw either of these cases. General health good in this location.

Respectfully yours,

H. C. KERRICK, M.D.

PUBLIC HEALTH.

Purity of Antitoxins.—The New York City Board of Health has issued the following circular:

HEALTH DEPARTMENT.

Center, Elm, White and Franklin Streets, (Criminal Court Building.)

NEW YORK, Dec. 7, 1894.

HON. CHARLES G. WILSON, (President).

Sir:—The accompanying report is hereby approved. The grave consequences following fraud in the preparation of this valuable remedial agent necessitate prompt and vigorous action on the part of the Board of Health. Steps should be taken at once to supervise in the most careful manner the sale of diphtheria antitoxin in the city of New York. This can only be accomplished by a systematic inspection and scientific examination of the various preparations of antitoxin offered for sale in this city. In event of fraud in the offering of spurious preparations or preparations of doubtful strength, the Board should institute criminal proceedings against offenders. In order to regulate the sale of diphtheria antitoxin in the city of New York, the following resolution is hereby submitted:

"Resolved, That Dr. T. Mitchell Prudden, Consulting Physician to the Health Department in the Division of Pathology, Bacteriology and Disinfection, and Dr. Hermann M. Biggs, Pathologist and Director of the Bacteriological Laboratory of this Department, be requested to prepare and submit some plan for the determination of the strength and purity of the various preparations of antitoxin which are now or may be hereafter offered for sale in the city of New York, so that the public may have some guarantee that only genuine preparations of antitoxin of proper strength are furnished for sale.

Respectfully submitted,

(Signed)

"CYRUS ENSON,
Chairman Sanitary Committee."

The above report and resolution were adopted at a meeting held on Wednesday, Dec. 5, 1894.

HEALTH DEPARTMENT.

Center, Elm, White and Franklin Streets, (Criminal Court Building.)

HON. CHARLES G. WILSON, (President.)

Sir:—The great practical importance of the new antitoxin treatment for diphtheria, not only in controlling but in curing the disease, has created a demand for the new remedy so universal and urgent, that the occasional small supplies which can be obtained from the European laboratories are wholly inadequate. It is therefore imperative that without unnecessary delay the preparation of the new remedy should be generally undertaken in this country. It has been already begun by the New York City Health Department in a limited way, and we trust that the requisite means and equipment may soon be furnished to the Department for making the antitoxin in sufficient amount at least for local use.

The preparation of this remedy requires considerable outlay for laboratories, for the necessary animals and their safe housing and scrupulous care; and above all for the services of competent and experienced bacteriologists or specially trained experts. The efficiency of the remedy and the security of those to whom it is administered from any possible danger in its use, depends in the most intimate way upon the skill and reliability of those engaged in its manufacture. Careful and delicate tests are required at every stage of its preparation. The strength of each lot of the remedy must, when it is finished, be determined in the most exact way by those in command of the necessary special skill and experience. It is one of the distinguishing characters of this remedial agent, that its greatest efficiency is obtained only when it is administered in the earlier stages of the disease and then in doses possessing a strength absolutely to be relied upon. Should the material used be for any reason deficient in healing power through error, carelessness or fraud in its preparation, time may be lost, so precious to the patient, that it may involve his life.

The antitoxin serum when ready for use is a yellowish fluid without any especially distinguishing or characteriz-

ing appearance; to the eye resembling the clear, yellowish fluid which separates from blood when it clots, from which it can be distinguished only by exact tests of its curative and protective value on animals.

The new remedy will be at the best rather costly, on account of the time required for its preparation—always many weeks at least—the cost of material and animals and of expert services. At present the market price of the antitoxin is unduly great, and probably will be so for some time to come on account of its scarcity and the great demand for it. It follows from what has been said that it is of the utmost importance to those who use this remedy that there should be some reliable guarantee for every preparation placed upon the market that it has been prepared by competent persons, and that in every case it possesses the requisite purity and power. The preparations now occasionally furnished in this country in small quantity by the German pharmaceutical houses, Schering and the Farbwerke (Hochst-am-Main), have specific guarantees as to strength and purity by bacteriologists of universally recognized skill and experience. Unless some such security is afforded, it would be quite easy for unscrupulous persons willing to commit such a crime to place on the market small bottles of yellowish fluid labelled "antitoxin," containing an inefficient amount of the healing agent, or even none at all, and for a time at least profit by the extraordinary demand for it, perhaps at the cost of life and at the risk of discrediting a most potent and beneficent remedy.

That this is not a merely fancied and only possible menace to the welfare of those stricken with this dreaded disease, and so often the wards of the Department of Health, is shown by the fact that already in the city of New York several different preparations of alleged diphtheria antitoxin, said to have been prepared in this country, and wholly, so far as we can learn, without proper guarantee of efficiency, have been furnished and used for the treatment of diphtheria. One of these preparations has been already subjected to the necessary crucial tests by the Department and found wholly inefficient and inert.

While we suggest its importance, we are not prepared at the moment to recommend in detail a definite form of guarantee of purity and adequate strength in this remedy, such as would be practicable and desirable for the protection of the public against carelessness or fraud. But we call your attention to the matter at this early period in the use of diphtheria antitoxin in the hope that at least a warning of the medical profession and the public against spurious and unguaranteed preparations of this remedy, if not more drastic measures, may seem to you wise and useful, and appropriate to the functions of this Department as a guardian of the public health.

Respectfully submitted,

(Signed) HERMANN M. BIGGS, M.D.,
Pathologist and Director of the Bacteriological Laboratory.
T. MITCHELL PRUDDEN, M.D.,
Consulting Physician to the Health Department in the
Division of Pathology, Bacteriology and Disinfection.

Contagious Diseases.—Judging from the meager reports received from JOURNAL correspondents there is a remarkable diminution of the principal contagious diseases. The pandemic of diphtheria seems to have subsided as suddenly as it appeared; smallpox is, apparently, stationary—the only report received up to the 12th inst., being from Chicago, where there were, at that date, 63 cases in hospital, as against 67 one week previous. The outbreak at Sandwich, Ill., (population, 2,516, last census), resulted in 15 cases with 5 deaths, with 2 fatal cases at Aurora contracted at Sandwich; on the 12th there was but 1 (suspected) case remaining at Sandwich.

Diphtheria and the Antitoxin.—The commercial exploitation of the diphtheria antitoxin has been begun in this country. This was to be expected from the furor which has been created abroad over the discovery and from the prices charged for the foreign product—prices which would seem to afford an enormous profit. Thus, it is estimated in Belgium that a suitable horse can be bought for, say, \$40; that it takes three months to render him immune, during which his keep and care, in that country, will cost \$35 more; that he may then be bled three times, furnishing 9,000 grammes of the serum (or 450 doses of the strength prescribed by Dr. Roux), worth,

at quoted prices, 20 francs for 10 grammes, or \$3,474—counting the franc at 19.3 cents American—for what cost \$75 to produce. It is not to be wondered at that, at the suggestion of Dr. Jules Felix, of Brussels, delegate to the last International Congress of Hygiene, a resolution has been unanimously adopted calling upon the Belgian government to establish a State institute for the production, preservation and distribution of the antitoxin, with all possible guarantee to insure its purity and standard quality, and also to secure its gratuitous supply to all medical men in Belgium for the free treatment of the poor, and its supply at a reasonable price to those able to pay. In the absence of the possibility of any such safeguard in this country lies one of the chief dangers of the antitoxin treatment here, and that this danger is a serious one is shown by the rancorous dispute now raging between the rival manufacturers in Europe. In which connection, by the way, it is worth while noting that shares in the Höchst establishment—one of the chief antitoxin producers and with which Professor Behring's name is closely associated—went up several points on the Frankfort Stock Exchange recently, on a rumor that the works would soon put on the market a typhoid antitoxin of Behring's discovery. Surely Behring can not already have forgotten the blow to Robert Koch's scientific reputation through a similar commercial manipulation of his name by the adventurer Levy in connection with the "tuberculin cure."

National Diphtheria Commission.—Prompted thereto, doubtless, by the suggestion and arguments of the JOURNAL, Representative Goldzier, of Illinois, has prepared and will endeavor to secure the prompt adoption of the following preamble and joint resolution for the creation of a National Commission for the investigation of the antitoxin treatment of diphtheria:

WHEREAS, The following propositions are believed to be true, to-wit: That the disease known as diphtheria is one of the most destructive of human life in this country—ranking in this respect only after consumption, pneumonia and the diarrheal diseases; that it is steadily increasing in prevalence and in the number of its victims; that its mortality, under the usual methods of treatment, is equal to, or greater than, that of unmodified smallpox; that recent scientific developments in Europe seem to have evolved a method of treatment by which the mortality of the disease is reduced more than one-half, with promise of still better results; and that the details of this new method and the claims made for it should be thoroughly investigated and authoritatively reported upon for the information of the medical profession in the interests of the public health; therefore, be it

Resolved, By the House of Representatives, the Senate concurring, That the Secretary of the Treasury, the Secretary of War and the Secretary of the Navy be, and they are hereby, authorized and directed to create a commission for the investigation of the antitoxin treatment of diphtheria, said commission to be composed of not more than three officers of the medical services of each of the respective Departments, which officers shall be selected for their special qualifications for such investigation and shall serve without extra pay or emolument; that said commission shall immediately proceed to the proper localities for the necessary study and research and shall prepare, with as much promptness as is consistent with thoroughness, a report embodying the results of their investigation, which report, upon the joint approval of the Surgeons-General of the Army and Navy, and of the Supervising Surgeon-General of the Marine-Hospital Service, shall be published in a special edition of the Abstract of Sanitary Reports now published by the Treasury Department in accordance with the Act of Congress of Feb. 15, 1893.

Credit Side of the Cholera Account.—A reduction of more than 15 per cent. in the general death rate is, grossly stated, the claim made for the sanitary administration of Great Britain initiated by Sir John Simon in 1865, when he undertook the defense of that country against Asiatic cholera. Abandoning *in toto* the system of defense by quarantine restrictions, as against that individual disease, a vast machinery of notification, isolation and disinfection with reference to the infectious and contagious diseases generally, has been organized, the efficiency of which may be measured, with substantial accuracy, by the statistics of one group of diseases—the typhoid or enteric and other continued fevers. Thorne

has recently shown that, whereas the mean annual death rate of this group was 567 per million living in the five years 1869-73, it was only 179 in the five years 1888-92; that if, during this latter quinquennium, people had died of these fevers at the rate at which they died in the former five-year period, there would have been during 1888-92 no fewer than 55,808 more deaths than actually occurred; and that had the same mortality obtained in 1892 that prevailed in 1869 no less than 14,232 persons who, at the end of 1892, had escaped death from these causes, would have died during that year. "In short," he says, "even if cholera had recurred in England and Wales between 1867 and 1892—a period during which that disease was practically absent from our midst—on the same scale as between 1849 and 1866, we should still be the gainer by several hundreds of thousands of human lives. And our gain in this respect is largely due to the incentive given by reason of cholera prospects and of the knowledge that the disease would have to be met by improved sanitary administration."

MISCELLANY.

Personal.—Gen. R. G. Dyrenfurth, an ex-Commissioner of Patents and well known from his experiments at "rain-making," is a graduate in medicine, his *alma mater* being the Baltimore College of Physicians and Surgeons.

Indiana Insane Asylum Report.—The annual report of the superintendent of the Northern Indiana Insane Hospital at Long Cliff, shows 508 inmates at present, with a total of 1,478 admitted. The hospital was opened in 1888. The capacity of the hospital has been increased by the construction of a new hall, and it is recommended that a further addition be erected with a capacity of eighty.

A New Food Supply.—According to *Das Schiff* two new industries have been created in Germany, owing to the development of the sea fisheries—the manufacture of sausages and of guano from fish. The sausages are made by stuffing skins with the prepared fish, as in ordinary meat sausages, and may be sold very cheap, not exceeding 1 franc per kilogram. The guano is made by adding chalk to the *debris* from the fish; it is then dried, reduced to powder and is highly appreciated as a fertilizer.

Thermometers for High Temperatures.—Mercurial thermometers give no exact indications beyond 250 degrees C., but when the tube is filled with nitrogen under pressure, temperatures up to 450 degrees C. may be registered. M. Niehl, at the Institute of Technical Physics in Berlin, has constructed thermometers which register up to 550 degrees, by substituting gaseous carbonic acid for nitrogen. The tubes are made of the boro-silicate glass from Jena, which does not melt below 600 degrees C.

Craig Colony for Epileptics.—Dr. William P. Spratling, of New York City, has been elected Superintendent of Craig Colony for Epileptics in that State. This institution was created by the last Legislature and embraces 1,800 acres of land in the famous Genesee Valley. There are now fifty-four buildings on the site, and the coming Legislature will be asked to appropriate \$300,000 for the construction of an administration building, hospitals and observation cottages. The colony will be modeled largely after the celebrated German colony at Bielefeld.

New Institutions for the Sick in Maryland.—A new home for epileptics has been established at Port Deposit, Md., to be known as the Silver Cross House for Epileptics. The educated colored physicians of Baltimore purpose to inaugurate a hospital and dispensary, for people of color, and a building has been procured. There is said to be a colored population in that city amounting to 75,000, abundantly able to give support to an undertaking of this nature.

An additional State Hospital for the Insane will be built in 1895. The sum of \$75,000 was appropriated by the last Legislature to that object.

Medallion of the late Professor Knox.—A memorial medallion of the late Prof. James Suydam Knox was presented to Rush Medical College by his widow, Mrs. Elizabeth H. Knox, December 5. The medallion is of bronze and was

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ORIGINAL ARTICLES.

A SERIES OF APPARENTLY WELL ESTABLISHED FACTS IN THERAPEUTICS ON WHICH ARE BASED SOME QUESTIONS OF GREAT PRACTICAL IMPORTANCE.

BY N. S. DAVIS, M.D., LL.D.
CHICAGO.

1. The three well-known anesthetics in common use—ether, chloroform and alcohol each and all, when received into the blood, either by inhalation, hypodermic injection, or by the stomach, first suspend the sensibility of the cerebral hemispheres (unconsciousness or anesthesia), and next they suspend in succession or simultaneously the functions of the respiratory, vasomotor and cardiac nerve centers or ganglia, thereby suspending life. It is hardly necessary to adduce proof of this proposition, as it is familiar to every practitioner of medicine and surgery.

2. Each of these three anesthetics act on the nervous centers in the same direction, and consequently each intensifies the action of the others, whether given together by inhalation as in the A. C. E. mixture, or separately by different methods, provided they are present in the blood at the same time. The correctness of this proposition is demonstrated by the experiments of Dubois in 1883, and still more fully by those of H. C. Wood as detailed in his "Address on Anesthesia" to the Tenth International Medical Congress, Berlin, 1890, and by many carefully observed clinical facts.

3. The action of these three anesthetics—alcohol, chloroform and ether, on the cerebral, respiratory, vasomotor and cardiac nerve centers, is not only in the same direction, but that direction is one of *diminished sensibility* or paralyzant in direct proportion to the quantity used. This has been so perfectly demonstrated by the well-known experiments of Sidney Ringer and Sainsbury; Professors Martin and H. C. Wood; David Cernay, J. H. Kellogg and others, particularly in regard to the action of alcohol, that it must be admitted as an established fact, or we must deny the value of all experimental therapeutics.

4. These anesthetics not only directly diminish nerve sensibility and force, but their presence in the blood so modifies the action of the hemoglobin, corpuscular elements and albumen, as to diminish the reception and internal distribution of oxygen and to lessen the activity of the cell nuclein and leucocytes; and consequently they lessen all metabolic and natural excretory processes. The correctness of this proposition is sustained by an amount of both experimental research and clinical observation sufficient to fill a fair-sized octavo volume. So far as relates to the action of alcohol, the reader will find these proofs alluded to more in detail in a paper

prepared by me for the World's Temperance Congress in Chicago, 1893, and published in the second volume of "Temperance in all Nations," 58 Reade Street, New York, and also in an interesting volume "On the Effects of Alcohol," by Dr. J. E. Usher, London.

5. When alcohol or either of the anesthetics named, is retained in the blood but a few hours, as is usually the case when administered for strictly anesthetic purposes, the effects mentioned in the four preceding propositions soon disappear. But when the dose is repeated sufficiently often to keep it pretty constantly present in the blood and tissues for weeks, or months, or even years, as when alcohol is administered liberally from the beginning to the end of many of the acute general fevers and some chronic affections, or drunk in the form of beer, wine or distilled spirits as a beverage, the constant impairment of nerve sensibility and force and the coincident impairment of oxidation processes necessary for healthy tissue metabolism and excretion, directly encourage fatty or atheromatous degenerations in almost every tissue in the body, and especially in the stomach, liver, lungs, heart and kidneys, as may be seen illustrated in every case of chronic alcoholism. It is this effect of alcohol in diminishing the internal distribution of oxygen and also the activity of the nuclein and leucocytes of the blood, that makes the individual using it more liable to attacks of almost every variety of acute disease, whether epidemic or endemic, and lessens his vital resistance when attacked. So true is this, that every modern writer of note on practical medicine tells us that even habitual *moderate* drinkers of alcoholic liquor give a much higher ratio of mortality when attacked with cholera, continued fever, pneumonia, influenza or almost any other acute disease, than the total abstainers. Even the more intelligent part of the non-professional public have come to quite generally recognize this inherent and inevitable power of alcohol to impair man's physical power and activity, and hence they prohibit its use in all circumstances requiring the highest degree of activity and endurance, whether mental or physical. Having stated as plainly as possible the five foregoing propositions, and believing their correctness to be capable of abundant proof, I will ask a few questions of very great practical importance both to the profession and the public:

1. If alcohol when taken into the living body directly diminishes nerve sensibility, muscular force, and so alters the constituents of the blood as to retard both the internal distribution of oxygen and natural tissue metabolism in direct proportion to the quantity taken, why do we continue to speak or write concerning it, or to use it, as a *stimulant*, *heart tonic* or *restorative agent*? Is not such designation untrue, and directly calculated to perpetuate errors of the most destructive character, both as regards its use as a medicine and as a beverage? Why not give it its

true designation, *i. e.*, an anesthetic and organic sedative; and to be used only as such?

2. If the presence of alcohol in the blood directly diminishes respiratory, vasomotor and cardiac nerve force, and retards the reception and internal distribution of oxygen, what possible indication can there be for its use in such diseases as pneumonia, diphtheria, typhoid fever, etc., in which all the functions just named are already below the natural standard? Would not its presence not only still further depress the respiratory and vasomotor functions, but also by retarding the internal oxidation and metabolic processes, help to retain in the system both the specific toxic agents and the natural products of tissue changes, and thereby increase both the duration of the disease and the danger of final exhaustion?

3. Does not an accurate study of the history of the therapeutics show that, the greater the amount of alcohol or other anesthetics used in the treatment of the general acute diseases, especially those named under the preceding head, the higher has been the average ratio of mortality?

4. If alcohol and other anesthetics actually diminish cerebral; respiratory and vasomotor functions in proportion to the quantity used, why administer them to any patient coincidentally with strychnin, digitalis, strophanthus, convallaria, cactus, or other direct cerebro-spinal, respiratory and vasomotor tonics? As both direct experiment and clinical observation have proved that strychnin, digitalis, etc., most reliably antagonize the effects of alcohol and chloroform, is it not the climax of therapeutic inconsistency to give a patient a hypodermic injection of strychnin and at the same time fill his stomach or rectum with whisky or brandy?

5. How is it possible to determine the real value of the antitoxin serum in the treatment of diphtheria, if the patient is given at the same time liberal doses of a toxic bacterial product in the form of wine, whisky or brandy? And if these latter are omitted or their quantity greatly reduced, how shall we know whether the increased ratio of recoveries is owing to the virtues of the antitoxin serum or to the omission of the toxin, alcohol? Having carefully noted the published results of the treatment of diphtheria by antitoxin serum, as given in the best medical periodicals, I find a very large proportion of the cases so imperfectly described as to render them of no value in determining practical results. In many cases, nothing is said about any coincident use of other remedies; in other cases it is simply said that stimulants and nourishment were given, but what kind or amount is not stated; in still other cases the administration of quinin, iron, etc., is mentioned in addition to stimulants and nourishment; and in one case reported in the *British Medical Journal*, the child, 6½ years old, presenting symptoms of an average case of diphtheria without laryngeal obstruction, was treated with antitoxin and was represented as progressing very favorably until the fifth or sixth day, when a moderate antitoxin injection was given and six ounces of brandy ordered to be given the succeeding twenty-four hours. The next day the child was cyanosed and soon died. Can any one be quite certain whether this last case died from the toxin of diphtheria, the antitoxin, or the torula cerevisæ toxin in the six ounces of brandy?

Is it not practicable to have three or four hospitals admitting diphtheria patients supplied with a suffi-

cient quantity of some one of the reliable antitoxin preparations and then make a fair test of its efficacy by treating in parallel beds with good air, rigid cleanliness, and good milk for nourishment but no alcoholic stimulants, two series of cases as nearly alike in severity as possible. To one series of cases, let the antitoxin or antitoxin serum, be given in strict accordance with the most approved rules, and no other internal remedies. To the other series, let just enough calomel be given during the first or second day of the attack to procure one or two intestinal evacuations, and let this be followed by small but frequently repeated doses of a solution of bichlorid of mercury and belladonna until the diphtheritic membrane begins to break up, which is generally between the fourth and sixth days, then substitute suitable doses of tincture of chlorid of iron and quinin until the case is terminated. Let the most complete record possible be made in both series of cases, and then we shall have data that are parallel or comparable, and from which the most reliable practical conclusions can be deduced. If, in cases in either series, the disease invades the larynx sufficiently to demand it, intubation or tracheotomy should be performed as in other cases. The results of the two series of parallel cases thus managed would not only be comparable with each other, but both would be comparable with the results of the liberal alcoholic, and all other methods of treatment in vogue.

AN INSTRUCTIVE CASE OF APPENDICITIS NECESSITATING AN UNUSUAL METHOD OF OPERATION.

BY JOHN A. WYETH, M.D.

NEW YORK, N. Y.

On Sept. 29, 1894, I saw, in consultation with Dr. Herri-man, of Long Island City, New York, a young lady, 16 years of age, who, from the history given me at the time, evidently had an attack of appendicitis beginning ten days before this time. There was a large well-recognized tumor in the right iliac fossa, and although deeply seated, fluctuation was evident by palpation through the abdominal wall and the intervening viscera.

Operation was advised, and undertaken at once. The anesthetic used was chloroform. Upon opening into the peritoneal cavity through the usual incision, a large mass was discovered, in no place adherent to the abdominal wall. It was evidently an abscess due to perforation of the appendix, the walls of this abscess being made up of plastic lymph thrown out in advance of the inflammatory process, and agglutination of the neighboring intestines.

I recognized that any attempt at the removal of such a large mass by dissection, would lead to its rupture, escape of pus into, and general infection of, the peritoneal cavity.

The whole mass was lifted over to the patient's right side, a contiguous surface of omentum was stitched to the wall of the incision in the abdomen in such a way that it shut off from the general peritoneal cavity the proposed opening into the abscess. Sutures were applied upon the outer side of the wall of the abscess, and this was also stitched to the incision. Iodoformed gauze was carefully packed into the wound, which was left open, and further operation deferred for forty-eight hours in order to secure firm adhesion of the abscess wall to the margins of the incision. Forty-eight hours later, the abscess was easily opened without an anesthetic, was freely drained and the patient made a perfect recovery.

There was present at the operation, in consultation, a medical practitioner of New York City, of large experience, who informed me that he had seen a patient of his perish from the rupture of an abscess in connection with appendicitis, which was in every respect similar to the one we had just operated upon; that

the surgeon had made an effort to dissect the abscess out, it had ruptured and caused a general infectious peritonitis, from which the patient died. I, myself, had seen one other case in which a fatal termination was scarcely averted by leaving the wound open, and general packing, and had determined then that I would never again undertake to dissect out a large well-recognized abscess of the appendix until I had secured adhesions sufficiently strong to hold the abscess wall in contact with the abdominal parietes.

It not infrequently happens that when the abdominal cavity is entered in operations for appendix abscesses of long standing (six or twelve days), there are no adhesions between the wall of the abscess and the anterior abdominal wall, but adhesions have formed posteriorly in the iliac fossa, or the abdominal wall immediately over the crest of the ilium. Under such circumstances, it is the proper practice to use the anterior incision as a guide to the abscess cavity through a posterior incision made along the crest of the ilium, or over the point of firm adhesions.

In this manner the abscess is opened and drainage secured without danger of infecting the peritoneal cavity.

MINERAL SPRINGS OF CALIFORNIA.

BY WINSLOW ANDERSON, A.M., M.D., M.R.C.P., LOND.
SAN FRANCISCO, CAL.

From the earliest dawn of history, mineral waters have been highly extolled for their medicinal properties. The ancient Egyptians and Arabians used mineral waters in the treatment of many diseases. The hot sulphurous springs of Tiberias (now called Tabareah) have been in extensive use for the past 3,000 years, as they are at the present day, by patients from all parts of Syria. The thermal baths of Calirrhoe near the Dead Sea, made famous by Herod are still in use. The ancient Greek and Roman physicians prescribed mineral waters extensively, as may be seen from the writings of Hippocrates, Aristotle and Herodotus. Homer speaks of using mineral waters for bathing, for the preparation of sacrifice, for the reception of oracles and for holy marriages. Josephus and Pliny refer to the marvelous curative powers of mineral waters. The thermal springs of Thermopylae, immortalized by the heroic Spartans, have been in use for over twenty centuries and many are the remarkable cures accredited to their waters. The ancients erected magnificent temples in proximity to these fountains of health and dedicated them to their god, Æsculapius. Costly tablets were inscribed and placed in the temples, commemorative of the patients' gratitude. (Some of these tablets may be seen even to this day in the museums of Europe.)

The popularity of these mineral fountains of health has not been decreased by the discoveries of new worlds. Indeed, we find that our own aborigines in America have been using mineral waters for centuries, often traveling hundreds of miles to drink and bask in their smiling waters. Nor have the modern discoveries in medical science decreased the use of mineral waters; on the contrary, mineral water bathing and the internal use of mineral waters have increased enormously in America, as well as all over Europe. Balneotherapy and the internal use of mineral waters have become recognized branches of medicine to such an extent that many European universities have established chairs which are filled by

some of the ablest men of the period, for the purpose of teaching the effects of the external, as well as the internal, use of mineral waters on the human economy.

CALIFORNIA SPRINGS.

In California, on the golden shores of the Pacific, we have over two hundred mineral springs of all known varieties from the cool, delicious effervescent soda and sparkling Vichy, to the hot sulphurous wells direct from Pluto's realm, ever ready and ever flowing to alleviate suffering mortals. In 1890 I wrote: "When our California mineral springs become more generally known and their similarity to the famous European spas better understood, our invalids will not find it necessary, nor indeed expedient, to undertake the long, tedious, expensive and in many instances hazardous journey abroad, when



THE GOLDEN WEST.

they can find right here in California almost the identical mineral waters they have in Europe, besides all the conveniences of luxurious accommodations, a greater variety of food products and a pure, dry and balmy atmosphere—an invigorating and stimulating winter climate not equaled in any other country on earth.

USES OF MINERAL WATERS.

The *sine qua non* of the use of any mineral water is that it be thoroughly analyzed by a competent chemist, that its mineral ingredients be vouched for, and that as the internal administration and external application of natural mineral waters have been reduced to a scientific basis, it is quite important that the rules regulating their administration should be followed.

¹ See Anderson's Mineral Springs and Health Resorts of California

Thousands of invalids, ill-advised or perhaps wholly unadvised, seek the different springs and health resorts annually. During my travels among the springs of California, I frequently found people whose cases were actually aggravated and a fatal termination hastened by the use of *the wrong mineral water*.

Mineral springs are not "cure-alls." As a rule, too much is claimed for them. The many marvelous cures cited and the many improbable and ridiculous statements seen on printed circulars do more harm than good. Sensible people are not going to believe that a "magnetic" mineral water can cure a "bad case of consumption," or that any "mineral water" cures heart disease, etc. On the other hand, it would be quite as flagrant an error to suppose that all the



CALIFORNIA PALMS.

reputed beneficial effects of mineral waters were the result only of extravagant or interested imaginings.

To obtain the greatest possible benefit from the springs, it is absolutely essential that the patient first consults his regular family physician who makes a careful diagnosis, then if a change of scene and a course of treatment at some spring be truly advantageous to the patient, let the physician, who is certainly the most competent to advise in such matters, recommend the resort best suited to the case, or send the patient to consult some physician who has paid special attention to mineral waters and their uses. In this connection I have found that if mineral waters and the hygienic *régime* recommended be used as

auxiliaries to the regular internal treatment, the best results may be hoped for. Once at the springs the patient should follow implicitly the directions of the resident physician, who, if armed with a personal letter from the patient's regular physician can prescribe wisely and at once.

The indiscriminate use of mineral waters, either for drinking or bathing purposes can not be too strongly condemned, for while they look bland and harmless, they are potent therapeutic agents which may accomplish much good if judiciously employed, but may also do much harm and may be followed by serious if not fatal results in careless hands.

The climate in California is conducive to the highest excellence in mental activity and physical strength. When an individual contracts a disease—rheumatism for instance—which requires several weeks for a complete cure, he becomes restless and eager to follow his vocation. The result in many cases is, that as soon as the patient is able to walk at all he begins the continuous rush of business and neglects his disease, which gradually lapses into a subacute or chronic state. In this condition, perhaps, he goes to the springs. Here the same restlessness characterizes the average Californian, and, indeed, the majority of American patients. He will "rush" the treatment. If one glass of water be prescribed three times daily, he will take half a dozen glasses as many times a day. If one sulphur-water or mud-bath be prescribed, once in three, or once in two days, he will want to take it two or three times daily in order to hurry up the treatment. This is not an overdrawn or an individual instance. Resident physicians have repeatedly informed me of the difficulty experienced in keeping patients within due bounds, and in more than one case this rushing and unauthorized self-treatment has resulted fatally in less than one week's time. Therefore, let patients who go to the springs, be thoroughly examined and their diseases carefully diagnosticated. Let the intelligent physician send his patient to the springs best suited to the individual case, and while there let him drink the waters, use the baths, and follow the *régime* directed by the resident or supervising physician. This plan, with judicious internal medication promises the best results.

THERAPEUTIC ACTION OF MINERAL WATER.

The specific action of mineral waters must depend upon the chemic ingredients they contain. Mineral waters, as a rule, are well borne by the stomach. They are readily and rapidly absorbed, carrying the ingredients which they hold in solution in the most minute form of subdivision into the circulation. By the use of mineral waters much larger quantities of fluid also are taken which assist in distending the minute ramifications of the capillaries, thereby assisting the removal of morbid products of chronic congestion or inflammation. Mineral waters act on the peripheral nervous system stimulating the circulation. They also act as simple diluents, flushing out the renal and chylo-poetic viscera, diluting the fluids of the body and assisting elimination. The carbonic acid gas which nearly all of the mineral waters contain, is very grateful to the gastro-intestinal mucous membranes. It enters the system charged with mineral particles and presents them to the mouths of the absorbents in a highly diluted condition. The gas promotes absorption by its tonic

and stimulating action on the nervous and vascular systems. This would seem to explain why the fractional part of a grain of peroxid or carbonate of iron, finely subdivided and largely diluted with water, and an abundance of gaseous acid may exercise a greater influence on the system on account of its rapid absorption by the stomach and intestinal absorbents than many times more of the pharmaceutical product which has first to be dissolved, diluted and subdivided by the gastric juice previous to absorption. It is of common observation that the stools rapidly become dark after the exhibition of ferruginous salts because the iron is not absorbed. One-tenth of a grain of iron in solution in a carbonated mineral water will accomplish as much good as ten grains taken without a suitable vehicle, simply because very little of it is absorbed.

SUMMARY.

1. Carbonated and chalybeate mineral waters are, as a rule, easily borne by the stomach.
2. They stimulate digestion.
3. Accelerate absorption.
4. Improve capillary circulation.
5. Assist in the elimination of morbid and waste material.
6. Act as diluents.
7. Besides exerting a more or less specific action on different diseases according to the mineral ingredients of the water.

The diseases which I have found to be most benefited by mineral waters are: Atonic and catarrhal dyspepsia, hepatic and splenic engorgement, atony of the bowels, flatulence and chronic constipation, inactivity and congestion of the kidneys, irritability and chronic inflammation of the bladder, chronic malaria, hydremic conditions of the blood and weak circulation, chronic articular diseases such as rheumatism, rheumatoid arthritis, gout, synovitis, glandular enlargement, blood-glandular diseases, scrofulous, syphilitic and cutaneous contaminations, etc.

It is needless to remark that each disease requires a different régime, different mineral waters and different internal and external medication. (The consideration of mineral water and mud-bathing has been omitted for a future article.)

With the caution given relative to a careful diagnosis, proper internal medication and the selection of the special springs or mineral water which is suitable for the individual case, a patient sojourning for a few weeks or months at some of our California springs will accomplish much toward the alleviation and eradication of his disease. The entire change of his habit of living, the pure wholesome food with plenty of fresh, pure, ozonized California air are auxiliaries which, with our California mineral springs have restored many broken-down, overworked and diseased individuals to health, strength and future usefulness.

608 Sutter Street.

THE IDENTIFICATION OF THE TYPHOID FEVER BACILLUS.

BY EDWIN O. JORDAN, Ph.D.*

CHICAGO.

Few points are of more fundamental importance to the practical bacteriologist than the ability to identify quickly and with unfailing certainty a given

pathogenic organism. In the early days of pure cultures the work of describing accurately and exhaustively the different "species" of bacteria was entered upon with a confidence perhaps unwarranted. There was a general, if not fully expressed feeling, that certain characters sufficed to distinguish unmistakably a particular species, and that these characters when once determined were safe recognition marks. From this comfortable initial position we have in several instances been forced to recede. This withdrawal of our reliance on characters once believed to be "diagnostic" has been most marked, perhaps, in the case of the specific organism of typhoid fever.

The Eberth-Gaffky bacillus, as is well known, has been found to bear so close a resemblance to bacillus coli communis, a common saprophyte and a normal inhabitant of the intestine of many animals, that several investigators (Rodet and Roux, Arloing, Malvoz) have been led to conclude that the two organisms are substantially identical. The considerable variability of the typhoid bacillus, together with the existence of numerous intermediate "varieties" have helped to give color to this view and have certainly augmented the difficulty of identifying the typhoid fever germ.

The morphology of the typhoid fever organism is far from distinctive, all the salient morphologic characters being repeated more or less closely by the colon bacillus or by some of the intermediate varieties. The typhoid bacillus, for example, when grown in bouillon, shows a tendency to form long threads, a trait that is not ordinarily shared by the bacillus coli. I have, however, through the kindness of Dr. A. P. Ohlmacher, recently come into possession of a culture of the latter obtained from an old peritonitis, which is not only actively motile, but grows out into long threads precisely simulating the typhoid growth. Some investigators¹ have considered that the larger number of flagella borne by the bacillus typhi suffice to distinguish it from the bacillus coli group, but this view is by no means generally accepted. Most investigators have been unable to recognize a constant difference in this respect. My own observations on this point have not led to any constant result. The age of the culture and character of the culture medium, as well as certain undetermined causes, bring about considerable variation in the number of flagella. It is interesting to compare the statements made by those who regard the number of flagella as diagnostic. According to Luksch, bacillus coli possesses from one to at most three flagella, while the bacillus typhi has from eight to ten. Nicolle and Morax² state that the maximum in the bacillus coli is ordinarily six, but may be "exceptionally eight to ten," while in the bacillus typhi ten to twelve are frequently found. Moore³ in his careful study of the character of the flagella borne by certain members of this group has reached a negative conclusion: ". . . the number of flagella on the individual bacteria vary in the different fields in the preparations from the same species as much as in those from different species, excepting in the maximum numbers; this is also true of the length of the flagella." ". . . Until further facts are determined, the character of the flagella will not furnish a means for specific differentiation."

The typhoid bacillus itself exhibits great varia-

¹ c. g. Luksch, Centralbl. f. Bakt. xii, 1892.

² Annales de l'Inst. Pasteur, 1893, p. 554.

³ Wilder Quarter-Century Book, 1893, p. 330.

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bility in form under changing conditions. Slight fluctuations of temperature, culture media of varying composition and of different degrees of alkalinity give rise to considerable variations in shape and size, while one and the same culture, examined at different ages, is sure to afford a wide range in form and dimensions. Gasser⁴ is so impressed by its variability in form, that he declares that no organism is so polymorphous as the typhoid bacillus, even when it is grown in the same culture medium. The changes in structure induced by change of habitat, food supply, etc., are familiar to all students of the higher organisms and are phenomena coming under the daily observation of bacteriologists.⁵

It is to-day, therefore, generally admitted that the morphologic characters of the typhoid fever organism are not of diagnostic value, and do not permit us to separate it surely from the common colon bacillus.⁶ In all the higher organisms, both plant and animal, differences in structure are the generally recognized basis for classifying organisms into such groups as species and varieties. Physiologic traits can not with safety be utilized for this purpose, since they are more likely to undergo sudden and radical change. Changes in function usually precede and in large measure determine changes in structure. Examples of the diversion of physiologic activity from one channel into quite a different one will occur to every one. Such being the case, the fact that we are at present forced to base our diagnosis upon the physiologic characters of the typhoid bacillus does not at the outset inspire us with great confidence in the soundness of our method. Since morphologic characters, whether from the inadequacy of our microscopes or the low structural differentiation of the bacteria, fail to afford us means of diagnosis, we are compelled to fall back upon functional characters confessedly liable to great and sudden change.

If we examine, for example, the question of motility, a physiologic character of considerable importance, we find ourselves beset with difficulties. The nature of the culture medium and the age of the culture have here full play as disturbing influences and may lead to very discordant results. The typical typhoid bacillus is actively motile, while the colon bacillus is usually described as non-motile. Under certain circumstances, however,—at present imperfectly understood—the typhoid bacillus does not exhibit movements of translation. According to Germano and Maurea, the presence of acid in the culture medium is one of these perturbing factors. Furthermore, it is well known that the power of motion is one of the characters frequently parted with by many bacteria during a long-continued series of transfers. Every one who has had occasion to isolate species from water and soil has observed species which are motile when first examined, but which lose the power of movement under prolonged artificial cultivation.

The lack of motility alleged of the bacillus coli rests upon a similarly inadequate basis. Escherich, indeed, to whom we owe the first description of the

bacillus coli, describes this form as possessed of slow movement. I have not been able to satisfy myself as to the occurrence of really "slow" or "sluggish" movements among the members of this group. The difference seems rather to consist in the proportion of individuals exhibiting any movement at all. Most coli-like varieties show in the hanging drop a whole field of motionless individuals, but, with continued observation, two or three active individuals may occasionally be detected. In *kind* of movement I have not been able to discover a difference between these forms and the typhoid organism. There are undoubtedly some "intermediate" forms, like the one I have noticed above, which are actively motile. We are not at present in position to assert confidently that a motile typhoid-like bacillus can not be a variety of bacillus coli any more than we are able to deny that a non-motile coli-like bacillus may after all be a modified typhoid germ.

It is to the existence of these "varieties" or "intermediate" forms, these *coli-ähnliche* and *typhus-ähnliche* bacilli, that the difficulties of diagnosis are due. Broadly speaking, these "varieties" of the typhoid bacillus resemble the latter in morphology and in their growth upon plates of nutrient gelatin; they form no spores and do not stain by Gram's method. The true typhoid bacillus has, however, been considered as separated from these varieties by its possession of certain well-marked peculiarities. The growth of this organism on potato was for long regarded as of diagnostic value, but confidence in this test was shattered by the work of Pfuhl and Kitasato. The failure of the "invisible film" as a final test has, however, never been more clearly demonstrated than in the recent discovery made during Kruse and Pasquale's studies on dysentery⁷ of a *typhus-ähnliche* bacillus in pure culture from the liver. The bacillus grew upon potato exactly as the "typical" typhoid bacillus should do, and proved itself in other respects similar to the typhoid germ. Upon the other half of the potato, the real typhoid bacillus grew atypically. The newly discovered variety was more "typical" than the typhoid bacillus itself. Upon another slice of potato, however, on which the typhoid bacillus grew typically, the "variety" grew atypically.

Other physiologic attributes have, one by one, met with a similar fate. The negative-indol reaction put forward by Kitasato, the cultures in colored media,⁸ the production of acid or alkali,⁹ the coagulation of milk have all failed as definite and final criteria. A coli-like bacillus that forms indol in a peptone solution containing no sugar may indeed be definitely excluded from the typhoid group, but the inability of a *typhus-ähnliche* bacillus to produce indol in no way assures us that we are dealing with the genuine typhoid organism. Similarly, inability to coagulate milk is not diagnostic. Coli-like bacteria that produce indol and coagulate milk are certainly not typhoid bacilli, but typhoid-like bacteria that are unable to bring about either reaction can not, on this ground alone, be unmistakably identified as true typhoid germs.

Few bacteriologists who have studied the bacteria of this group have failed to meet with these intermediate varieties. J. M. Flint in some yet unpublished

⁴ Archives de Méd. expt. Jan. 1891.

⁵ The changes induced in lowland plants by removal to higher altitudes is a case in point. The aerial shoot-axis becomes dwarfed and the subterranean parts, on the other hand, undergo an exaggerated development, while plants of an annual habit in the plains become perennial at the higher elevation. Goebel adds significantly: "These transitory changes answer in general to the characteristic hereditary peculiarities of Alpine plants."

⁶ Cf. *e. g.* Germano and Maurea. Beiträge z. patholog. Anat., xli, 1893, p. 494.

⁷ Zeitschr. f. Hygiene, xvi. 1894, pp. 59-62.

⁸ Cf. Sanarelli, Annales de l'Inst. Pasteur, June, 1894, p. 390.

⁹ Cf. Péré, Annales de l'Inst. Pasteur, vi. 1894.

studies upon the distribution of bacillus coli, has discovered in the feces of the moose a bacillus resembling the typical bacillus coli in all points, except that it is unable to produce indol. I have recently obtained from the spleen of an individual, dead from typhoid fever, a pure culture of a bacillus which agrees with the colon bacillus in all respects, save that it does not coagulate milk even after prolonged growth, and does not grow in formalin bouillon.¹⁰

There is one test of this character, however, which has for some time stood on quite a different footing from the others and has been generally regarded as making it possible to exclude definitively these troublesome varieties. This physiologic character is the ability to ferment grape-sugar in a peptone medium. The typical typhoid bacillus is unable to perform this feat, but the typical colon bacillus invariably ferments the sugar with abundant production of gas. It has of late been pretty universally held that the "varieties" also could always be distinguished from the typhoid bacillus by the power they possessed of fermenting sugar. To the work of Theobald Smith is due our knowledge of this valuable characteristic. The most recent and thorough-going comparative investigations upon the typhoid bacillus and its allies—those of Germano and Maurea—support the position taken by Smith. These authors consider this test to be unfailingly diagnostic, and assert that, "*Dieser Charakter ist beständig und führt also sicher und schnell zur Unterscheidung des Typhus bacillus von den typhus-ähnlichen Bakterien.*"¹¹

Fuller,¹² after frequent water examinations covering more than a year and involving more than twenty-four hundred species determinations, comes to the conclusion, "that there appear to be no other non-liquifying bacteria in the water of the Merrimac River which do not coagulate milk and also produce a turbidity without gas, in the Smith test." Notwithstanding this weighty testimony, it appears that the glucose-fermentation test must now share the fate of the other "diagnostic" characters. Kruse and Pasquale, in their paper already referred to, find that three out of the twenty-five cultures of *typhus-ähnliche* bacteria examined by them, comport themselves like the typhoid bacillus, *i. e.*, produce no gas in glucose-agar. A similar but less satisfactory statement has been made by Roux and Rodet. There is little reason to doubt that the fermentation of glucose, although a very valuable aid in diagnosis, is no more a final criterion than the other physiologic attributes that have, one by one, been advanced as "characteristic," only to be overthrown by subsequent discoveries of intermediate forms. It might almost be anticipated on purely *a priori* grounds that further research will bring to light other *coli-ähnliche* bacteria unable to ferment glucose when put to the test.

One of the most recent attempts to establish a diagnostic character for the typhoid germ is that of Schild,¹³ who uses formalin bouillon (1 to 7000) and finds that with pure cultures of the typhoid bacillus the bouillon remains perfectly clear, whereas with bacillus coli and its allies the fluid soon becomes turbid. My experience with this differential test inclines me to think that at best it will not rank higher than the negative indol reaction. I have referred

above to one intermediate form I have studied which, in most of its physiologic attributes, is far removed from the typhoid organism, and yet which refuses to grow in 1 to 7000 formalin bouillon. I see no reason for regarding this as an isolated example.

At this point, I may be allowed to digress so far as to note the parallel afforded by the present condition of the means for diagnosis of the cholera vibrio. Here, as in the case of the typhoid bacillus, morphologic characters are not distinctive and the only recognition marks of the cholera germ are physiologic. There exist not only "varieties" of the cholera vibrio which have been found in outbreaks of cholera in certain localities, *e.g.*, the Massanah vibrio described by Pasquale, but also, precisely as in the case of the typhoid bacillus, there exist confusing water vibrios which simulate more or less closely the typical cholera vibrio. Bacteriologists have now to reckon with a vibrio danubicus, a vibrio berlinensis, and other cholera-like organisms. Furthermore, in the light of recent research, the "cholera reaction" can no longer be regarded as characteristic of the cholera germ, and it is widely admitted that this much relied upon nitroso-indol color test is not a final criterion. The inoculation of animals is declared, in a recent interesting discussion of the question,¹⁴ to possess even slighter diagnostic value than the nitroso-indol test. The single attribute of the true cholera vibrio which may at present be regarded as "characteristic" is the growth in gelatin, and this only when carefully controlled under certain definite and constant conditions.

The difficulties met with in identifying the typhoid bacillus are not, therefore, singular or unique; we have, however, for the moment, come to closer quarters with them than we have yet reached in the case of cholera.

The close similarity of the products of the common colon bacillus and the typhoid bacillus has justly attracted much attention. Cesaris-Demel and Orlandi¹⁵ have studied in detail the highly remarkable correspondence between the metabolic products of these two organisms. These authors assert that in therapeutic and immunizing power the products show thorough-going biologic equivalence. They assert, moreover, that the serum of animals rendered immune against bacillus coli has both immunizing and therapeutic power against infection with the typhoid bacillus; the converse also being true. The recent revolutionary conclusions reached by Sanarelli¹⁶ must lead to a suspension of judgment on this point. Sanarelli's prolonged studies upon experimental typhoid fever lead him to maintain that the intestinal disturbances in this disease are due to the action of the toxin and not to the local action of the typhoid bacteria. He finds that the intestinal glands can be protected against the action of the typhoid toxin without in the least impairing the general susceptibility of the animal. He asserts, moreover, that the alleged identity of lesions produced by bacillus coli and bacillus typhi does not in reality exist; that the lesions of the latter are invariably far graver, while those of the former are of a septic nature. Sanarelli is unable to establish the biologic equivalence of the two poisons but finds, on the contrary, that the toxins of the Eberth bacillus exert upon the mucous

¹⁰ Centralbl. f. Bakt. xiv, 1893; Zeitschr. f. Hygiene, xvi, 1894.

¹¹ Loc. cit., page 528.

¹² Max Gruber. The Lancet. July 7 and 14, 1894.

¹³ Cf. Centralbl. f. Bakt. lld. xv.

¹⁴ Annales de l'Inst. Pasteur, Nos. 4 and 6, 1894.

¹⁰ See page 933.

¹¹ Loc. cit., page 528.

¹² Boston Med. and Surg. Journal, Sept. 1, 1892.

glands an action incomparably more energetic and severe than the toxins of the bacillus of Escherich.

While the close similarity of the colon bacillus and the typhoid bacillus is necessarily recognized by every one, and while it is admitted that there is no single criterion that absolutely distinguishes the latter from all of the perplexing "varieties" and "related forms," it is nevertheless maintained by many that the sum total of the morphologic and physiologic characters presents a true and unmistakable picture of the specific organism of typhoid fever. These investigators hold that, although the varieties may approach more or less closely to the typical typhoid germ, they may always be distinguished from it by at least some one character which is not shared by the genuine typhoid organism. One "variety," it is held, may differ from the typhoid organism only in its ability to produce indol, another solely in the glucose fermentation test, while still another differentiates itself from the "true" typhoid organism only in parallel cultures upon potato. It is said that it is the "true" typhoid organism alone, however, that is actively motile, produces no indol, is unable to ferment glucose, refuses to grow in 1 to 7000 formalin bouillon, and agrees in every other respect with the bacilli found in the spleen of a typhoid fever victim.

It will be observed that those who take this stand elude in a measure the very questions at issue. There is no doubt whatever that an organism is usually found in the spleen, mesenteric glands and other organs of an individual dead with typhoid fever, which may be distinguished from similar organisms by the methods above indicated. The question arises, however, as to whether this particular bacillus is the cause and the sole cause of typhoid fever. Can the "varieties" cause typhoid fever in favorable soil? Or, indeed, can harmless "varieties" be transformed under natural conditions into the "typical" pathogenic form? Neither of these questions has been satisfactorily answered. The fundamental point as to the invariable occurrence of the typical organism in the spleen of a typhoid fever victim can not as yet be regarded as definitely settled. The earlier investigators did not reckon with the then undiscovered varieties, and even the more recent work has not been of a very extended or rigorously comparative character. The fact must be kept in mind, moreover, that in the mesenteric glands, the liver, and the kidneys, the "varieties" are frequently found, while in the dejecta the "varieties," and even the typical colon bacillus appear frequently to far outnumber the typical typhoid organism. It might, indeed, be reasonably urged that the conditions environing the bacteria in the spleen tend towards a certain uniformity of type, that members of the coli-typhoid group under like conditions are forced into a like mold, and that the "varieties" may be as truly the cause of typhoid fever as the typical form. This argument is entitled to some consideration, but must be regarded as suggestive rather than convincing. Further research on this point is necessary.

In this connection, one aspect of the transformation question may be considered. It has not escaped notice that the typhoid bacillus differs from the colon bacillus chiefly in that it possesses the characters of a weaker organism. The former does not, as a rule, grow so luxuriantly upon gelatin and agar as the latter, is unable to produce indol or ferment glucose, does not live so long in water, and is prevented from

growing by a 1 to 7000 formalin solution. Some observers¹⁷ have gone so far as to assert that the typhoid bacteria isolated from corpses are in all cases weakened organisms, and to declare that many of the most "typical" reactions result from the physiologic incapacity of the enfeebled germs.¹⁸ It is interesting to note that one author (Blachstein) finds that healthy and virulent typhoid bacteria—isolated from dejecta—are able to produce in sugar-containing fluids a considerable quantity of gas and large quantities of lactic acid! I regard it as a fatal objection to the enfeeblement theory, however, that the typhoid bacillus is actively motile. I have observed active movement in a typhoid culture after nine months of artificial cultivation. This is the more remarkable since, as is well known, many bacteria speedily lose all power of movement under artificial conditions. The fact that the typhoid bacillus so tenaciously exhibits movement appears to me an insurmountable obstacle in the way of regarding it simply as a "weakened" variety of the ordinary non-motile colon bacillus.

By far the most important aspect of the question is that bearing on the direct transformation, and it is unfortunate that the evidence at our command fails here both in abundance and cogency. The position taken by Roux and Rodet is well known. These observers¹⁹ claim to have succeeded not only in so modifying bacillus coli that it lost the power of fermenting lactose, but also in imparting to a typical typhoid culture the ability to ferment lactose. A similar result is claimed by Vivaldi²⁰ who cultivated bacillus coli in gelatin mixed with filtered bouillon cultures of different water bacteria—*e.g.*, *proteus vulgaris*—and believes that under these circumstances bacillus coli can assume the characteristics of the Eberth-Gaffky bacillus. This transformation, however, was not permanent. One of the most interesting statements upon the transformation question is that by Malvoz as quoted by Chéron.²¹ By passing the colon bacillus through successive cultures in bouillon to which a little carbolic acid had been added, Malvoz obtained a form showing the characteristics of the Eberth bacillus.²² In all these reports of transformation experiments, however, the details are meager and unsatisfactory, and the conclusions reached by the authors are far from carrying conviction. The fact that bacillus coli can be made to lose such a property as that of indol production does not necessarily imply a nearer approach to the typhoid bacillus. The totality of the characters of the altered form may, it is possible, diverge more widely from that of the typhoid bacillus than does that of the normal colon bacillus.

There is a certain kind of evidence that bears more or less relevantly upon the questions considered. Such, for instance, is the statement by Denys and Martin²³ that their old cultures of the pneumobacilli show a striking approximation towards the typhoid bacillus, in that the pneumobacilli had lost the power of developing gas from glucose and lactose, while the growth on potato was hardly visible. It is unnecessary to dwell upon the suspicious association of bacillus coli and its varieties with certain disorders of the alimentary tract,²⁴ or to point out the frequent presence of these bacteria in the cadaver.²⁵ Agro²⁶ has

¹⁷ Cf. *c.g.*, Hygienische Rundschau, 1893, p. 165.

¹⁸ See also Modern Medicine and Bacteriol Review, 1894, No. 2.

¹⁹ Le Bulletin méd., 1892, p. 865.

²⁰ Cf. Abstract in Baumgarten's Jahresbericht, 1892.

discovered the very interesting fact that the mixture of the cultures of bacillus coli and bacillus typhi abdominalis has greater toxic power than a similar quantity of either in pure culture, seeming to show that a symbiotic relation may exist between the two organisms. The mixture of sterilized cultures also possesses a greater toxicity than the sterilized cultures taken separately, but only up to a certain point. These facts, while bearing perhaps rather remotely upon the transmutation and substitution problems, are certainly suggestive.

We may summarize the situation in the following way:

1. There is usually found in the spleen and other organs of an individual dying with typhoid fever, a bacillus which possesses certain definite morphologic and physiologic characters.

2. This bacillus, when viewed in the light of all its characters can be distinguished from the other members of the coli-typhoid group. No single character, however, is "characteristic" and nothing short of an enumeration of all the known morphologic and physiologic properties of the bacillus is a sufficient basis for diagnosis.

3. There exists a well-nigh complete chain of varieties between the typical colon bacillus and the typical typhoid bacillus. Whether this represents ontogenetic as well as phylogenetic possibilities is still an open question.

4. The intermediate varieties, of which there appear to be many, resemble the typhoid organism very closely. It is still uncertain whether they are able to cause typhoid fever, or a disease resembling it, in man.

5. The cases of alleged conversion of one "species" or "variety" into another do not carry conviction and are susceptible of other interpretations than those advanced regarding them.

FADS AND FOLLIES I HAVE KNOWN.

BY ROBERT H. DALTON, M.D.

ST. LOUIS, MO.

The present state of medicine is the result of a grand evolution and, like all achievements of the human mind, claims but an humble origin. Its progression has been marked by error and superstition from time to time, and even now, when it justly demands the highest rank, it is probably liable to the same change; for while we are certain that superstition must be eliminated, we are not so sure that grave errors may not be exposed by time and more patient investigation.

I propose to indulge in a temperate consideration of facts that fell under my personal observation in the early part of my career, eschewing those which seemed to have a basis of merit, but really, may have tended to retard the progress of scientific medicine, some of which, even at this enlightened period, are seriously agitating our profession, and may hereafter be ridiculed and laughed at, like those I witnessed long ago.

In 1826-27 I had the privilege of attending a course of medical lectures at the Transylvania University,

Lexington, Ky., where Dudley, Drake, Caldwell and others were holding forth to a class of 205 students from all parts of the South and West. It was remarkable that the school at Lexington, then only a first-class village, should rival the great institution at Philadelphia; but there was a fair reason for it—the fame of Drake, Dudley and Caldwell. Of these three champions, Drake, though indomitable, was the lesser light illuminating the sphere. He might have been greater had he been less peripatetic, for he was ever restless and inclined to change his base. He was a bold and generally successful practitioner, skilled in diagnosis, and well patronized by the people wherever he lived. Like many other doctors, he had hobbies, one of which I mounted and rode as long as I was in the field—in cases of dropsy, to give every other day in small but repeated doses, a combination of elaterium and jalap until active purgation was produced. Usually the fluid passed off in a few days, and then strong tonics were immediately employed. I confess, however, that the plan sometimes failed. Believing that all western people complaining of any disorder, were bilious, the Doctor seldom failed to unload the liver by a dose of comp. extract of colocynth and calomel; and of this I had some experimental knowledge, having once employed him to treat me for a headache induced by sitting up late at night reading by a tallow candle.

Drake's oratory was fervid but not eloquent, and as he rose to a climax the blood would mount to his face and forehead seeming ready to burst forth to relieve the tension, though ordinarily he was thin and pallid. Ten years afterwards he published a massive book chiefly interesting to Western practitioners, which I bought and read with little edification.

Caldwell having paid his debt of ingratitude to Dr. Rush at Philadelphia, his preceptor and early patron, by assailing his doctrines on every hand and all occasions for several years, and beginning to recognize the verdict of the physicians and people of that city against him, was easily persuaded to transfer himself to a distant region, to quiet his nerves and afford an opportunity of displaying his wonderful eloquence and erudition; hence the popularity of Transylvania in 1826.

Caldwell was born and reared in the brave and good old State of North Carolina in the mountainous western region near King's Mountain, where Tarleton's troopers bled. He belonged to a family distinguished for learning at that time and, if I mistake not, he was a nephew of the celebrated Caldwell so long President of the University of North Carolina at Chapel Hill, the alma mater of so many eminent men who went forth to dignify the councils of their State, while many emigrated to the West and South to build up democratic institutions there. His eloquence was much enhanced by the magnificent appearance of his person. Stalwart and gracefully proportioned, with handsome features beaming with intelligence, his splendid presence could not fail to prepossess any kind of an audience before a word was uttered; and even now, after the lapse of three score years and nine, a pleasing sense of admiration seems to thrill me, as my mind reverts to that old lecture room at Lexington, Ky. True it is that "music hath charms," but true it is also that it pales before the fiery waves of eloquence, the very witchery of language.

The legend in North Carolina of how Caldwell appened to become a physician at Philadelphia

²¹ Union Méd. 1893, No. 83.

²² See in this connection Villinger, Archiv. Hygiene, xxi, 2, 1894.

²³ La Cellule, ix, 1893.

²⁴ See e.g. Centr. Jbl. f. Bakt. xii, 1892, p. 458.

²⁵ See Wurtz and Hermann, Archives de Med. expérimentale, iii, 1891.

²⁶ Annales de Micrographie, vi, 1891.

runs thus: His father was a large stock-raiser, who annually drove cattle to either Charleston, Richmond or Philadelphia; and when Charles had graduated and returned home, he was on the eve of starting off with a large drove to Philadelphia; but falling unwell, he was compelled to substitute Charles in his place, who was more than willing to engage in such a spree. At that early time (1795) the Piedmont hills and valleys from Alabama to New York were covered thickly with wild pea vines, the best of food for cattle, so that the long trip cost nothing but time, as there was no food to buy nor rivers to cross. Having sold the beeves, Charles fobbed \$1,500 of the proceeds and sent home the drivers, with the balance inclosed in an affectionate letter to the old gentleman, advising him to will his property to the other children, which doubtless he did. In the meantime he became a private pupil of Dr. Rush, to lay the foundation of his career, I might have said his brilliant career, for it was brilliant, indeed, until green-eyed envy wreaked its vengeance upon him in old age.

Benjamin Winslow Dudley, the great Western surgeon of that day was not over-estimated. Such a man would have been famous in London or Paris. Among physicians of the time, his fame seemed to rest on his remarkable success in lithotomy, but that was a mistake, for he was truly great in everything pertaining to medicine or surgery. He was so notorious for the treatment of chronic diseases, that patients came to him from all parts of the South and West; some living in quarters in the village and others boarding in the country, whom he visited on horseback, for he was never seen in a vehicle. I saw much of his practice through the favor of his principal private student, who had been my classmate in North Carolina. In the treatment of chronic diseases, his general plan was by diet and alteratives, following Abernethy, the patients being usually confined to skimmed milk and corn-bread entirely. His lectures were delivered in a conversational tone, but always interesting, as evidenced by the profound attention of the class. He went to Paris and London for his education, where he remained for several years as a private pupil of Abernethy.

Dudley was a small man of middle age, about five feet six inches high, having a large round head and ample forehead, with auburn hair encircling a bald crown; a gray eye stern and indicative of determination. His nose was not large, and his upper lip, being thin and slightly drawn, gave him a cynical look not in accord with his true character. When about to perform a capital operation, he would always appear ghastly pale as he followed the men bearing the patient into the amphitheater; but when operating, he was as firm as an Irishman carving a hog, and his work was quickly done. He firmly believed that his successful lithotomy was owing to dietetic preparation of patients—skimmed milk and corn-bread for a week before operating, and nothing else.

Drake having resigned in 1827, Cook from Western New York was installed in his place and soon became notorious by propagating a pill called "Cook's Pill," and the startling theory of giving enormous doses of calomel for the relief of all bilious affections; and as everybody in the West and South at that time was supposed to be bilious, the pill had a marvelous run for years. For some reason, perhaps the dignity of

his professorship, he failed to take out a patent for the pill, and allowed its ingredients to be known—aloes, rhubarb and calomel! The calomel administered was in doses of 40, 60, 100, or 150 grains according to the biliousness! But it had a run of only two or three years in such large doses. While the fad continued, little else was relied upon in the treatment of remittent fever by those who fell into the rage. The liver and portal circle bore the brunt of many a siege and could not be reduced effectually by anything but heroism. Milder modes of treatment went sneeringly by the name of "pop-gun practice." And what was the consequence of this terrible hallucination that went forth from Transylvania?

We all know how prone young graduates are to adopt the theories and practice of favorite teachers, especially when urged with captivating diction. Perhaps all young doctors are thus trammelled until their minds are enlarged by experience. For my part, I remember that, whenever a sleek, beautiful hobby came along I was apt to mount him, and away we went in a canter, but would not go far until he would kick up and throw me off; then I would have to swap him for a gentler nag, and so on, until finally I found myself trotting along on an old Conestoga that neither kicked nor dodged, and never flew the track.

Swarms of these young graduates galloped away from Lexington every spring, with glaring sheepskins in their saddle-bags, printed in a dead language which perhaps many could not read, to settle down at every cross-road in the great West and South, armed with a quart bottle of calomel and a gallon or two of Cook's pills to cleanse the liver and scour out the bowels of their trustful friends. And what was the result? Collapse and death, or constitutions broken down by horrible salivation, and loss of teeth for mastication. And yet this medical epidemic continued to rage for a number of years; but thanks to the Nestor of our profession at Chicago for his happy thought of establishing the AMERICAN MEDICAL ASSOCIATION the renaissance has come.

The furore of that practice was, however, a god-send to the homeopaths, for they soon sprang up everywhere, laughing in their sleeves and fooling the people with their infinitesimals. The people actually seemed to be afraid of regular physicians, and in despair turned to the nearest and only help for relief, thus pinching the pockets of regular physicians and swelling the purses of the homeopaths. This seemed to be a timely retribution, serving to arrest careless and extravagant practice and promoting many ingenious and agreeable modes of administering nauseous drugs, indispensable in treatment.

In the meantime, some sharp fellow whose name, if I ever knew it, I have forgotten, witnessing the good luck of the homeopaths, conceived the idea of supplanting both parties by establishing what he called eclecticism, thereby hoping to fill the pockets of himself and comrades; but the success of that sect has not been material, nor do the homeopaths seem to be holding any sway under the shadow of vast improvements lately made by the regular profession; neither does it appear that medical art or science has ever been advanced by their boastful efforts while looking for dimes.

It has been only a few years since we began to hear of Legislatures regulating the practice of medicine. Many efforts were made from time to time, but the

bills were uniformly rejected because the people were not ready for the innovation and, therefore, unwilling to protect themselves; so every man was a doctor if it suited his fancy. If the patient got well in spite of remedies, the doctor was regarded as a savior by patient, friends and himself, but if he died, then—everybody dies. From 1830 to 1840, the South and West were entirely overrun by a gang of steam doctors calling themselves Thompsonians, a doctor of that name living in Western New York, being the founder of the humbug. His disciples were furnished with a little primer containing twenty or thirty pages, and not more than three by four inches in size, containing directions for administration of the roots and preparations recommended; and any farmer or business man in the country was at liberty to invest \$10 for one of these primers and become a full-fledged doctor. Many embraced the opportunity, for there was one or more in every neighborhood. The armamentaria consisted of herbs, but was chiefly confined to powders numbered from 1 up to 6; No. 6 being the remedy mostly employed, and containing pepper of the most fiery kind. The great remedy, however, was lobelia to break up intermittent fever and root out all obstinate diseases that resisted the powders. If the emeto-cathartic of lobelia failed, then it was to be heroically repeated till what they called "alarm" came on, which was really a true collapse. The weaker powders were principally used in chronic disorders.

And here I must risk violating the proprieties by relating an anecdote by way of illustration: In 1835, and afterward, I was a citizen of South Alabama, where saloons prevailed, but then they went by another name, doggeries, on account of their dinginess, odor and other unkempt qualities. A young man, Keloo, was tapster in one of these. He lived on the margin of his income so as to lay up money for a rainy day, and when the steam system began to fascinate the population he too, fell a victim to its charms. Suddenly he retired from the doggery, took quarters at the Arrington House dressed up in broadcloth, silk hat and boots, and purchased a fine horse and equipments; then he rode out of town and back again, like any other gentleman; after a few weeks, his card appeared in *The Voice of Sumter*, emblazoned with "Doctor Keloo" at the top. In less than a week after that, a negro man came galloping into town inquiring for Dr. Keloo, and soon the Doctor was mounted and riding around the public square, followed by the negro, for the purpose of asking for his mail, buying a few cigars, leaving orders, etc., exciting every one's curiosity as to where he was going. Capt. Paine, the sick man, was a very respectable planter living eight miles up the Sucarnoochee, who had been infatuated with the steam-fad, and reading Keloo's card, had sent his man for him. Next day the Doctor returned at 12 o'clock, and rode around, chatting as he had done the preceding day. On being asked how Paine was, he replied: "Oh, I fixed his flint;" and so he did, for at 5 o'clock P.M. a white man came in to buy a winding sheet for poor Paine. The jeering and laughter was more than Keloo could endure, so he disappeared, but where he went is yet a mystery.

I will venture another tale of woe: A year or two after Keloo's extinguishment, Dr. P—— appeared. He seemed to be a gentleman and I called on him, not suspecting heresy, but I soon discovered my mis-

take, for I saw lying on his table a large book lately published by Thompson on the steam system, so-called. However, my visit led to further acquaintance, as he was a respectable man, and had respectable friends in the community, preaching occasionally in the Methodist church. One morning in September, on going to the country, I rode by his door as he sat basking in the sun on the steps, looking quite pale, and I halted to ask what was the matter. "Oh, I've had a couple of chills," said he, "and another will try to tackle me at 10 o'clock to-day, but I'll be ready for it this time." "I suppose you will head it off with quinin," said I. "Quinin!" he exclaimed derisively. "No, I'll take lobelia and a plenty of it, and not fool with it as I did yesterday;" and so he did, for in passing by on my return at sundown I learned that he was in collapse and nearly dead. The "alarm" happened to be in earnest that time. These and many other similar cases came under my immediate observation, but such were constantly occurring all over the country.

Regular practice, at and before that time, in some respects was equally culpable with that of the steamers. Venesection ad *deliquium animi* in fevers was one practiced by some of our craft, drawing off the pabulum of life when most needed. But a majority were opposed to that heroic measure. Although the *vis medicatrix* was acknowledged and frequently discussed, no such inherent force was trusted, for the doctors took the whole responsibility in treating a case; hence strong revulsions of every kind characterized the practice. Even Europe, with its ages of culture and refinement, seemed to fall into these errors. Rasario, a celebrated professor at Milan, I believe, conceived the idea of curing all violent inflammations by heroic doses of tart. emetic repeated until tolerance is established, the whole amount given sometimes reaching twenty-eight or thirty grains. About 1830, the *American Journal of the Medical Sciences* was ventilating the plan over here, and I began to look out for an opportunity to give it a trial; I soon met with a suitable case. A youth, 17 years old, living in the country fifteen miles from town, had a violent attack of pleurisy, which was neglected for several days until the parenchyma of the lungs was involved, and he seemed to be in the last stage of pneumonia. His physician had given him up and I was called. Believing the case hopeless, I concurred with the doctor and was about to leave, when the father implored me to resort to any means, however desperate. I alluded to and explained the Italian practice, and then he cleared me of all responsibility. I gave three grains every forty minutes, until he had taken twenty-one grains and fallen into collapse. Then I ceased, resorting to sinapisms, bottles of hot water around his body, etc. After several hours he finally reacted, with scarcely a vestige of pneumonia left. After that I treated another case of rheumatism attacking the dura mater with complete success, and one more of pneumonia, which I lost. That mode of practice, founded on repulsion, which is a legitimate principle of therapeutics, should not be entirely condemned, for there may be cases curable in no other way.

In viewing the past, we observe that there was a reason for that long-continued war upon the portal circulation by regular physicians; the ridiculous practices of steam doctors and the like absurdities of the age. The fact that medicine was not an exact sci-

ence gave license to wild theoretic speculation, leading to the adoption of empirical means to ends, and palliating most absurd errors of practice. But while all that confusion was in progress, Brown-Sequard, Bell, Marshall Hall and a few other savants of our profession were busily engaged in prying into the mysteries of the nervous system and laying a firm foundation for physiologic medicine, by which our art was made sure, and methods of practice simplified and placed on a scientific foundation. All these worthy pioneers in the field of neurology have passed away now, leaving their names already budding in fame to blossom out and reach remotest posterity.

In regard to the antitoxin theory now agitating the public mind and denounced by some physicians as a fad, we should be lenient in criticising the microbe theory of disease, for the reason that it seems to be proving its legitimacy as it goes on. If the Jennerian theory in regard to the antitoxin power of vaccine has been amply sustained in smallpox, how can we deny the sound efficacy of other similarly modified forces in relation to other constitutional diseases? Certainly, it seems equally plausible. And what is more, the inference leads to the conclusion that all constitutional diseases may be probably placed in the same category; and if so, the art of medicine is bordering on a revolution beyond anything of the kind in all the past. Let us wait and see.

ENLARGEMENT OF THE HEART WITHOUT VALVULAR DISEASE—WITH SPECIAL REFERENCE TO TREATMENT.

Read at the meeting of the Mississippi Valley Medical Association, held at Hot Springs, Ark., Nov. 20-23, 1894.

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If any excuse be needed for the presentation of this paper, it is found in the frequency with which individuals have consulted me of late, suffering from enlargement of the heart without valvular lesion. In looking over my record of cases for the twelve months ending Nov. 1, 1894, I find, that of the cases of heart disease there entered, 15.4 per cent. are under the diagnosis of idiopathic enlargement of the heart. Although open to the objection of vagueness and implied ignorance of the nature of the disease this term is, nevertheless, employed by Fraentzel because it embraces in concise form all those cases of hypertrophy and dilatation of the heart, unassociated with chronic endocarditis. On account of its conciseness, therefore, I shall make use of Fraentzel's term interchangeably, with that stated in the title of this paper.

Hypertrophy and dilatation are combined, the former predominating so long as compensation is adequate; but so soon as this becomes impaired, the hypertrophy begins to yield to dilatation until at length the latter assumes the chief rôle.

Post-mortem, these hearts are found to have greatly thickened walls, while the ventricles are dilated and the papillary muscles flattened. Fatty degeneration of the heart muscle is generally present, but in variable proportions and of too limited extent to make this the primary and main condition. Indeed, Fraentzel is of the opinion, that we shall have to abandon the notion of fatty heart as an independent and original

affection. There is, he says, no direct or constant relation existing between the extent of fatty degeneration and the gravity of the clinical appearances. In the very cases under consideration, demonstrable degenerative changes are by no means always so extensive as to explain the progressive cardiac failure. If sclerosis of the aorta and coronary arteries be absent or but slight, the heart muscle may present very insignificant evidences of fatty or other degeneration. In cases in which the cardiac enlargement is associated with general arterio-sclerosis or chronic interstitial nephritis, there may be microscopic, if not macroscopic, evidence of degeneration. In most instances, however, particularly those due to excess in food and alcohol (*Luxus consumption*) or to overwork, one is often astonished at the meager *post-mortem* findings, and also at a loss to explain the cardiac weakness.

This form of cardiac enlargement affects individuals of both sexes but more commonly males. They are usually men of large frames with capacious chests. Indeed, the amplitude of the thorax is a characteristic upon which Fraentzel lays great stress. The great predisposing cause of ventricular enlargement is prolonged high arterial tension. If this exist in the lesser circulation of chronic pulmonary disease, the right ventricle will become enlarged; but the cases, commonly presented to the physician, manifest enlargement of the left ventricle with secondary increase in the size of the right. Prolonged arterial tension in the systemic circulation results from a variety of conditions; such as 1, chronic interstitial and parenchymatous nephritis; 2, arterio-sclerosis; 3, excessive consumption of food or drink; that is, excessive with relation to the amount of exercise taken; 4, severe manual labor together with abuse of alcohol; 5, prolonged overstrain of the heart, as in soldiers, particularly, associated with abnormally small arteries. Other factors also concerned in the production of idiopathic enlargement of the heart, are too uncommon to be considered here.

Whatever the condition, it is essential that it produce and maintain, for a long time, abnormal blood pressure within the arterial system.

Let us consider a little more in detail the third factor of *Luxus consumption*. In this condition more food and drink are habitually taken than are required for the needs of the system, moreover these individuals generally follow a sedentary pursuit and, as a consequence of their physical indolence, often take on a large amount of adipose tissue as they pass their fortieth year. This is one type of the individuals described by Fraenkel as very apt to develop arterio-sclerosis. Through the circulation in the blood of toxins, resulting from their mode of life or some other reason, there is abnormally high arterial tension for years. Whether associated or not, with degenerative changes in blood vessels or kidneys, this abnormal blood pressure increases the work of the left ventricle. To overcome the peripheral resistance the left ventricle becomes hypertrophied. Compensation is thus established. After a time, peripheral resistance becomes too great for the enlarged ventricle and dilatation sets in. But the enlargement is not confined to the left side of the heart. Increased blood pressure also exists within the pulmonary vessels and occasions corresponding enlargement of the right ventricle. So long as the nutrition of the cardiac muscle is adequate to the increased demands made upon it there are no symp-

toms and the cardiac enlargement escapes recognition.

In the case of laborers or other individuals performing severe manual toil, abnormal blood pressure results from the frequent repetition of muscular contractions. If to this be added the injurious effects upon the circulatory organs of the habitual consumption of alcohol and tobacco, there is sufficient explanation of cardiac enlargement and ultimate loss of compensation.

Time forbids a detailed description of the symptomatology of this disease. The patient first becomes conscious of something wrong in his chest, through either dyspnea or a feeling of fullness and oppression in the præcordium. The dyspnea, which in the beginning generally consists of breathlessness on ordinary exertion may increase to habitual shortness of breath or in the severer cases to attacks of cardiac asthma. A sense of fullness or oppression in the heart is very common and like the dyspnea, occasioned by exertion. Cardiac pain is rare, but when present, usually dull and associated with a feeling of weight. In only one of my cases was angina pectoris complained of and in this one this symptom was so frequent and violent, as to render sclerosis of the coronary arteries highly probable. The pulse is always tense and accelerated, often small, and regular or irregular, as the case may be. The arrhythmia so frequently mentioned by Fraentzel was present in but a small proportion of my cases and only those in which cardiac dilatation had been present for so long a time as to be a chronic condition. The urine is usually diminished in amount, of high specific gravity and contains a small percentage of albumen; hyaline and granular casts may or may not be found. The liver is generally somewhat enlarged from passive congestion. The peripheral arteries often feel a little thickened, in some instances slightly tortuous but do not usually present marked sclerosis. Edema is generally absent in the earlier stages or perchance confined to slight puffiness of the ankles.

As the malady progresses, edema and other symptoms increase, until at length the disease presents all the phenomena of cardiac asystole from whatever cause. In the latter stages, cardiac asthma is apt to be particularly distressing.

These patients die, either from pulmonary edema or hypostatic congestion, due to progressive cardiac failure. Sudden diastolic arrest of the heart is not common, unless brought on by unwonted exertion.

The diagnosis does not usually offer much difficulty, and yet there are certain conditions that can easily prevent the recognition of the cardiac enlargement. The individuals most frequently presenting this disease are men with large, often round chests and correspondingly voluminous lungs. The left nipple is situated much further from the sternum than in those of average size, my records of measurements often showing it to be from four to four and one-half inches from the left sternal border. Ordinary methods of percussion show superficial cardiac dullness to lie between the left margin of the sternum and the left nipple. The capacious lungs conceal the deep limits of heart dullness, while the apex beat is neither visible nor palpable, partly because of intervening lung tissue and partly on account of the feeble impulse of the heart. For these reasons the practitioner is very likely to pronounce the heart of normal size. Fraentzel thinks, however, that the

very fact of superficial dullness reaching to the nipple in these broad chests is sufficient to indicate an abnormally large heart and that this consideration, in connection with high arterial tension and perhaps thickened arteries, justifies the diagnosis of idiopathic enlargement. Although believing this theoretically correct, I am personally in the habit of depending on auscultatory percussion to corroborate the results of percussion after the ordinary method. By this means and the auscultation of the heart's sounds, I have frequently determined great general enlargement and located the apex beat far to the left of its normal site.

The heart sounds are usually free from murmur, the first at the apex being weak and valvular. The second aortic sound is usually accentuated in consequence of the increased blood pressure in the arterial system. The normal rhythm of the sounds may assume more or less that of the fetal heart sounds. In one of my cases, a female, a distinct jogging sensation was transmitted through the monoral stethoscope.

Finally, the abnormal pulse tension, the pulse rate, and the symptoms are of great diagnostic significance.

In the early stages, appropriate treatment may do much to stay progress, nay, even to remove much of the cardiac insufficiency. When compensation has once been fairly lost, the physician is powerless to do more than mitigate symptoms. In my opinion the first condition of successful treatment, and one which I always follow is to explain to the patient the injurious effects of persistent high blood pressure, and the importance of lessening it so far as possible. He is warned against still further dilating his heart through too great muscular efforts. Stair climbing, hurried walking, carrying of heavy packages are absolutely forbidden. Moderate walks upon the level ground and for distances too short to produce fatigue are encouraged. The feeling of oppression and fullness in the præcordium is found to be a good gauge of the patient's endurance; since he is cautioned against ever walking so fast or far as to produce this uncomfortable sensation. As a matter of fact, more than one patient has told me he found a slow walk in the open air relieved the discomfort in his chest. Patients are also instructed to avoid distending the stomach by too hearty meals and beer or other effervescing drinks. For the same reason, the diet is regulated so as to prevent fermentation and consequent distension of the digestive tract by flatus. Most saccharin and amylicious articles are forbidden, therefore, as well as most uncooked fruits such as apples. Coffee and tea are allowed sparingly. The chief meal is at mid-day and if milk does not disagree, it must constitute the main portion of the evening meal. Alcoholic beverages, excepting malt liquors and champagne, which are absolutely interdicted, may be permitted sparingly or forbidden altogether according to circumstances in each case. My belief is that whisky in small amounts with the meals serves as a beneficial stimulus to both digestion and circulation. If the individual be corpulent, reduction of his weight is desirable but must be done cautiously.

Only woolen underclothing should be worn and all the clothing should be loose and comfortable, so as not to constrict chest and abdomen. Warmth of the body during cold weather is imperative lest the vasomotor constriction, produced by cold, increase

peripheral resistance and thereby also intra-cardiac blood pressure to an injurious extent. These patients should not attempt walking in the face of a strong cold wind. If possible, they should pass the inclement seasons in a mild equable climate. Massage and Swedish movements given skilfully and carefully, often prove highly beneficial. The immoderate use of tobacco and alcohol, sexual excess, fits of anger or emotional excitement of other kinds, too close and prolonged application to business are all injurious and should be explained as such to the patient.

As gentle exercise is beneficial, so on the other hand, prolonged rest in bed, so useful in certain valvular lesions, is injurious in idiopathic enlargement of the heart. Fraentzel explains this on the hypothesis that the heart muscle, being striated, degenerates under prolonged rest in the same way as does voluntary striped muscle after a long period of inaction. As I have stated elsewhere, this seems to me incorrect, since the cardiac muscle can never during life be subjected to complete repose. The injury resulting from absolute rest in these cases is explicable, I think on the following hypothesis:

In consequence of feeble contractions of the left ventricle, blood pressure in the aorta sinks, with corresponding rise of pressure in the two venæ cavæ. Moreover, absolute physical rest deprives the venous circulation of the aid derived from muscular contractions and deepened respiration. The work of maintaining the circulation is, consequently, thrown upon the already weakened left ventricle, which speedily succumbs under its increased labor.

This hypothesis is not at variance with the clinical observation of high pulse tension, since this is due to obstruction to capillary outflow and not to powerful contractions of the left ventricle. It is better, therefore, that these patients take rest for short periods, and for the purpose of recovering from fatigue occasioned by exercise.

We now come to the consideration of the medicinal treatment. Our first indication is to lessen the abnormal arterial tension which has led to the cardiac enlargement. This is best and most speedily accomplished by free catharsis. It makes but slight difference what purgatives are used, although they should not be highly drastic. I generally administer a full dose of calomel on account of the power possessed by mercurial preparations of diminishing arterial tension, even before producing alvine discharges. The calomel is generally followed in six or eight hours by a saline such as epsom salts or one of the laxative waters, Rubinat Condal, Hunyadi Janos or Franz Joseph. I not infrequently prescribe 4 ounces of the compound infusion of senna to be taken in one draught, which occasions profuse but painless watery stools. This remedy is specially recommended by Fraentzel. The effect on the pulse is often very remarkable, shown by greater regularity and volume. The sphygmographic tracings before and after the purge often exhibit striking diminution of tension. But this is not all; the dyspnea and sense of precordial oppression are usually lessened and sometimes wholly removed temporarily. It is well to keep down tension by the daily administration of a saline cathartic, but of less than the initial dose. The omission of the cathartic for even two or three days is generally followed by appreciable increase of arterial tension and of symptoms.

Digitalis and its congeners have no place in the therapeutics of this affection, unless weakness be confined to the left ventricle, the integrity of the right being preserved when moderate doses are useful. But if there be general weakness with dilatation of both ventricles these drugs are harmful. I have used them, and I have repeatedly seen them followed by increase of symptoms and arrhythmia or by irregularity of the pulse that previously had been regular. Why this is, I can not now attempt to explain, as it would require a lengthy discussion, both of the action of digitalis based on experiments of Openchowsky, and of the conditions of the circulation in this form of heart disease. The inutility, nay the harmfulness of digitalis in these cases is an empirical fact, the recognition of which has rendered my results far more satisfactory. Fraentzel employs cardiac stimulants, musk, castoreum and valerian, which not only spur on the jaded organ but favorably influence arterial tension. I have administered elixir of the valeriate of ammonia, nitroglycerin, whisky, tincture of castor, and in one instance even sulphate of atropia in doses sufficient to produce its physiologic effect upon the throat and pupils. Camphor and compound spirits of ether might be added to this list. The action of these stimulants is fugacious and therefore they must be exhibited frequently. Improvement is necessarily slow, and when any stimulant or combination of stimulants has demonstrated its ability to sustain or reinvigorate the heart's action its employment must be continued so long as required by the exigencies of the case. Nitrate of strychnia is also a powerful heart tonic, but must be given in full doses and when possible subcutaneously. Another useful and I believe positive heart tonic is the hourly inhalation of at least a gallon of pure oxygen.

Unfortunately there are many cases beyond the possibility of more than temporary relief. A most valuable stimulant in these, particularly if nightly attacks of cardiac asthma are distressing, is the hypodermic injection each evening of $\frac{1}{4}$, still better, $\frac{1}{10}$ of a grain of morphin combined with atropin, as in the ordinary hypodermic tablets. The dose must be small so as to secure the stimulant and not the depressing effect of the morphin. Given in this way, as Fraentzel says, a patient can often be carried along for weeks or even months after all hope of permanent improvement has been abandoned. Should dropsy finally set in and resist the use of cathartics and diuretics, such as calomel and perhaps also diuretin-knoll, it may be drained away by small incisions of the ankles or the use of appropriate drainage tubes.

The time limit of the papers necessarily forbids a more detailed discussion of the treatment, as well as the consideration of many questions that are suggested. I feel that I have been able to only outline what I believe to be the correct principles in the management of idiopathic enlargement of the heart.

Finally, three of my cases in which compensation was either threatened or not irretrievably lost, were treated by the Schott method of baths and gymnastics. The results were most gratifying and in one case truly surprising. The apex beat, previously neither visible or palpable, became fairly well defined, while appreciable retraction in the size of the heart took place and the patient regained ability to walk without much discomfort. This mode of treatment seems to me particularly adapted to this class of cases. It

unloads the over-distended heart, strengthens its contractions and dilates the arterial system; the very effects so desirable to produce in cases in which the heart is unequal to the abnormal blood pressure.

Appended are four sphygmographic tracings, of which Nos. 1 and 2 are from a man of 49, weight 260 pounds, suffering from general cardiac dilatation and chronic interstitial nephritis. The urine analysis showed in addition to abundant albumen and granular casts, blood, bile and indican. The first tracing was taken before treatment was instituted. The second was taken two days later after the administration of a vigorous purge and shows the beneficial effect of the same in this class of cases.

The third and fourth tracings are from a man of 60, who was beginning to manifest loss of compensa-

2. The primary condition is not fatty degeneration, which bears no definite relation to the clinical phenomena.

3. The disease results from prolonged high arterial tension and is observed most frequently in men with large chests and a tendency to corpulence.

4. Abnormal arterial tension may arise from excess in food and drink (*Luxus consumption*) and from severe labor, combined with immoderate use of alcohol and tobacco.

5. The diagnosis is not difficult, if one remembers that in these large chests actual cardiac enlargement may coëxist with a superficial precordial dullness, confined within the so-called normal limits.

6. The first indication for treatment is the lessening of the abnormal arterial tension, which is most



FIGURE 1.

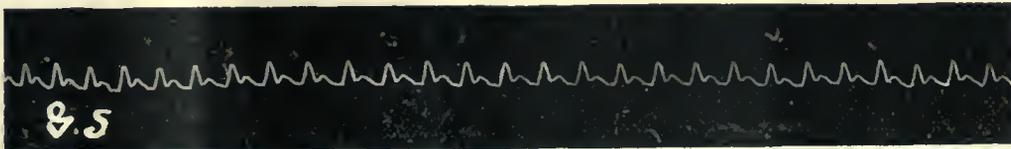


FIGURE 2.



FIGURE 3.

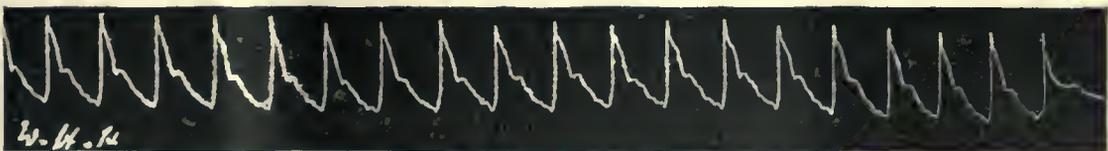


FIGURE 4.

tion of an idiopathic enlargement of the heart. His chief symptom was precordial oppression. There was no apparent arterio-sclerosis and urinalysis revealed nothing more than chronic renal congestion. No. 3 was taken before beginning treatment and No. 4, five weeks later, shows the benefit derived from the management of this case, based on the principles laid down in this paper. It consisted, in brief, of gentle exercise by walking, daily catharsis, stimulants and regulation of the diet.

CONCLUSIONS.

1. By idiopathic enlargement of the heart is meant: combined hypertrophy and dilatation, without valvular disease.

readily done by means of cathartics and regulation of diet and exercise.

7. Digitalis is harmful, except in cases in which the weakness is confined to the left ventricle.

8. In cases of general cardiac enlargement and weakness, stimulants are called for, such as ammonia, nitro-glycerin, ether, valerian, etc.

9. The hypodermic injection of $\frac{1}{10}$ of a grain of morphia combined with $\frac{1}{200}$ of atropin is the most efficient stimulant in cases suffering from nightly attacks of cardiac asthma.

10. The Schott treatment, by baths and gymnastics, seems specially serviceable in this affection before compensation has become irretrievably lost.

ORIGINAL INVESTIGATIONS ON THE
NATURAL HISTORY, (SYMPTOMS
AND PATHOLOGY) OF YELLOW
FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.

NEW ORLEANS, LA.

(Continued from page 893.)

CHAPTER II.

COMMUNICATION OF YELLOW FEVER THROUGH THE
MOTHER TO THE FETUS IN UTERO; WITH OBSER-
VATIONS UPON THE COMMUNICATION OF
SMALLPOX TO THE FETUS.

It is possible for yellow fever to be communicated through the mother to the fetus in utero.

I have had opportunity of illustrating this proposition by the following observation:

Case 4.—Illustrating the communication of yellow fever through the mother to the fetus in utero. Mary Heitman entered Charity Hospital, New Orleans, Louisiana, Oct. 1, 1871, with fever, and intense pain in head and back. On October 4 (third day of disease) patient presents all the symptoms of yellow fever; conjunctiva jaundiced, eyes injected, capillaries of mouth and gums congested, capillary circulation sluggish, surfaces of extremities mottled, nausea and vomiting. Patient suffering with uterine hemorrhage.

October 5 (fourth day of disease) the patient gave birth to a still-born fetus, apparently about four months old. The skin of the fetus presented a jaundiced yellow hue, and, upon dissection, the liver of the fetus presented the usual appearance of this organ in yellow fever. On October 6 this woman died, apparently from the immediate depressing effects of hemorrhage from the uterus and stomach. The pathologic lesions were those of yellow fever. The serum from the blood of the cavities of the heart presented the usual golden color, and contained bile. The colored blood corpuscles were altered in their outlines, some being swollen and others crenated. The muscular structures of the heart were yellow and brownish-yellow, softened and loaded with oil globules. The liver presented the characteristic yellow color of this disease, and liver cells were loaded with oil. The kidneys presented a yellow and yellowish-red color, resembling that of the liver and heart. Sections of the kidney, by Valentine's knife, carefully examined under the microscope, revealed the tubuli uriniferi, filled with granular fibroid matter, epithelial cells and oil globules. The urine taken from the bladder after death contained albumen in large amount, and urea in comparatively small amount. Under the microscope the urine was found to contain numerous oil globules, casts of the tubuli uriniferi, filled with yellow granular albuminoid and fibroid matter, and in addition to these, numerous free cells from the tubuli uriniferi.

Louis, in his "Anatomical, Pathological and Therapeutical Remarks on the Yellow Fever of Gibraltar of 1828," records the observation that the uterus of a woman, the wife of a soldier of the Fifty-third Regiment, who died with well-marked yellow fever, contained a five or six months' fetus, about whose neck were ecchymoses and whose skin was of a universal wine-lees color. The amniotic fluid appeared to have been colored by bile. In this respect the poison of yellow fever resembles that of certain contagious diseases, as smallpox. Thus instances have been recorded in which the fetus in utero has been attacked with smallpox, in consequence of the mother having been exposed to the contagion, without herself having the disease.

It was long held as a popular opinion, that if persons were insusceptible to the smallpox, either from infection in consequence of repeated exposure, or from inoculation with variolous matter, that they must have undergone the disease previous to their birth. Some medical men, on the contrary, have held that the want of susceptibility in such persons to

the infection of the smallpox was owing to a peculiarity of constitution, which resisted the influence of the disease.

In support of the latter opinion, Mr. William Forbes⁶ recorded the following case:

Case 5.—Mrs. Tagg, 22 years of age, when in the seventh month of her first pregnancy, had the confluent smallpox; from which, contrary to expectation, she recovered, went her full time, and was delivered of a fine child. Frequent solicitations were made for permission to inoculate the child, which was refused by its parents, from a supposition of its having had the smallpox previously to its birth. However, at the age of 12, the child was inoculated, and had the smallpox in the most satisfactory manner.

The two following cases, recorded by Mr. Forbes, on the contrary, tend to prove that those persons who have resisted the variolous infection, in every form, must have undergone the disease when in the fetal state:

Case 6.—Mrs. Alexander, of New Cross, had the smallpox when near the termination of her pregnancy; but the type was so mild that she was capable of pursuing her occupation as a washerwoman, although in daily expectation of being confined. The infant was born with the smallpox upon it.

Case 7.—Margaret, wife of William Crawby, residing at Camberwell, in her infancy had the smallpox severely, to which her countenance bore ample testimony. In March, 1788, she nursed her son Thomas, a child, under the confluent smallpox. She was at that time pregnant of her fifth child, and very near the end of her reckoning. These people being in low circumstances, had but one room, in which the whole family lived and slept. On April 1, at 3 o'clock in the morning, she was delivered of a girl. Three days afterwards the boy Thomas died, and on the same day Mr. Forbes was desired to look at some pimples upon the infant, which proved to be the smallpox, the marks of which she bore upon her face, even after attaining womanhood, and although frequently exposed to the smallpox, never contracted the disease.

The latter case proved that the fetus in utero is liable to the smallpox, from the influence of surrounding infection, although the mother was herself protected by a previous attack of the disease.

Mr. William Rait⁷ recorded the following case, similar in some respects, and even more remarkable than that of Margaret's, just quoted:

Case 8.—During the prevalence of smallpox, and while Mr. Rait was attending such cases, a lady, who manifested no symptoms of smallpox, was delivered of a male child, upon whom the smallpox eruption appeared two days after its birth. The disease went through the course of genuine smallpox. Upon inquiry Mr. Rait ascertained from the mother of the lady (grandmother to the child) that the mother was born with the smallpox.

Dr. Laird⁸ has described the following case of a pregnant woman, who was seized with smallpox:

Case 9.—About the end of August, 1805, she felt the motion of the child till the month of October, and on October 28 she was delivered of a dead child, which was thought to be of six months' growth. On the back, shoulders and side, particularly upon the upper parts of the thigh, where the integuments were perfectly sound, there were several pustular eruptions, with central depressions, strikingly characteristic of the appearances which distinguish smallpox. The fetus was placed in the museum of George's Hospital, and distinctly exhibited the characters of the eruption.

This history confirms the observation that the fetus partakes in many of the diseases of its parent.

Mr. Lynn published in August, 1786, the following decisive instance of smallpox in the womb:

Case 10.—In November, 1785, the wife of Mr. Ere, a coachmaker in Oxford Street, being then in the eighth month of her pregnancy, was seized with vigorous pain in the back, and other febrile symptoms. In two days' time the disease showed

⁶ Cases of Smallpox In the Fetus, by William Forbes, Edinburgh Medical and Surgical Journal, Vol. III, p. 307, 1807.

⁷ Medical Commentaries, by Andrew Duncan Vol. III, p. 318, 1789.

⁸ Edinburgh Medical and Surgical Journal, Vol. III, p. 155, 1807.

itself to be the smallpox, and though the pustules were of the distinct sort, yet they were uncommonly numerous. On the eleventh day they began to turn, and on the twenty-second day her labor took place, which, according to her reckoning, was a fortnight before the regular period; that is, when she was advanced in her pregnancy eight months and two weeks. The child, at the time of its birth, was covered with distinct pustules, all over its body. They did not appear to be full of matter till three days after, at which time I took some of the pus upon a lancet from one of the pustules on the face. With this lancet Dr. Lynn afterwards inoculated, on Dec. 2, 1785, a child of Mr. Charters, in Church Street, in both arms. On the 7th, the inflammation began to appear in each arm, and continued daily increasing, till December 11, when the child sickened, and was affected with all the symptoms which usually precede the eruption. On the 12th the sickness and fever abated, the pustules of the distinct sort of smallpox made their appearance, and the child having regularly gone through the several stages of the distemper, was perfectly well in three weeks.

Dr. Edward Jenner⁹ entertained the opinion that the susceptibility to receive the variolous contagion always remains through life, but under various modifications and gradations from that point, when it passes silently and imperceptibly through the constitution (as is frequently the case with cowpox), up to that where it appears in a confluent state, and with such violence as to destroy life.

It is only under particular circumstances that any proof of the presence of smallpox can be adduced in those cases, in which it passes through the frame without producing eruption, or in any perceptible degree deranging the animal functions.

Such proof, however, as Dr. Jenner clearly exemplified by the following remarkable cases, is afforded by the obvious infection of the fetus before birth, communicated through the mother, herself being already secure from any visible occurrence of the disorder:

Case 11.—Dr. Edward Jenner was requested by Dr. Croft to vaccinate the infant of Mrs. W., a lady in Portland Place. The vaccine fluid, which was inserted fresh from the arm of another infant, produced scarcely any effect, beyond a little efflorescence in the part, which in a few days disappeared. When Dr. Jenner expressed his surprise at this, such an occurrence happening very rarely, Mrs. W. removed his embarrassment by the following narrative:

A few days previous to her confinement she met a very disgusting object, whose face was covered with smallpox. The smell and appearance of the poor creature affected her much at the time, and though she mentioned the circumstance on her return home, she had no idea that her infant could suffer from it, having had the smallpox herself when a child.

During a few days after its birth, the little one seemed quite well, but on the fifth day, it became indisposed, and on the seventh the smallpox appeared.

The pustules, which were few in number, matured completely. Dr. Croft, who attended her, being curious to know the effect of inoculation from one of the pustules, put some of the matter taken from one of them into the hands of a gentleman eminently versed in the practice, which produced the disease correctly. Mrs. W. was not sensible of any indisposition from the exposure, nor had she any appearance of the smallpox.

Another case, similar in its general character to the above, was communicated to Dr. Edward Jenner, by Mr. Henry Gervis, a surgeon of eminence at Ashburton, in Devonshire.

Case 12.—Mr. Gervis says: "The smallpox having appeared in the village of Woolson Green, about three miles from Ashburton, on May 6, 1808, I vaccinated a poor woman, the wife of James Barkwell, who was in the last month of her pregnancy. Her three children had been inoculated the preceding day with variolous matter, by the surgeon who attended the poor of the parish, and who had very properly

declined inoculating her also, from her particular situation. I made two punctures in each arm, each of which fortunately succeeded, and she regularly passed the disorder, complaining only on the tenth and eleventh days, when the areola was most extended, as usual. I saw her very frequently during the progress of the disorder, and once or twice after its complete termination. I therefore can speak positively, that during that time she labored under no symptoms but what are connected with the cowpox. From this period she continued perfectly well, and on Saturday the 11th inst., she was delivered of a female child, having at the time of its birth many eruptions on it, bearing much the appearance of smallpox, in the early stages of the disease. This event happened five weeks after her vaccination, and one month after she had been exposed to the variolous infection of her own three children, and that of several other persons in the same village. On the 14th I visited the child again, when I found the eruptions had increased to some thousands, perfectly distinct, and their character well marked. . . . To put the matter beyond all doubt, I armed some lancets with virus, and produced the smallpox, by inoculating with it. In addition to the circumstance of the mother conveying the variolous infection to her unborn child, without feeling any indisposition from its action in her own constitution, I must remark, that there can not be a stronger proof of the efficacy of vaccination than this case afforded."

Dr. Jenner, without producing more examples, of a similar description, though he affirmed that many were before him, observes that a fact, not unlike the preceding, fell under the observation of Dr. Mead, who, in his discourse on the smallpox (Chap. iv., p. 337, 1772), relates the following case:

Case 13.—A certain woman who had formerly had smallpox, and was near her reckoning, attended her husband in the distemper. She went her full time, and was delivered of a dead child. It may be needless to observe that she did not catch it upon this occasion; but the dead body of the infant was a horrid sight, being all covered with the pustules, a manifest sign that it died of the disease before it came into the world.

From such examples, Dr. Jenner¹⁰ concludes that the smallpox virus may affect the human frame, even to its inmost recesses, although apparently secured from its effects, and yet give no evidence of its presence, by exciting any perceptible disorder.

In 1749, Sir William Watson¹¹ published the following case:

Case 14.—A woman far advanced in pregnancy, who had labored under the smallpox a long time before, who, during this pregnancy, performed the duty of a nurse to her servant in the natural smallpox; and in a month after this attendance, was brought to bed of a child that had about forty scars upon its body like those from the smallpox. This child (a girl), and her brother, were afterward inoculated at the same time. The brother had inflammation of the parts inoculated, eruptive fever and eruptions, as in the most ordinary smallpox; and the girl, born with the pits on her skin, had inflammation and suppuration in the parts inoculated, in the same manner as her brother, and a general indisposition, as in the undoubted cases of smallpox, but no eruptions.

Sir William Watson concluded that this girl had gone through the smallpox before her birth, and Camper and Van Swieten coincided with him in this conclusion.

It was established by actual experiment, that pregnant women were not fit subjects for inoculation, as the smallpox often caused miscarriage, and what is remarkable, when the disease proved mild to the mother, it was sometimes fatal to the child.

The preceding facts, illustrating the communication of smallpox to the fetus in utero, might be greatly enlarged by other observations, as those of Bartholini, 1657; Mr. Durham, 1713 (Phi. Trans., Vol. xxviii., p. 165); Dr. Mortimer, 1749 (Phil. Trans., Vol. xlvi., p. 233); Dr. Mead, 1747, in his Treatise de Variolis;

⁹ Medico-Chirurgical Transactions, Vol. 1, London, 1815, Third Ed., pp. 271-277.

¹⁰ Medico-Chirurgical Transactions, Vol. 1, London, Third Ed., pp. 271-277, 1805.

¹¹ Philosophical Transactions, Vol. xlvi., p. 239.

Dr. Rosen von Rosenstein, 1756; Baron Dimsdale, 1766, Treatise on Inoculation; Mr. Wastall, 1776 (Phil. Trans., Vol. lxx., p. 128); Dr. Wright, 1781 (Phil. Trans., Vol. lxxi., p. 372); Dr. Bland, 1781 (*London Medical Journal*, Vol. ii., p. 205); Mr. Roberts, 1784 (*Medical Journal*, Vol. v., p. 399); Dr. Hagarth, Dr. Woodville, Dr. Ford, Mr. Jones, Dr. Hossack; Dr. George Pearson, 1794 (Medical Commentaries, by Andrew Duncan, Vol. ix., Edinburgh, 1795, p. 213); Dr. George Pearson gives some important cases of equal interest with those recorded above; Alexander Munro (Observations on the Different Kinds of Smallpox, Edinburgh, 1818, p. 626).

We have thus brought together a number of important observations, scattered through various medical and scientific periodicals, bearing upon the transmission of the poison of smallpox, through systems entirely protected from its influence and demonstrating the existence of the poison in a potential active state, as shown by the excitation of genuine smallpox in the fetus, resting in the womb of the mother, protected by previous inoculation, vaccination and smallpox, *in the hope that the attention of physicians may be directed to analogous inquiries in yellow fever.*

If, therefore, the poison of yellow fever is capable of affecting the fetus in utero, in an analogous manner to the poison of smallpox, we may arrive at the following conclusions, which, if more extended investigation should clearly establish, will explain one mode in which the natives of those cities and localities, as New Orleans, where yellow fever often prevails, obtain an immunity from its attacks:

1. The poison of yellow fever is capable of affecting the fetus in utero.
2. It is probable that the yellow fever poison is capable of affecting the fetus in utero, without inducing the disease in the mother, who has had the disease at some period preceding pregnancy.
3. It is thus rendered probable that a certain number of natives are in this manner rendered insusceptible to the action of the yellow fever poison after birth.

MODIFICATIONS OF THE PHENOMENA OF YELLOW FEVER BY PRECEDING DISEASED STATES OF THE SYSTEM.

The most potent cause of derangement of those who reside within the yellow fever zone is the action of malaria, which not only manifests its effects in the causation of the various forms of intermittents, remittents, pernicious and hemorrhagic paroxysmal fevers, which differ materially in their origin, symptoms and pathology from yellow fever, but also, without the active manifestation of these forms of fever, in the slow destruction of the colored corpuscles, derangement of the liver, enlargement of the spleen, attended with a pale, sallow, sickly hue, infiltration of the cellular tissue, dyspnea, palpitations, derangements of the blood and nervous system, and depressions of the muscular and nervous forces.

While those who have been subjected for long periods to the action of malaria appear to be less liable to yellow fever, it is, however, true that the progress of this disease is modified by the changes induced in the blood and organs by the preceding action of the malarial poison; and the lesions after death from yellow fever differ to a certain extent from those observed in subjects freshly arrived from cold climates without being previously subjected to

the action of the marsh miasm. And in every epidemic of yellow fever the malarial influence is so powerful in most of the cities of the tropical, subtropical and temperate regions of North and South America that it is never entirely suspended, and not only in many cases induces characteristic changes before the specific action of the yellow fever poison, but also is frequently engrafted upon the weakened convalescents from yellow fever, thus altering the farther progress of such cases, and inducing changes in the organs entirely different from those characteristic of yellow fever.

In this continuous and preceding action of the malarial or paludal poison, and in the frequent intermingling of the two diseases, we have an explanation of the apparently contradictory statements of observers as to the characteristic symptoms and lesions of yellow fever. It is evident therefore, that no observer is competent to the elucidation of the pathology of yellow fever who is not at the same time familiar with the changes induced by the various forms of paludal fever and malarial poisoning.

If we accept without reserve the doctrine advocated by John Hunter,¹² and ably supported by Joseph Adams,¹³—that “No two actions can take place in the same constitution, or in the same part, or at one and the same time; no two different fevers can exist in the same constitution, no two local diseases in the same part at the same time,”—then the question of the modification of malarial fever by yellow fever, and of the engrafting of the one upon the other, must be definitely settled in the negative.

We have elsewhere shown by an extended discussion¹⁴ of this question that while, when two poisons representing two distinct exanthemic diseases act simultaneously upon the human being, the most obvious pathologic phenomena excited by the poisons will not occur simultaneously, but in succession—the one poison retarding the action of the other; the one producing its cycle of changes, while the other remains *dormant*, as it were, during the action of the first, and immediately after the changes induced by this cease, causing in turn its own distinctive effects—at the same time, it must be admitted that the character and cause of the specific eruptive diseases are greatly modified by such altered states of the constitution as exist in scurvy, scrofula and secondary syphilis. In that class of diseases represented by constitutional syphilis, scurvy and malarial poisoning, the blood is at fault, the nutrition is perverted and the course and products of diseased actions are correspondingly modified.

During the recent war, I embraced an opportunity for observing the effects of engrafting smallpox upon patients broken down by exposure, privation and the exhausting effect of hospital gangrene and pyemia.

In the month of September, 1864, smallpox spread from the ward devoted to the treatment of this disease to the Empire Hospital, which had been filled with cases of hospital gangrene and pyemia gathered from the general hospitals attached to the Confederate Army operating in and around Atlanta. The

¹² Works of John Hunter, edited by James F. Palmer, London, 1827; Vol. II., Treatise on Venereal Disease, p. 132; Vol. III., Treatise on the Blood, pp. 3-5; Vol. I., Principles of Surgery, pp. 312, 313.

¹³ Observations on Morbid Poisons, Chronic and Acute, London, 1807, second edition, pp. 21-23.

¹⁴ Researches in Spurious Vaccination, or the Abnormal Phenomena accompanying and following Vaccination, in the Confederate Army during the recent American Civil War, 1861-65, pp. 38-59, by Joseph Jones, M.D., formerly Surgeon in the Provisional Army of the Confederate States.

smallpox ward was situated in a pine grove about three hundred yards in the rear of the gangrene hospital; and without doubt communication was kept up between the different wards. Several of the nurses of the gangrene hospital were first attacked, and the disease appeared to have been communicated from them to the patients under their charge who were suffering with hospital gangrene and pyemia.

The following case arrested my attention as clearly illustrating the engrafting of smallpox upon a system reduced by hospital gangrene:

Case 15.—J. S. J., Company K, Nineteenth Alabama Regiment, age 21, wounded at the siege of Atlanta on July 22, 1864. Gunshot wound of right leg, which was amputated on the field of battle at the lower third of the thigh. Hospital gangrene attacked the stump, and the patient was admitted into the Empire Hospital on September 22. Nitric acid arrested the progress of the gangrene for a time, but it returned again, and the strength of the patient was gradually reduced by the absorption of the gangrenous matter and from an exhausting diarrhea. On November 2, while the patient was exceedingly feeble and nervous, and manifesting the symptoms of pyemia—viz., chills, icterus and vomiting of dark green matters—the eruption of varioloid made its appearance. The pustules, which were in considerable numbers, but small in size, progressed regularly, and on November 6 presented all the characteristics of the true variolous eruption, with the round form and umbilicated center. This patient had a good vaccination scar, and the smallness of the pustules appeared to be due to the fact that the system was partially protected by vaccination. The patient died during the night of the 6th, apparently from the effects of the gangrene, pyemia and exhausting diarrhea.

None of the pustules in the preceding case presented any appearance of hospital gangrene; and, so far as I was able to learn, both during my investigation and subsequently, no case occurred in the gangrene hospital in which moist gangrene attacked the eruption of smallpox or varioloid.

It was clearly established that smallpox would attack patients suffering with gangrene, and even pyemia.

Case 16.—In an interesting case which occurred in my private practice immediately after the close of the recent struggle for the rights of self-government in the Southern States, acute dysentery of a severe form was superseded by typhoid fever, which was well marked in its symptoms and progress by low muttering delirium, diarrhea, tympanites, lenticular rose-colored spots, and painful enlargements of the parotid glands. As soon as well-marked typhoid symptoms were manifested, all the symptoms of acute dysentery vanished, and the patient passed without pain or straining the ordinary bilious stools of typhoid fever, and the smallest doses of purgative medicine, either mercurial or saline, acted with great and dangerous violence, producing copious "pea-soup" stools.

The patient passed safely through the typhoid fever, and even the parotid glands subsided without suppuration; but in the third week after the appearance of the typhoid fever, when the patient was apparently doing well, the dysentery returned with severe straining, and the bloody and mucoid discharges of acute dysentery, and the patient died in consequence of the return of the original disease.

I have also observed that typhoid fever was often engrafted upon malarial fever among the Confederate troops serving in malarious districts, and that during its active stages it presented the usual continuous fever, with cerebral disturbance, agitation of the muscles, tympanites, diarrhea, and lenticular rose-colored spots. As soon as the typhoid fever was established, all signs of periodicity disappeared, and the torpid liver of malarial fever became active, the sallow hue of malarial fever became clear from the increased action of the liver, the torpid bowels loose and tympanitic; and after the disappearance of the symptoms characteristic of typhoid fever, the original

malarious periodic fever reappeared, with its cold and hot stages recurring at regular intervals, and inducing torpor of the liver and bowels, and the sallow malarial hue.

As far as my observation extends, in like manner, when yellow fever is engrafted upon a system previously under the influence of the malarial poison, it establishes its own peculiar train of symptoms, distinct from those of malarial fever, and may be clearly recognized. When, however, the cycle of changes excited by the yellow fever poison has been completed, then the malarial poison may excite its characteristic recurring paroxysms, and change the yellow fatty liver of yellow fever into the dark slate-and-bronze liver of malarial fever, loaded with dark pigment granules.

While we know but little with reference to the concurrent action of the poisons of these two diseases upon the same system, and know nothing whatever of the state and mode of existence of that poison which "lies dormant" while the other is acting, at the same time we shall endeavor to illustrate the differences and relations of the symptoms and lesions by actual observations.

RELATIONS OF YELLOW FEVER, MALARIAL FEVER, AND MALARIAL HEMATURIA.

I have endeavored by careful observation of the various symptoms, by analysis of the blood secretions and excretions, and by careful examination of the pathologic lesions after death, to unravel the complicated chain of phenomena characteristic of yellow fever and other diseases; and while many facts are unexplained, and much remains to be investigated, we feel assured that the labors which we have pursued unremittingly during the past twenty-two years have been at least in the right direction.

The malarial poison induces profound alterations in the constituents of the blood. Under its action, as I have demonstrated by the first series of investigations (*Trans. AMERICAN MEDICAL ASSOCIATION, 1859*), colored blood corpuscles are more rapidly and to a greater extent destroyed than in any other disease; the fibrin is diminished and altered in quantity and quality; the albumen is in like manner diminished; the extractive and coloring matters of the blood are frequently increased. The unhealthy hue of the complexion in malarial fever appears to be due to the destruction of the colored blood corpuscles and the presence of coloring matter in the blood; the deposit of pigmentary matter, and the failure of the liver to separate fully the coloring matter of the bile.

In yellow fever there is no marked or uniform destruction of the colored blood corpuscles. The fibrin is diminished, and to a much greater extent than in malarial fever. There is no tendency to the formation of fibrinous concretions in the cavities of the heart in yellow fever, while the formation of such laminated fibrinous clots is common in malarial fever, and in some cases is the manifest cause of death.

Malaria, by its effects in inducing sudden congestions, and by its depressing effects upon the heart and upon the general and capillary circulation, and by its potent action on both the sympathetic and cerebro-spinal system of nerves, tends to promote the formation of heart clots, although there is an actual diminution of the fibrin in the blood during malarial

fever. In view of the rapid, feeble, intermittent pulse; disturbed, panting respiration; feeble, rapid, fluttering action of the heart; cold extremities, exhaustion of the muscular forces, stupor, wandering of the intellect, inability to control the muscles and acts of excretion; in view of the sudden onset of all the symptoms in malarial fever; in view of the observations which we have carefully recorded heretofore upon the lesions characteristic of malarial fever, we are justified in asserting that the fibrinous elements of the blood may be deposited in the heart and blood vessels during life in malarial fever, and not only give rise to distinct phenomena, but cause death in cases which otherwise would not have terminated fatally.

It is worthy of observation that in pyemia and in malarial fever, in both of which diseases there is a more rapid destruction of the colored blood corpuscles than in any other class of diseases, *chills* should characterize both affections, and form the most marked symptom. If such facts do not point out the nature of the cause of malarial fever, they at least sustain the belief that this disease, like pyemia and yellow fever, is due to the action of a special poison, and not to mere variations of climate and changes of moisture and temperature.

The rapid destruction of the colored blood corpuscles in malarial fever is evident, not only by a comparison of the constitution of the blood in this disease with that of yellow fever, but also by the presence of a larger amount of coloring matter in the urine. As a general rule, the graver the case of malarial fever the more deeply colored is the urine; while on the other hand, the reverse is the case with yellow fever. The coloring matter of the urine in yellow fever is due to a great extent to the retention of the biliary matters in the blood and the failure of the action of the liver; while on the other hand, the deep red and reddish-brown and orange-colored pigments of the urine of malarial fever appear to be derived chiefly from the colored blood corpuscles,

While the presence of the coloring matter in large amount in the urine of malarial fever may be dependent in part upon some imperfection in the excretion of carbon by those organs whose special function it is to eliminate this element from the blood, as the liver and lungs, and may, as has been observed by Golding Bird, be connected with some functional or organic mischief of the liver and spleen, or some other organ connected with the portal circulation; at the same time, from a careful consideration of the accompanying symptoms and subsequent *post-mortem* revelations, we have been led to the belief that in malarial fever the pigment is derived chiefly from the coloring matter of the blood cells, and that its amount may be taken as an index or measure of their destruction. This would be true, whether it comes at once from the blood corpuscles by changes taking place in the mass of the circulating fluid, or by the destruction of the blood corpuscles in the liver and spleen. Certain it is that this pigment is not found in the kidneys, and does not accompany diseases of the kidneys; nor is it thrown off under the action of organic medicines and compounds, drastics and purgative salts, which irritate and even cause disease of the intestines and kidneys. Even tincture of cantharides, when given in such large doses as to cause albuminuria and even blood to appear in the urine, does not cause such pigments as purpurine (Bird),

uroerythrin (Heller), or urohematin urophæin to appear in the urine. In those cases of yellow fever in which we have the greatest irritation of the kidneys, or rather in which there is the greatest structural alteration of these organs, will be found, as a general rule, the lightest colored urine. On the other hand, poisonous metallic salts, which derange the constitution of the colored blood corpuscles, and interfere with the blood-making or blood-regulating functions of the liver, and spleen, as the compounds of lead, copper, mercury, arsenic, and antimony, cause even in small doses the appearance of this substance in the urine; and when taken in doses sufficiently large to produce poisonous effects the quantity is greatly increased.

In malarial fever the constituent of the blood which suffers to the greatest and most essential degree is the colored blood corpuscle.

In yellow fever the constituent of the blood which suffers to the greatest and most essential degree is the albumen and its modification, fibrin.

The peculiar action of the poison in the former upon the colored blood corpuscles induces a distinct train of symptoms, and establishes distinct recognizable lesions, characterized chiefly by the deposit of pigment matter in certain organs; while in the latter the poison causes such changes in the albumen and fibrin as lead to the formation of non-nitrogenous and nitrogenous materials, some of which, as the oil and modified fibrin, are arrested or accumulated in certain organs, as the heart, liver and kidneys.

During the active stages of both yellow and malarial fever, phosphorus and the compounds of phosphorus in the nervous structures, as well as sulphur and the compounds of sulphur in the muscular structures, undergo more rapid changes than in the normal state; and phosphoric acid and the phosphates, and sulphuric acid and the sulphates, appear in increased quantities in the urine when the kidneys perform their offices. The waste of phosphorus and of its compounds in the nervous structures during the active stages of the disease is greater than the supply of these materials through the food. The nervous disturbances and debility characteristic of these fevers, as well as of others, are in a measure due to those rapid changes in the phosphorescent materials of the nervous structures, and especially of the central ganglionic cells.

In many cases of yellow fever, and in that form of paroxysmal fever called malarial hematuria, the function of the kidneys is impaired, and neither the urea nor the mineral acids are increased in the urine; while at the same time they accumulate in the blood, and exert deleterious effects upon the nervous system and blood. The increase of the urea and of phosphoric and sulphuric acids during the active stages of these diseases should not, therefore, be considered as anything peculiar and as at all distinguishing them from other fevers. It is only the tendency to congestion and alteration of the excretory structures of the kidneys that characterize yellow fever. The peculiar intoxication and nervous symptoms, as well as the black vomit of yellow fever, are intimately associated with suppression of the urinary excretion. In many cases I have found the black vomit of yellow fever to give strong alkaline reaction from the presence of ammonia resulting from the urea eliminated by the gastric mucous membrane. I have also detected by repeated analysis, urea in large amount

in the brain, heart, liver, spleen, muscles, and blood in yellow fever. In this disease, suppression of the action of the kidneys is more to be dreaded than black vomit, which it often precedes and induces.

The increase of these constituents of the urine is referable to the same cause—that is, increased chemic change—in both fevers, although it is evident that the nature of these chemic changes, and the special constituents involved may differ in each disease.

During the slow action of the malarial poison, as well as during the active stage of the paroxysm, important changes take place in the liver and spleen which are wholly different from the changes of these organs in yellow fever. In malarial fever, in both the liver and spleen, the colored blood corpuscles are destroyed in large numbers, and the coloring matter resulting from the disintegration of the colored corpuscles accumulates in them, and in conjunction with other changes in the nutritive processes of these organs produce those characteristic alterations of the normal color. In fatal cases, cellulose is found both in the liver and spleen, while grape-sugar is absent from the liver. The bile is also altered, both in chemic constitution and physical properties.

In yellow fever there is no destruction of colored blood corpuscles either in the spleen or liver, and no deposit of pigment matter, while *oil* is deposited in large amount in the liver, which together with the bile, impart to this organ a yellow color far different from the dark slate or bronze color of the malarial liver. The spleen is comparatively unaltered in yellow fever. Both cellulose and grape-sugar are found in the liver of yellow fever.

That the chemistry of the body is deranged in a definite manner in malarial fever is evident from the changes of the excretions. During the chill, and at the commencement of the hot stage, phosphoric acid disappears almost entirely from the urine. As the hot stage progresses, and the febrile action and the heat begin to decline, there is an augmentation of phosphoric acid. The uric acid is either increased or remains at the normal standard during the chill, disappears almost entirely during the fever, and then increases rapidly and rises to a high figure after the subsidence of the febrile excitement, and often continues for days, two, three, or even six times more abundant than in the normal state, as I have shown by a large number of observations published twelve years ago.

The sudden variations in the physical and nervous phenomena of malarial fever are accompanied by equally sudden and marked anatomic lesions and changes in the excretions. No such variations in the phosphoric or uric acids are observed in yellow fever. The poison inducing malarial fever acts in a definite manner, and is governed by definite affinities and relationships, and produces a type of diseased distinct from yellow fever. The malaria of the swamps and marshes can only generate paroxysmal fever.

In the vast majority of cases of malarial fever, albumen does not appear in the urine. This constituent of the blood may, however, be present in the urine in malarial fever under certain circumstances.

1. Its presence in the urine of malarial fever may be due to preceding disease of the kidneys, of the liver, or heart.

2. To the prolonged action of the malarial poison, and the structural alterations induced by it in the spleen, liver, and kidneys.

3. To the congestion of the kidneys from cold, or from the impaction in the capillaries of pigment matter, or from the irritant action of the malarial poison upon the excretory structures in cases which have suffered with repeated attacks of intermittents.

It is the exception to the rule to find albumen in the urine in malarial fever; it is the exception to the rule to find albumen absent from the urine of yellow fever.

Even in those cases where the prolonged action of the malaria has produced profound structural alterations of the liver, consisting in the extensive deposit of black pigment granules within and around the capillaries of the liver, obliteration of many of the branches of the portal system within the lobules, and in the hardening and contraction of the entire organ, albumen is rarely present in the urine. I have examined the urine carefully without detecting albumen in a number of cases of ascites and extreme dropsical infiltration of the lower extremities, produced by the hardening and contraction of the liver in chronic malarial poisoning. I have observed cases, however, in which the kidneys were structurally altered by the malarial poison in a manner somewhat similar to the liver, in which albumen was a constituent of the urine.

A certain proportion of such cases may be referred to the causes which ordinarily lead to structural alterations of the kidneys, as the excessive use or abuse of ardent spirits, and the effects of exposure to wet and cold and extreme temperature; but there are cases of albuminuria which can be explained only upon the supposition that they are due to the structural alterations of the kidneys induced by the prolonged action of the malarial poison. And this condition of the urine is not to be referred to the watery condition of the blood induced by the destruction of the colored corpuscles and diminution of the albumen and fibrin; for the state of extreme anemia frequently induced by the action of the malarial poison is never attended by albuminuria, unless there be some structural alteration of the kidneys.

In that form of malarial fever characterized by complete jaundice, intense vomiting and nausea, and hemorrhage from the kidneys, which has received different names at different times and in different countries, and which is no "new disease" even in these Southern States, the hemorrhage from the kidneys is preceded by congestion of these organs, and is attended with desquamation of the excretory cells, and tubuli uriniferi of these organs.

Malarial hematuria (hemorrhagic malarial fever—new disease—up-country yellow fever,) as a general rule, occurs only in those who have suffered from repeated attacks of intermittent fever, or who have been exhausted by a prolonged attack of remittent fever; and while some of the symptoms, as the nausea, incessant vomiting (and in extreme cases black vomit,) deep jaundice, and impaired capillary circulation, resemble those of yellow fever, yet there are marked differences, similar to those already indicated, as distinguishing malarial and yellow fever.

The presence of the albumen in the urine of this so-called "malarial hematuria" is attended also with the presence of colored blood corpuscles, excretory cells of the kidneys, and the tubuli uriniferi, impacted oftentimes with altered blood corpuscles. I

have even detected the Malpighian corpuscles containing altered blood corpuscles, and deeply stained by the coloring matter of the blood. As a general rule in yellow fever, the tubuli uriniferi are loaded with yellow granular, albuminoid, and fibroid matter.

In those cases of malarial hematuria which have come under my observation there was evident congestion of the kidneys, attended with desquamation of the excretory cells and coats of the tubuli uriniferi and active hemorrhage. In some of these cases immense quantities of green biliary fluid were vomited, and the patients died in a state of apparent collapse. As a general rule, suppression of the functions of the kidney is a fatal sign, and, as in yellow fever, may be attended with convulsions, coma and delirium. A careful examination of the blood in malarial hematuria reveals great diminution of the colored corpuscles and fibrin.

The pathologic changes observed after death are characteristic of malarial fever: enlarged slate-and-bronze liver, with pigment granules; enlarged and softened spleen, filled with disorganized colored corpuscles and pigment granules; gall-bladder distended with thick, ropy bile, presenting when seen *en masse* a greenish-black color, and in thin layers a deep yellow. As much as one thousand grains of bile of high sp. gr. (1036) have been obtained from the gall-bladder, while in yellow fever not more than one hundred and twenty grains of bile are, as a general rule, contained in the relaxed gall-bladder.

I have thus clearly demonstrated that malarial hematuria is related to the various forms of true malarial fever (intermittent, remittent, and congestive,) and in fact is only one of the phases of this fever which may at any time be assumed after the alterations of the blood, liver, and spleen induced by the prolonged action of malaria. I have also clearly shown that it is distinct from yellow fever, although it may have some symptoms in common, as jaundice, black vomit, and albuminuria.

The treatment of malarial hematuria should be conducted upon the same general principles which should guide us in the treatment of pernicious intermittent, remittent, or malarial fever; with this addition, that attention should be paid to the condition of the kidneys, and they should be relieved by cut cups and counter-irritation. The bowels should be freely opened by a mercurial (calomel is the best preparation) combined with quinin. Ten grains of calomel and ten grains of quinin is a useful combination. Quinin should be freely given. The strength should be supported by nutritious diet (beef-tea and milk punch,) given by the rectum if the stomach will not bear it. Alcoholic stimulants should be used without any fear of injury. The action of the skin should be promoted by the hot-air bath and steam bath.

In brief, the *strength must be supported and the paroxysm arrested by quinin; the liver and bowels and portal system must be unloaded; the congestion of the kidneys must be relieved; and during convalescence the blood must be enriched with pure and nutritious diet, and iron, and a gentle action of quinin maintained.*

(To be continued.)

A NEW METHOD FOR ANCHORING THE KIDNEY.

Read before the Columbus (Ohio) Academy of Medicine, Nov. 19, 1894.

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Since Hahn, in 1881 anchored the kidney, operations for this purpose have gradually grown in favor until at the present time there are few surgeons who do not recognize it as a justifiable procedure. Prior to that time, in cases where a floating or movable kidney required operative interference, surgeons only considered the question of nephrectomy—a most formidable and dangerous operation without the protection of asepsis or antisepsis.

ANATOMIC MEMORANDA.

In anchoring the kidney, there are a few anatomic landmarks it is always well to keep clearly in mind and especially so in performing the operation which we are about to describe. Clinical experience teaches us that movable and floating kidneys occur more frequently on the right side than on the left. In this connection it is well to remember that the right kidney, when in its normal position is usually located a little lower than its fellow and, on the average, measures about four inches in length. The left kidney is usually longer and narrower than the right kidney. The upper margin of the right kidney when in its normal position is on a level with the twelfth dorsal vertebra. This throws its margin slightly above the upper border of the twelfth rib, which is an important point to remember in the operation I am about to describe. The left kidney being located a little higher than the right, its upper margin not infrequently is on a level with the lower border of the eleventh rib and sometimes even reaches a point slightly higher.

The right kidney is usually about two and a half inches in width, while the left kidney seldom exceeds two inches, but makes up for its reduction in width by increase in length. They are each about one inch in thickness, which is also an important factor in considering the question of anchoring. By keeping these few anatomic landmarks in view, the operator will be able to comprehend the mechanical conditions that are present, and which he must meet in anchoring a floating or movable kidney in its normal position.

PATHOLOGIC CONDITIONS.

In a brief paper of this character we shall not attempt to enter into the details in considering the pathology. Only a few salient points will be noticed. If we have a true floating kidney to deal with we have a mesonephron or, in other words, the kidney is enveloped in a peritoneal sac with a pedicle, the base of which usually corresponds with the natural position of the kidney. The length of this pedicle varies in different cases while the size of the sac depends on the size of the kidney. The pedicle contains the nerve, artery, vein and ureter which are more or less displaced and imposed upon, often giving rise to severe congestion on the one hand or hydronephrosis on the other, and associated with frequent attacks of excruciating pain.

It will be observed that in this condition you have a tumor resembling that of a long-necked gourd hanging with the large end of the gourd down, the neck representing the pedicle and the large end of

the gourd the kidney. As a rule this tumor is free to move and changes its position with the movements of the patient, or by manual manipulations, the peritoneal surfaces being free to glide upon each other.

In the movable kidney there is no mesonephron, but the kidney is jarred loose from its attachments and is free to move behind the peritoneum. In changing its position it drags with it the artery, vein, nerve and ureter which form the pedicle. In a movable kidney you will observe the peritoneum is dissected up from its posterior attachments and the kidney is free to move behind it. It will, therefore, be observed that the only practical difference between a floating kidney and a movable kidney is that the one is enveloped in a peritoneal sac, while the other moves behind the peritoneum and has no sac. In either condition, however, there is danger of obstructing the artery, vein or ureter, or any two of these vessels, or all of them. They may become occluded by pressure or torsion, producing congestion or hydronephrosis, or both, as the case may be. At the same time the nerves are liable to be implicated, producing severe neuralgic pains with or without the presence of either congestion or hydronephrosis.

SURGICAL RELIEF.

Prior to 1881, when surgical relief was attempted under these conditions, nephrectomy was the only operation considered. At that time, Hahn, of Berlin, made a lumbar incision and fixed the kidney in its normal position by suturing it to the lumbar muscles. Ashhurst shortly afterward made the same operation successfully. Subsequently, the operation was performed by Kuster, Esmarch, Bassini, Newman and others with satisfactory results. The object in making *this* operation was to avoid entering the peritoneal cavity which was a very necessary precaution prior to the introduction of aseptic surgery. The difficulty, however, in performing this operation was in manipulating the kidney (and especially so in fleshy persons) and holding it in place until it could be fixed by sutures to the lumbar muscles. These operators did not close the incision but packed it with iodoform gauze and allowed it to heal by granulation. Those of us who have performed either the extra- or intra-peritoneal operation will readily appreciate the difficulty of holding the kidney in its place. In my experience I find it about as difficult to manipulate a floating kidney and hold it in a fixed position as it is to manipulate a cake of wet soap on a wet soap dish with soapy hands, and hold it firmly in one place. I have seen good operators attempt this operation (both extra- and intra-peritoneal) who were absolutely unable to manipulate the kidney so as to hold it in its place long enough to securely suture it. This difficulty, together with the advancement of aseptic surgery, has led to opening the peritoneal cavity with a view of getting at the kidney more readily and by manual manipulation hold it to its place until it can be securely anchored. In fixing the kidney in this way, it was necessary to use a curved needle which was sufficiently long to pass through the kidney (which you will remember is an inch in thickness) the fascia, and into the muscle of the back sufficiently deep to insure a firm attachment. This requires a half-curved needle not less than two and a half to three inches in length. In making this operation it was not only a difficult task to hold the kidney in position until the first

suture could be inserted, but it also necessitated great care on the part of the operator to avoid wounding the liver, gall-bladder and even the intestines with the point of the needle, or tearing the parenchyma of the kidney with its heel in making the short curve necessary in completing the suture. I have seen hemorrhage from tears of this kind so profuse that it became necessary to open the posterior wall of the peritoneum and control it by the use of hot compresses which not only delayed the operation, but increased the danger to the peritoneum. I never anchored the kidney, either intra- or extra-peritoneal, without feeling that the various operations heretofore employed should be simplified and the operation performed in less time, with less danger and much less trouble, and equally good or better results obtained. The consequence is that I have devised the operation which I now perform, and from the limited experience I have had with this operation and the successful results following it, I feel that I am justified in presenting it to the profession for their consideration.

In view of the minimum amount of danger in opening the peritoneal cavity under aseptic precautions, together with the decided advantage it gives to the operator in manipulating the kidney, and assuring himself that the vessels and ureter are not incarcerated in any way, I have arrived at the conclusion that the intra-peritoneal operation is to be preferred over that of the extra-peritoneal.

My operation consists in making the ordinary perpendicular abdominal incision over the median line of the kidney. As a rule, it need not exceed two and a half to three inches in length, depending largely on the thickness of the abdominal walls. Having made the incision sufficiently large to get the fingers in and bring the kidney to its normal place, I then use a long needle which I have had made on purpose, varying from five to seven inches in length. Two of these needles are threaded with aseptic silkworm gut or aseptic silk, using but one ligature, armed with one of these long needles at each end. Having placed the kidney in its normal position (and in the case of a floating kidney scored the peritoneum so as to favor adhesions), I now insert my first needle through the upper and inner part of the cortical substance of the kidney, directly through the muscles of the back, coming out between the eleventh and twelfth ribs. The second needle which is on the other end of the ligature is also passed through in a similar manner, about an inch from its fellow, through the upper and outer cortical substance of the kidney making, as you will recognize, a staple stitch. These ligatures are tied on the integument of the patient's back by an assistant. If necessary, another suture is inserted in a similar manner through the outer margin of the kidney, the first needle of the second suture being passed about an inch below the last needle of the first suture, and the second needle of the second suture about an inch below the first needle of the second suture through the cortical substance of the outer portion of the kidney. By anchoring the kidney in this manner, the entire operation can be performed in not to exceed fifteen minutes unless there are some annoying complications to contend with, for, as you will observe, all that is necessary is to open the abdominal cavity, place the kidney in its normal position and with the use of these long needles the suture can be

placed in position quickly without any fear of injuring the abdominal viscera, or unnecessarily tearing the cortical substance of the kidney. In tying the sutures, care should be taken to draw them sufficiently tight to not only hold the kidney in place, but to produce sufficient irritation to excite inflammatory adhesions, which are intended to hold the kidney in place, and which are so essential to make the operation a permanent success. It is also necessary to be guarded against tying the sutures so tight as to cut through the peritoneum and the substance of the kidney. Either of these conditions, however, can be avoided by care on the part of the operator. After properly tying the sutures the abdominal wound is closed in the ordinary manner. The anchor is allowed to remain from ten days to two weeks. At the expiration of this time, adhesions are formed sufficiently strong to hold the kidney in place when the anchor is removed, and in two weeks more the patient will be able to leave the hospital.

The advantages we claim for this operation are:

1. Simplicity.
2. Rapidity.
3. Efficiency.

The operation is practically bloodless. There is no danger of injuring the abdominal viscera. It is easily performed and the results so far are certainly very satisfactory as illustrated by the following case:

Miss E. E. B., age 28; single; occupation a stenographer; family history and previous health good. In February, 1894, while lifting a large piece of coal, felt something give way in the abdomen, and from that time had suffered from pain principally located on the left side of the abdominal cavity. Living in Chicago, she consulted several physicians in that city who differed in opinion as to the nature of the case. One pronounced it ulceration of the os uteri and treated her accordingly; another announced that it was a floating left kidney. The patient in the meantime gradually grew worse and returned to this city, her former home, when she consulted her family physician, Dr. E. Frazier Wilson, who called the writer in counsel. Upon examination a wandering right kidney was readily discernible, which could be moved from its normal position to a point as low down as the brim of the pelvis, and could be easily shot up until it was lost behind the lobe of the liver. This manipulation was not painful. On further examination, a displacement of the left kidney was discovered, which was found fixed in an abnormal position. The exact condition of the left kidney could not be satisfactorily diagnosed prior to operation, and patient so informed.

She was admitted to the Protestant Hospital, July 21, 1894. Assisted by Dr. Wilson, I operated on her July 22, and found the wandering kidney, which we anchored according to the method I have already described, using but one silkworm gut suture. This part of the operation was rapidly accomplished and was practically bloodless. Had it not been for other complications the operation could have been completed in a few minutes. On further examination, it was discovered that the left kidney was congenitally malplaced, and was located much below, and very much closer to, the vertebral column than it should be normally. The peritoneum covering the lower margin of the kidney was adherent to the left ovary. The latter was found to be about the size of a walnut and very much inflamed. The adhesions were broken up, the ovary removed and the abdominal incision, which in this case was made through the linea alba on account of the suspected complications, closed in the usual manner. There were no unfavorable symptoms. The temperature and pulse ranged from 98.6 to 101.7 and from 72 to 108 respectively.

The patient was discharged from the hospital August 14, and in a few weeks returned to her position at Chicago, where she has been working ever since. It was my fortune to see her, when in Chicago recently, at which time I was permitted to make a careful examination. I found the right kidney firmly anchored in its normal position and free from all tenderness.

The patient's health has improved ever since the operation. She has gained several pounds in weight and to all appearances has obtained permanent relief.

After reading the paper, the author exhibited the needles he has had made for this purpose.

150 East Broad Street.

TWO CASES OF BRAIN SURGERY WITH REMARKS.

Read before the Northern Tri-State Medical Association at Hillsdale, Mich., Dec. 11, 1894.

BY HAL C. WYMAN, M. Sc., M.D.

DETROIT, MICH.

Case 1.—A young woman, 23 years old, a teacher, had an attack of facial erysipelas, which started from a crack or cold sore in the alar aspect of the left nostril. Her face swelled and closed her eyes. The left ear became greatly swollen. The scalp of the forehead and left side of head was swollen and edematous to the crown. She suffered great pain, but no pus appeared in the parts, although she had a temperature ranging from 104 to 105 degrees F., for seven days. She took quinin and tincture of iron in doses of 2 grains and 7 drops respectively, during that time. The inflamed area was brushed with tr. iodine, reduced one-half with dilute alcohol, once a day. The left nostril was obstructed by swollen mucous membrane for three days, but it gave way under the daily use of an ointment made by rubbing 20 grains of citrin ointment with 1 ounce of white vaselin. The swelling then left the face and scalp; and delirium, which had been so violent that the constant service of a nurse was required to keep her in bed, now disappeared. Convalescence apparently began on the ninth day of her illness, but in reality, another train of symptoms began. Fever of less degree and indifference to her surroundings became a feature of the case and she had cold spells, during which her lips were quite purple and bodily temperature rose from 99 to 102 degrees and declined again to 99 degrees, when the lividity disappeared. Respiration was hurried during the cold stage and profuse sweating accompanied the return of normal respiration. Delirium re-appeared. The whole right side became paretic. The left pupil enlarged and would not respond to light. She became more stupid and, after three days was profoundly comatose. Neither shaking nor loud calls would awaken her. Water placed in her mouth was not swallowed, unless it was placed well back in the fauces. The bowels moved incontinently and the urine was removed with a catheter. Reflexes were nearly abolished. The prognosis of several physicians who consulted on the case was, death, the converse of the maxim that life is governed by probabilities, unless an operation, which had already been proposed for several days, relieved the intracranial pressure.

I need not recite the theories that were advanced during the consultation to account for the symptoms. We have all seen such cases and are familiar with the phenomena of meningitis, thrombosis of lateral and sigmoid sinuses and cerebral degenerations.

The friends consented to an operation. I washed the head with soft soap and warm water, shaved the left side of it and again washed it with alcohol. I then made an incision through the soft parts to the skull, beginning one inch above the external auditory meatus, half an inch behind the ear, two inches long, parallel with the long axis of the mastoid. In the center of this wound, the soft parts being held asunder with retractors, I placed the crown of a trephine, and, by alternately boring and using the elevator, removed a button of bone, half an inch in diameter. From the diploë, a small quantity of sanious fluid oozed. With the strong oval-pointed tip of a dressing forceps, I chiseled through the remaining thickness of the skull and reached the cranial cavity, and a quantity of watery pus discharged. With rouguer forceps the opening was enlarged to the full size of the trephine opening and pus discharged more freely. This was done without anesthetic, the patient being profoundly insensible, in consequence of the disease. In a few minutes, while I was washing the abscess cavity with weak carbolic solution, she moaned and exhibited signs of consciousness. With each respiratory movement, the fluid would well freely from the skull. A probe, with one end resting in the pus cavity, pulsated synchronously with the

heart. A gauze drain was placed in the abscess and covered with absorbent gauze. An antiseptic dressing completed the operation. Complete consciousness returned during the next three or four hours. Convalescence began at once and continued without interruption. For three weeks, pus discharged from the wound in quantities sufficient to soil a handful of gauze, but gradually granulations closed the wound and the patient is now well and sound.

Case 2.—A Canadian farmer, 34 years old, had earache. After several days of suffering, pus discharged from his left ear. He did not, however, recover his full vigor, as he had in several similar attacks he had suffered during the preceding ten years. Instead, his appetite was poor, he was dizzy and had pain in the left side of his head, about the suppurating ear. A soft swelling appeared over the mastoid. His hearing in the left ear was gone. He had chills and fever, and, at intervals of every hour or two, terrible shooting pains would run through his head, starting from the suppurating ear, the discharge from which had diminished. His doctor incised the swelling back of the ear and removed a small quantity of watery fluid, which he did not think was pus. The operation gave a temporary relief from his pain. The wound healed. Fever, however, continued, but it did not rise above 101 degrees F. His general condition did not improve. He had been able to sit about the house half the time, but was now too feeble to get out of bed. His left eye would not close, nor could he see well with it. It was turned outward; the left side of his face was paralyzed; the left conjunctiva was edematous and the left pupil was contracted. In sleep, which came only when he was under the influence of chloral, morphin and bromid of potash, the muscles of his right upper and lower extremities would jerk and twitch. When awake he was very restless, all the muscles of his extremities being irritable. When spoken to loudly, he would briefly quiet down and apparently compose himself for sleep, but would soon sigh and moan and toss about. He was not unconscious and tried to arrange his affairs for death. He had been in this miserable condition four weeks, when I saw him and told his physician that I thought an operation, which would remove the diseased mastoid and drain the skull, would give a chance for recovery. The patient and his friends were pleased to submit to anything that offered any hope of relief. His head was prepared antiseptically, as in the preceding case. He was anesthetized with chloroform and an incision was made back of the ear, exposing the mastoid and a part of the squamous of the temporal bone. Several arteries required to be held with forceps, until sutures were introduced to close the wound. The outer wall of the mastoid was carious and rough. It was easily chiseled away with the point of a dressing forceps, so that the rougeur could be used to open the skull. The mastoid was filled with soft, purulent granulation tissue, which extended to the dura mater. Watery pus discharged in small quantity. I neglected to state that the parotid gland and other glands and tissues of the neck, beneath the angle of the left jaw, were swollen and indurated, indicating that the inflammatory process had extended from the skull to the neck, since the second week of his illness.

This condition, with the absence of a free discharge from the epidural space, convinced me that the membranes contained the offending fluids. With the rougeur, the bone and granulation were further cut away, until my finger could be applied to the dura mater. Bleeding was quite free, but was easily controlled by packing the margin of the bone with iodoform gauze. The pulsation could be felt through the dura mater, which bulged into the opening in the skull. An indistinct sense of slightly movable hardness could be felt in the region of the lateral sinus—probably a thrombus. A small opening was made above the area of hardness, through the dura mater. A bistoury was used for this purpose. At once, a quantity of watery pus discharged. A forceps was passed through this wound to dilate it and the fluid discharged in jets, like the pulsation of an artery. Some of the fluid was dark, like thin dead blood and the remainder of it was like thin pus. The quantity was not measured, but I think two ounces discharged. When it ceased running, a small rubber drainage tube, one inch long, was passed through the dura mater and was fixed with a small sterilized safety pin, to prevent slipping within the cavity of the membrane. Absorbent gauze and antiseptic dressing were applied after the scalp had been partially closed by sutures over the opening in the bone. The patient was ordered to have no more anodynes and to take alternately calomel and sulphate of magnesia, until his bowels were freely open. Then he was given 10 drops of

tincture of iron, in a tumblerful of corn-meal gruel, once in four hours. On this treatment he steadily improved. The drainage was taken from the dura mater at the end of a week, no more fluid discharging from the tube at that time, but the mastoid continued to discharge for a few weeks and the granulations protruded from the wound exuberantly. They were dusted with calomel and dressed with plain gauze twice daily. The bone healed slowly, but his physician tells me that the opening is now, nine months after the operation, entirely closed. His hearing is much impaired on that side. The auditory fistula was not painful, though quite offensive. The squint has not disappeared, although the ptosis can scarcely be noticed. The expression is otherwise normal.

These cases are related to call attention to a department of pathology that, I fear is sometimes neglected in surgery. We are in the habit of leaving all cases of inflammatory disease of the ear to aural specialists, and these gentlemen treat the cases as long as they can apply remedies through the Eustachian tube, external ear or an opening into the mastoid cells. When the symptoms indicate an extension of the inflammatory processes to the parts within the cranium the case is commonly left without surgical interference and terminates fatally. The reason for this is found in the neglect of anatomy by physicians. The anatomy of the temporal bone is made to appear so hard to learn that few students ever get more than a superficial knowledge of it, and graduates commonly think it contains little useful knowledge. In the search for purely practical information it is commonly overlooked and passed by as of no use. But modern aggressive surgery is exploring the *terra incognita* of anatomy as modern geographers are exploring the Congo River and African lakes. Neglect to make careful autopsies and idolatrous devotion to the microscope as a means of revealing the mechanism of disease are also blamable for the absence of a sound pathology on which to base a more active surgical treatment in a large class of inflammatory diseases affecting the brain.

I have brought with me two skulls, which have been prepared so as to show the relations existing between the mastoid and petrous cavities, cells, spaces, fissures and foramina of the temporal bone and the cranial cavity. You will observe that the situation of the lateral, sigmoid, petrous and cavernous sinuses are indicated by red colors. The external wall of the mastoid has been chiseled away, leaving the mastoid cells. The anterior aspect of the petrous portion of the temporal bone has been chiseled away to show the internal and middle ear and their relations to the cranial cavity. The posterior part of the petrous portion of the temporal bone has likewise been in part chiseled away, to show the relations existing between the various cavities of the petrous portions of the temporal bone, the mastoid cells and the middle ear. I need not tell you that there is a direct channel of communication between all of these cavities, by way of the Eustachian tube or perforated drum membrane, and all cases of inflammatory disease affecting the throat or middle ear. By direct continuity of mucous and vascular channels, inflammation may gain access to the cranial cavity, the membranes of the brain and the brain itself.

I am sorry that the distance from Detroit prevented me from bringing more skulls with me. I could have shown you numbers of them in which normally almost direct communication between these cavities and the brain existed, the separation being simply membranous. Let me state that all fora-

mina nearly, that I have mentioned, contain venous and lymph channels, which pass directly from the mucous membranes lining these various cavities and cells to the large sinuses and cerebral membranes; in view of these facts, I do not think it at all strange that simple inflammatory disease of the throat and malignant inflammatory diseases like diphtheria may readily extend to the cranial cavity. We can further see how a disease extending through these bone spaces to the cranial cavity may, by the accumulation of inflammatory products cause disturbance of the function of the brain and spinal cord, not unlike that which we frequently see after diphtheria and are in the habit of attributing to the direct effect of toxins upon the nervous system. These channels in the bone at the base of the skull are the only means of conveying away the materies morbi and their products. The apparatus is so complicated that nature drains away with difficulty the products of inflammation. Therefore, surgery must provide a means of drainage or fatal results will follow. What the appendix vermiformis and the Fallopian tubes are to peritonitis, the mucous cavities in the petrous and mastoid portions of the temporal bone are to meningitis and compression of the brain.

A CASE OF CEREBRAL CLOT; LOSS OF VISION FOLLOWING INJURY; TREPHINING; RECOVERY.

BY JOHN B. HAMILTON, M.D., LL.D.
CHICAGO.

In November, 1893, Dr. Julia Holmes Smith, of Chicago, brought a patient to my service at the Chicago Polyclinic with the following history:

Sister Adele, of the Benedictine order, aged 20, strong and healthy, was injured in Canon City, Colorado, June 18, 1893. At the time of injury was on a step ladder unscrewing one of the fastenings of a chandelier in the Academy St. Scholastica. A staple or hook fell, striking her on the top of the head, just posterior to the Rolandic fissure on the right side. Had great pain, but no wound of the scalp; severe

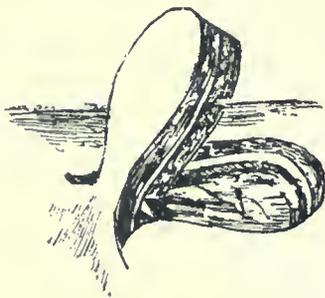


Fig. 1.—Temporary resection of bone flap from cranium. (From Es-march, after Wagner.)

headache which has never entirely disappeared. Vision in right eye gradually failed, and could not see; totally blind in right eye. Deafness of right ear began almost immediately after the accident and continued. There was no motor paralysis, no loss of sense of taste or of smell. Vision and hearing apparently normal on the left side. Ophthalmoscopic examination by Prof. J. Elliott Colburn: "O. S. normal, O. D. slightly vascular; no evidences of past or present neuritis. Must have pressure in region of optic commissure on right side. Diagnosis: Pressure from injury in region of fissure of Rolando."

I trephined the patient November 15 at the Benedictine Convent, Dr. E. J. Senn assisting and Dr. J. H. Smith present. Temporary resection of cranial wall with chisel. Dura mater healthy; incised it and passed a silver wire loop downward and forward toward optic commissure. On withdrawal a firm round coagulum about three centimeters in length

was found attached to the wire. A second time the wire was passed, but this time the result was negative. The wire was then gently passed in a posterior direction following the posterior surface of the petrous portion of the temporal bone, without result. The bone was replaced after suture of dura, and the wound was then closed, three silkworm gut threads being left in the angle of the wound for drainage. The wound was dressed in the usual manner. The patient rallied well after the operation, but on the second day there were con-

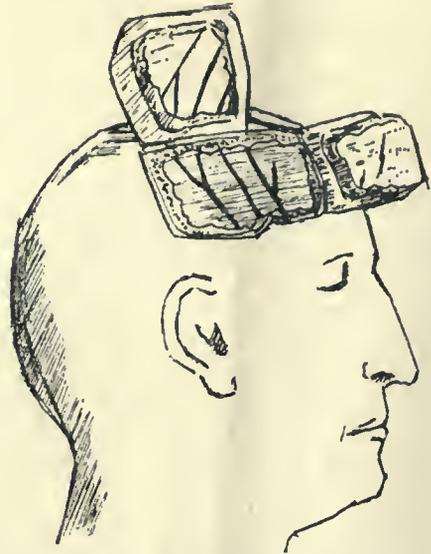


Fig. 2.—Double section of Wagner. (After Chipault.)

vulsions with total loss of consciousness and spasmodic contraction of the muscles of the left arm and hand. I inferred there must have been an oozing causing pressure, and as I was confined to my room with a severe cold, Dr. C. P. Wertebaker, of the Marine-Hospital Service, was requested to reopen the wound. He did so, and removed coagula pressing upon the dura. The wound was again closed after care-

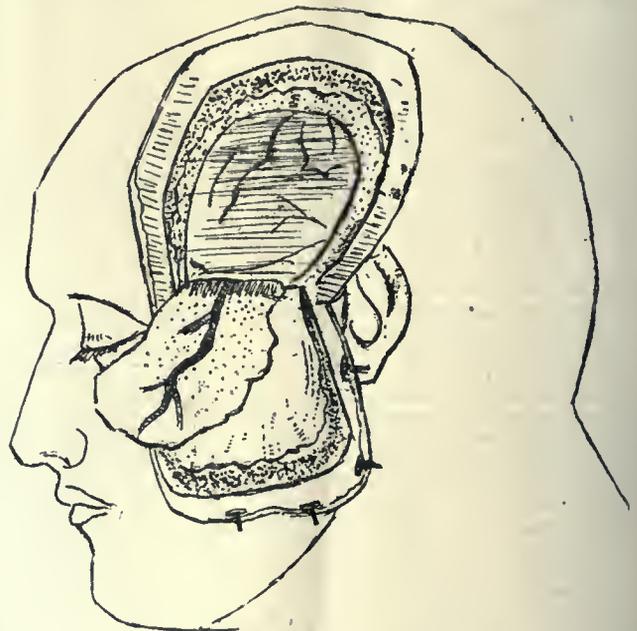


Fig. 3.—Temporary resection of cranial wall with dural flap. (After Chipault.)

ful cleansing, and the patient recovered without untoward symptom. The temperature remained normal.

June 18, 1894, Professor Colburn again examined the eyes and found the field normal in both eyes. Vision had been restored from the date of the operation. Nov. 18, 1894, I again saw the patient and found her with normal hearing and vision, and in good health.

In regard to the technique of trephining, it is

proper to add a few words in explanation. For the last three years, I have used the "corner" chisel and mallet. I think favorably of the circular saw propelled by the dental engine, but I have not used it. Before becoming acquainted with the merits of the temporary resections, I used the large conical trephine, preserved the bone button with great care during the operation, keeping it in a warm towel previously wrung out of a hot antiseptic solution, and replaced it afterwards, but with the method introduced by Wagner, we need no longer fear non-union of the bony flap when replaced, and here as elsewhere, the most rigid asepsis must be maintained during the operation and at the subsequent dressings.

SOCIETY PROCEEDINGS.

Proceedings of the First Meeting of the American Academy of Railway Surgeons.

Held at the Grand Pacific Hotel, Chicago, Ill., Nov. 9 and 10, 1894.

FIRST DAY—MORNING SESSION.

The Academy convened in Room 44 of the Grand Pacific Hotel, and was called to order by the Chairman of the Committee on Organization, DR. R. HARVEY REED, Consulting Surgeon, B. & O. R. R., Columbus, Ohio.

On motion, DR. H. J. MAYNARD, Division Surgeon, U. P. D. & G. R. R., Cheyenne, Wyo., was called to the chair.

DR. WEBB J. KELLY, Division Surgeon, Erie R. R., Galion, Ohio, was selected as temporary Secretary.

Inasmuch as the minutes of the previous meeting were nearly, if not all, contained in the report of the Committee on Permanent Organization, the reading of the same was dispensed with.

On the roll call of Charter Fellows the following surgeons who had filed written applications for fellowship were found to be present: Drs. W. W. Appley, Surgeon, N. Y. L. E. & W. R. R., Cohecton, N. Y.; W. W. Barnett, Ass't Surgeon, N. Y. C. & St. L. R. R., Fort Wayne, Ind.; W. R. Blakeslee, Surgeon, N. Y. L. E. & W. R. R., Forest City, Pa.; D. C. Bryant, Oculist, U. P. R. R., Omaha, Neb.; W. L. Buechner, Surgeon, N. Y. L. E. & W. R. R., Youngstown, Ohio; F. H. Caldwell, Chief Surgeon, S. F. & W. R. R., Sanford, Fla.; E. C. Carr, Surgeon, P. C. & St. L. R. R., Coshocton, Ohio; C. K. Cole, Chief Surgeon, Montana Central R. R., Helena, Mont.; J. Homer Coulter, Surgeon, C. B. & Q. R. R., Chicago, Ill.; C. M. Daniels, Chief Surgeon, W. N. Y. & P. R. R., Buffalo, N. Y.; J. I. Barby, Chief Surgeon A. & M. R. R., Americus, Ga.; N. F. Donaldson, Ass't Surgeon, U. P. R. R., North Platte, Neb.; C. D. Evans, Surgeon, U. P. & B. & M. R. R., Columbus, Neb.; A. E. Evans, Surgeon, B. & O. R. R., Columbus, Ohio; Chas. B. Fry, Surgeon, Big Four R. R., Mattoon, Ill.; W. J. Galbraith, Chief Surgeon, U. P. R. R., Omaha, Neb.; David Gildner, Surgeon, B. & O. R. R., Rockwood, Pa.; R. S. Harnden, Surgeon, Erie R. R., Waverly, N. Y.; Milton Jay, Chief Surgeon, C & E. I. R. R., Chicago, Ill.; T. C. Kennedy, Surgeon, Big Four R. R., Shelbyville, Ind.; Webb J. Kelly, Division Surgeon, Erie R. R., Galion, Ohio; C. B. Kibler, Surgeon, N. Y. P. & O. R. R., Corry, Pa.; L. E. Lemen, Division Surgeon, U. P. R. R., Denver, Col.; H. J. Maynard, Division Surgeon, U. P. D. & G. R. R., Cheyenne, Wyo.; W. H. Meyers, Surgeon, B. & O. R. R., Meyersdale, Pa.; R. D. Mussey, Chief Surgeon, C. H. & D. R. R., Cincinnati, Ohio; J. P. Kirkpatrick, Surgeon, P. C. & St. L. R. R., London, Ohio; John E. Owens, Chief Surgeon, C. & N. W. R. R., Chicago, Ill.; F. H. Peck, Surgeon, N. Y. P. & O. R. R., Clinton, N. Y.; J. K. Perkins, Surgeon, U. P. R. R., Kansas City, Mo.; R. Harvey Reed, Consulting Surgeon, B. & O. R. R., Columbus, Ohio; A. Rhu, Surgeon, Big Four R. R., Marion, Ohio; A. C. Scott, Chief Surgeon, C. & S. F. R. R., Temple, Texas; Howard J. Williams, Surgeon, Central R. R. of Ga., Macon, Ga.; S. G. Worley, Chief Surgeon, J. St. A. & I. R. R., St. Augustine, Fla. Chas. H. Merz, Surgeon, C. S. & H. R. R., Sandusky, Ohio, was present before roll call but was called home by telegram.

The Committee on Permanent Organization, through its chairman, Dr. R. Harvey Reed, made the following report:

REPORT OF THE COMMITTEE ON PERMANENT ORGANIZATION.

"History.—The idea of an association of railway surgeons of some kind or character that should have a limited number of members is not a new one. As early as May, 1892, at Old Point Comfort this subject was discussed by many of the prominent railway surgeons of this country, who recognized the fact that such an organization was in the interest of railway surgery, as well as of the railway surgeon and the company.

"In June, 1893, this same question was again talked of by chief surgeons and others at Omaha, and not a few letters were exchanged, subsequently, between railway surgeons relative to this important move. In December, 1893, an editorial was published in the surgical department of the *Railway Age* in reference to this subject. By this brief résumé, it will be observed that an organization, similar to the one we expect to christen here to-day, is not of recent origin, but, on the contrary, is the result of mature consideration that dates back for years. In Galveston on May 9, 1894, an informal meeting was held by those interested in an organization of this character at the Beach Hotel, of which Dr. C. K. Cole, of Helena, Mont., acted as chairman and Dr. J. M. Dinnen, of Fort Wayne, Ind., acted as secretary. On May 10 a similar meeting was held at the Tremont House, of which the following are the minutes:

"In pursuance of the meeting held in the Beach Hotel on the evening of May 9, the following surgeons met in the parlors of the Tremont House and were called to order by Chairman Cole, of Helena, Mont.:

"Drs. A. D. Bevan, Chief Surgeon, Iowa Central R. R., Chicago, Ill.; W. A. Adams, Chief Surgeon, Ft. W. & D. R. R., Ft. Worth, Tex.; W. H. Elliott, Chief Surgeon, Central R. R. of Ga., Savannah, Ga.; John E. Owens, Chief Surgeon, C. & N. W. R. R., Chicago, Ill.; C. W. P. Brock, Chief Surgeon, C. & O. R. R., Richmond, Va.; N. Y. Leet, Chief Surgeon, D. L. & W. R. R., Scranton, Pa.; Geo. Ross, Chief Surgeon, Southern R. R. Co., Richmond, Va.; W. G. Galbraith, Chief Surgeon, U. P. R. R., Omaha, Neb.; Jas. Carter, Surgeon, U. P. R. R., Carbon, Wyo.; H. J. Williams, Chief Surgeon, Central R. R. of Ga., Macon, Ga.; R. Harvey Reed, Consulting Surgeon, B. & O. R. R., Columbus, Ohio; N. V. B. Newcomer, Surgeon, L. E. & W. R. R., Tipton, Ind.; C. D. Evans, Surgeon, B. & M. R. R., Columbus, Neb.

"In the absence of the Secretary, DR. R. HARVEY REED, of Columbus, Ohio, was requested to act in his place. An informal talk was held in which the surgeons present took part, and freely discussed the question and propriety of organizing a new association, to be named hereafter, to be composed of a limited number of members and to have for its object the advancement and improvement of railway surgery.

"It was unanimously conceded that the railways were very much opposed to transporting such a large number of surgeons and their wives to each annual meeting. It was also believed that an organization of active workers would meet with approval among the managers of the railroads and accomplish better results with less expense.

"It was therefore moved by Dr. C. W. P. Brock, of Richmond, Va., that a committee on permanent organization be appointed consisting of Drs. R. Harvey Reed, Columbus, Ohio, Chairman; Dr. W. H. Elliott, Savannah, Ga., and Dr. C. K. Cole, Helena, Mont.; said committee was authorized to proceed and take up the plans for the new organization and prepare a constitution and by-laws for the same, to be reported at a meeting to be held at a subsequent date.

"It was suggested by Dr. W. H. Elliott, of Savannah, Ga., that we request the National Association to become a delegatory body. This was favored by Dr. Brock and others.

It was believed if this could be done it would not be necessary to organize a new association. After considerable discussion which was participated in by Dr. Owens, of Chicago, Dr. Galbraith, of Omaha, Dr. Ross, of Richmond, Dr. Cole, of Helena and others, a motion was finally made by Dr. Elliott, which prevailed, to appoint a committee of three to bring this matter before the National Association through its newly elected President, Dr. Thorne, of Toledo, Ohio, and get an expression from the Association. The motion was carried unanimously and the following committee appointed: Drs. Geo. Ross, Richmond, Va.; W. H. Elliott, Savannah, Ga., and Dr. N. Y. Leet, Scranton, Pa.

"On motion of Dr. W. J. Galbraith, of Omaha, Neb., the chairman of the Committee on Permanent Organization was authorized to call a meeting on or before Nov. 1, 1894, at a place to be hereafter selected for the purpose of perfecting the organization. He was also instructed to take such steps, in the meantime, as would be deemed proper and wise and which would be of assistance in enabling the committee and the charter members to secure the best organization possible.

"On motion, the meeting adjourned to re-assemble at the call of the Chairman of the Committee on Permanent Organization.

"C. K. COLE, M.D., Chairman of meeting.
"R. HARVEY REED, M.D., Secretary."

It is a matter of record that the question of resolving the National Association of Railway Surgeons into a delegatory body was duly brought before the members of the National Association by its President, Dr. S. S. Thorne, in a strong speech favoring the same, which was duly opposed by Drs. Willis P. King and W. B. Outten and the motion to make such a change defeated.

With the instructions given your committee, its members felt that their duty to the railway companies and the members on permanent organization was to proceed to carry out the instructions given them at the meeting held in the Tremont House, which they proceeded to do in the following manner:

1. The members of the committee proceeded at once to interview the presidents and managers of quite a number of the leading railroad companies, in person, in order that they might obtain from them their candid opinion relative to such an organization which should be their guide as to the propriety of attempting to complete the organization. An interview of these officials soon convinced them of the fact that an organization of this character would meet with their hearty approval and support.

Whereupon the following circular was issued, accompanied by a suitable blank, whereby those surgeons favorable to such an organization and who desired to enter it could signify the same in writing which was returned to the chairman of your committee, who has on file in the archives of this proposed Academy ninety-one formal applications and seven informal written applications, making a total of ninety eight applications from all sources, from which must be deducted six who requested to withdraw their names as charter members, leaving a balance of eighty-five formal applications and seven informal applications or a net total of ninety-two.

AMERICAN ACADEMY OF RAILWAY SURGEONS.

Office of Chairman of the Committee on the Permanent Organization.

COLUMBUS, OHIO, Sept. 10, 1894.

MY DEAR DOCTOR:—In pursuance of the instructions given at the meeting held at the Tremont House, Galveston, Texas, the committee on permanent organization begs leave to submit the following synoptical report:

After diligent investigation, both by letter and personal interviews, of a great many of the leading active railway surgeons, and eminent contributors to the literature of railway surgery in this country and the Dominion of Canada, the committee has received, practically, universal encouragement, favoring the organization of an American Academy of Railway Surgery which shall have in view, among

other laudable objects, the elevation and improvement of the science of railway surgery and the study of allied medico-legal questions.

The committee is pleased to inform you that they have presented the subject, pertaining to the organization of an Academy, which shall have for its object, "the higher order of railway surgery," with a limited number of permanent members, who shall be "worthy and well qualified" for membership in this proposed organization, to a large number of railway officials, and so far have only met with the most cordial encouragement.

Having received such enthusiastic encouragement from each of these sources, we have decided to call a meeting of the charter members, in Chicago, at a date to be fixed hereafter, during the latter part of October, for the purpose of effecting a permanent organization.

In addition to the executive sessions, the committee has arranged an excellent program of scientific work, which will be announced later.

With this brief preliminary explanation, the committee will be pleased to have you signify your desire of becoming a charter member by signing the inclosed blank and returning the same to the chairman of the committee, at your earliest convenience, and thus facilitate the work of completing the arrangements for the coming meeting.

Very respectfully submitted,

R. HARVEY REED, M.D., Chairman, Columbus, Ohio.
W. H. ELLIOTT, M.D., Savannah, Ga.
C. K. COLE, M.D., Helena, Mont.

Committee on Permanent Organization.

In no instance has your committee persuaded any surgeon to enter the proposed Academy. Its members adopted the policy of laying the proposed plan of organization and its objects before those railway surgeons who, in their judgment, would make desirable members of such an organization and allow them to judge for themselves of the merits of the same.

The committee recognized the fact that there are many railway surgeons in the United States, Canada and Mexico who would make desirable members of the Academy in addition to those invited and, whom we trust, will at no far distant day be recommended to fellowship in the same.

2. Having received such unquestionable encouragement from so many leading railway surgeons throughout the United States, the Dominion of Canada, and the Republic of Mexico, your committee decided to present the matter to the management of the leading railroads of this country in a formal circular letter, of which the following is a copy, and from which it received a great many replies, all of which were favorable to the proposed organization:

COLUMBUS, OHIO, Sept. 27, 1894.

DEAR SIR:—Realizing the great burden which, for years has been imposed upon the railway companies of this continent, by the yearly transportation of thousands of surgeons for the purpose of attending their annual meeting, it has become evident to many of the leading railway surgeons that it is in the interest of their respective companies to organize an association, with a limited number of representative members, consisting only of active and experienced railway surgeons.

The committee appointed for the consideration of this very important question would be pleased to have you give your views and advice regarding the proposed organization.

If, after a careful and candid consideration of the subject it is deemed advisable, and in the interest of the railway companies of this continent, to put into operation such an organization, with a limited number of members, that shall have for its object the scientific study of the many perplexing problems that are constantly arising in railway surgery, will your company be willing to encourage such an organization in this work, by granting a limited amount of transportation, in the usual manner, for the purpose of enabling its members to attend their annual meetings?

As arrangements are being made to hold a meeting in Chicago at an early date for the purpose of taking final action on this matter, we will consider it a great favor to receive an early and frank reply from you in regard to this organization.

Very respectfully submitted,

R. HARVEY REED, M.D., Chairman,
Consulting Surgeon B. & O. R. R., Columbus, Ohio.
W. H. ELLIOTT, M.D.,

Chief Surgeon Cent. R. R., of Ga., Savannah, Ga.
C. K. COLE, M.D.,
Chief Surgeon Montana Central R. R., Helena, Mont.

(To be continued.)

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SATURDAY, DECEMBER 22, 1894.

SOME CHRISTMAS REFLECTIONS.

"Without the door let sorrow lie;
As if for cold it hap to die,
We'll bury't in a ChrI-stmas pie
And evermore be merry."

In this season when "the Christmas bells, from hill to hill answer each other in the mist," the festival of the Nativity appeals to all alike.

The ancient pagans, and as well the old Germanic tribes, celebrated the winter solstice, and the return of the fiery sun wheel, long before the Christians adopted the 25th of December as the date of their great celebration, and thus for ages, festal usage has set apart this time for good fellowship and jollity.

Physicians are so accustomed in their daily life to perform acts of charity, that the profession, as a whole, may be said to live in perpetual Christmas time, and in many lives the singing of the Yule log fire is constant. The doctor on his rounds of mercy, sees the holly buds and the Christmas wreaths in the windows of the wealthy, and that the abodes of the wretched are made more tidy, in harmony with the softer spirit that pervades the multitude.

He often wonders if patients are not more tractable and their ills less grievous at this season than any other, when even death seems robbed of its terrors as it approaches its victim, whose otherwise happy surroundings have quieted his mind and tranquilized his feeble frame. Even those doomed to support through life a deformed body, or crippled limb, seem to have forgotten their suffering, amid the general generosity and gladness.

The beautiful story of VOLKMAN's about the folded angel's wings which lie hidden beneath the unsightly hump of the hunchback, have lightened the sorrows of many a little sufferer, and made his burden easier, and noting the effect on the patients of the soothing

influence of such stories and of the Christmas tide, every physician must wish that it were always Christmas with his patients. With this object lesson before his eyes, that doctor would indeed be a strange being, if his voice did not grow more gentle, his hand more delicate in its touch, his sympathy more deep, his pity for suffering more profound, and his humanitarianism more tender, and in this holiday season looking at the profession itself, again the lover of his art and its personnel would say: "Would that it were always Christmas with our profession."

THE ANTITOXIN PRODUCTION.

Already there have been put on the market one or more fraudulent antitoxins for diphtheria. The German preparations that have found their way to this country, a few small packages, here and there, are the only ones that are known to be reliable and guaranteed. Inasmuch as the time necessary to grow the first crop of antitoxin can not, under the methods generally adopted, be less than six months, it will readily be seen that some of the rapidly matured plants must be throwing off an immature and worthless article. After a little while there will be an increased number of producers, and there will be an improvement of methods—there is one such improvement already in use in this country, namely the use of oxygen as a means of "forcing" the cultures—and there will be an abundance of good and relatively cheap product. Two boards of health, those of New York City and Brooklyn, have taken up the work of producing the antitoxin, but their stocks can not become available to the public for four or five months.

DRS. PRUDDEN and BIGGS, of the New York City Board, have already pointed out the necessity of great care in the housing of the animals that are used, and of experienced bacteriologists to conduct the experiments. They themselves are giving no small portion of their attention to conducting the test experiments by which the merits of the various preparations now offered for sale must be determined.

SANITARY SCIENCE VS. MEDICAL PRACTICE.

From time to time the JOURNAL has essayed to give expression to a fact which forces itself with constantly increasing pressure upon the attention of every medical man—to-wit, that the struggle for medical existence is, year by year, growing sharper and more strenuous; and to a thought born of that fact—to-wit, that the rapid development and practical results of preventive medicine, due entirely to the volunteer and gratuitous efforts of the medical profession itself, may be a potent cause of this increasing strenuousness, by warding off disease which, otherwise, the doctor would be called upon to treat to the benefit of his professional income.¹ We have

taken as cheerful a view of the situation as "Mark Tapley" himself could have done, and have suggested one method by which the public, kept well by improved sanitary conditions and the efforts of preventive medicine, may be made to pay in part for the benefits it receives. But we recall the first aphorism of HIPPOCRATES—*Ars longa, vita brevis est*—and are forced to admit that a good many of us will die off long before the adequately paid D.P.H. will be numerous enough to relieve our overcrowded ranks.

Our medical "kin beyond the sea" are confronted with the same condition, and it has given rise to some interesting correspondence recently. One writer speculates as to what would be ABERNETHY'S reflections if he could see the crowded theater of one of the medical schools of the period, filled with young men "beginning the study of the profession whose ranks are already so overstocked," and proceeds to moralize in a strain which the *Lancet* characterizes as "an argument against all medical science which aims at preventing disease, inasmuch as disease is the *raison d'etre* of the medical profession." The logic of our contemporary is not clear and the foundation for the charge can only be surmised, since the text of the letter is suppressed on the ground that it is "too long for insertion;" but in a rejoinder to the editorial comment, the writer, MR. M. H. FEENY, insists that he has been misconstrued—that he had merely "maintained that the advance in sanitary science and that in machinery were alike in their results;" each had reduced the number of men who could be furnished profitable employment. And this does not imply that either the advance in sanitary science or that in machinery is not a social and scientific blessing; "it merely goes to explain a fact—namely, the 'unemployed.'"

A more optimistic view of the situation is that taken by "Pepsin," who reviews MR. FEENY in a late number of the same periodical, and affects to believe that sanitary science, while shielding the public from such scourges as cholera and other epidemics, "provides us, by so doing, with an ever-increasing number of ill-developed and delicate patients who would otherwise be swept out of existence. In short, does it not promote the survival of the 'unfit,' the charge of whom largely develops upon us, whose care and skill are so constantly in requisition, and are the means so often of enabling them to reach the adult age, and in many cases their three-score years and ten, at the same time with much less risk to ourselves?" The gentleman begs the question. Where medical "care and skill are so constantly in requisition" there is nothing of which to complain.

"Pepsin's" digestion is evidently of the most eupeptic character; no one whose stomach was not in good working order and fully supplied with the

best of material upon which to work, could take so roseate a view of the situation.

COLONY FOR EPILEPTICS IN ILLINOIS.

At the last session of the Illinois State Medical Society, a resolution referring to the establishment of a State epileptic colony or institution was introduced and referred to the Committee on Legislation, with instructions to take such action as might lead to the introduction of a measure at the coming session of the Legislature for the founding of such an establishment. The committee has already had a meeting, and the preliminaries for the proposed legislation have been instituted.

At the present time a considerable number of epileptics are provided for in our State asylums, but these are largely those who by their acts and tendencies have shown themselves dangerous to society by reason of the mental aberration induced by their disease. They require restraint and absolute separation from society, and in the insane hospital are often considered the most troublesome and difficult of all the inmates. An epileptic colony of the kind proposed, on the plan of the successful establishment at Bielefeld, in Westphalia, and others in France, Germany, Switzerland and Sweden, could hardly care for such, without special provisions that would approximate it to an asylum in many of its more important and conspicuous features. This, it is presumed, is not the idea of those active in this movement in Illinois. The plan is rather to make a refuge for those who are simply incapacitated by their disorder from properly helping themselves, to put them under conditions most favorable to their moral and physical welfare, and, so far as possible, to prevent their becoming a burden to society, by enabling them to work for their own support. There is no reason why, with the class referred to, this last desideratum should not be largely attained; epileptics are not less industrious than other individuals, and when relieved from the necessity of active competition with those not similarly disabled, and under sympathetic and judicious direction, there is no reason why they should not be to a large extent, at least, self-supporting.

It would take time to completely organize the institution and secure the plant required for this purpose, and some aid might be obtained by requiring some payment for board and care from those who, while availing themselves of the advantages of the institution, were able to contribute, but this would not be considered an essential feature of the plan. It is in every way desirable, however, that the self-respect of the beneficiaries should be promoted, and this can be done by making the establishment, as far as practicable, different from an almshouse, by encouraging them to feel that they are doing some good

¹ Vide "A New Field for the Medical College;" "Activity among Health Authorities," etc.

and may become of some use to society, even under their peculiar disadvantages. The functions of such an institution should be partly those of a hospital and partly those of an industrial establishment, and the latter would with this particular class largely include the former. The training of juvenile epileptics would also come within its scope and form an important portion of its work. Whether or not it could relieve the insane asylums of the insane epileptics, often less dangerous under proper management than they are supposed to be, is a question that time and experience will have to solve; at present it may not seem advisable to include this among the objects of the institution. At Bielefeld this class is also provided for, to a certain extent at least, and this may have been necessitated by the conditions.

There are several important questions to be considered in connection with the plan, such as the conditions of admission and discharge, the legal status of inmates, the relations of the sexes, etc., etc., but none that should stand in the way of the successful inauguration of the project, or that ought to be considered as difficult or insolvable. The State of Illinois, the third in the Union in population, has a duty in this regard and should not be behind any of its sister commonwealths. It has the unfortunates to be cared for and the advantage of the experience of other communities to enlighten its efforts to provide for them.

It will be understood that only a certain proportion of the whole number of epileptics are in actual and pressing need of the benefits of such an institution. In Illinois, however, with its 4,000,000 of inhabitants, there will be no difficulty in finding a sufficient number for whom such an institution is a necessity; who without such a refuge are daily becoming vagabonds, paupers and even criminals. Epileptics, with their irritable weakness from their disease, often need moral control, and while in no way a reformatory, the establishment will have a useful function in preventing some of these unfortunates from being or becoming bad citizens.

It is to be hoped that every proper consideration will be brought before the Legislature in favor of this project, and that the incorporating act will be so drawn as to insure its usefulness in every possible way. The Craig colony at Mt. Morris, New York, affords a good example of a plan which might well be followed in the proposed Illinois colony.

THE ASSOCIATION LIBRARY.

Seventy-four boxes of books were this week received in Chicago, by the NEWBERRY Library from the Smithsonian Institution, where the volumes have been stored for several years. There has never been any catalogue of these books, and the exact nature is to-day somewhat conjectural. Under the terms of a docu-

ment which by euphemism is called a deposit or loan, but a document which is in reality a deed of gift, the Library trustees agree to bind and catalogue these waifs at the earliest possible date. One thing is definitely known about this collection, and that is that it is rich in the possession of very many volumes of transactions of various foreign scientific societies, which are contained in few other collections.

With this Christmas addition from our ASSOCIATION, and the donation of the SENN collection last year, the NEWBERRY LIBRARY MEDICAL DEPARTMENT takes rank with the best medical libraries in the United States.

THE JOURNAL IS NOW COPYRIGHTED.

At the last meeting of the Committee on Management of the Board of Trustees, PRESIDENT GARCELON presiding, a resolution was passed directing the Editor hereafter to have the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION copyrighted each week. The Trustees directed that all journals should have full and complete permission to reprint any article appearing in the JOURNAL, or part thereof, provided due credit is given to this journal when the article or item is reproduced.

CORRESPONDENCE.

Electrocuted Horse—Post-Mortem Examination.

PANA, ILL., Dec. 14, 1894.

To the Editor:—I send you herewith some printed notes of the *post-mortem* appearance of a horse killed by electricity. As the subject of whether or not a man can be killed by electricity is agitating the public mind through the press at present, I thought perhaps this incident might be of general interest.

In looking up the literature of the subject, I find scarcely any mention made of the *post-mortem* appearance of a body killed by electricity. In the *Annual of the Universal Medical Sciences* for 1891, Vol. v., Section C, page 30, Dr. Rockwell says: "The reported autopsies on patients killed by currents of high potentials are few. In such the blood is usually fluid; the viscera are congested; small hemorrhages are frequent. Peterson thinks there are no pathognomonic signs of death by electricity, but that it divides and disarranges the fine molecular structure of the body." Hence, as confirmatory of the above statement, I send you this. To make the matter more intelligible, I also send a newspaper account of how it all happened:

POST-MORTEM APPEARANCE OF A HORSE KILLED BY ELECTRICITY.

The following is an account of the condition of the two horses belonging to D. M. Pence, that were electrocuted near the Union depot, as found by Dr. Conner, who held a *post-mortem* examination:

"I arrived on the site of the accident in a very few minutes after it occurred. The animals were perfectly limber in all joints. There was not the slightest tremor in a solitary muscle. Their eyes were glazed. It was a wet, foggy morning about 8:30 A. M. The bodies were steaming hot from their recent drive. In about six hours after the electrocution the carcasses were put upon a dray and hauled over a mile and dumped.

"The left shoulder was removed and three ribs sawed across thereby entering the thorax. The first thing to attract attention was the fluid state of the blood and the fullness of the blood vessels. All the peripheral blood vessels, arterioles and veinlets were filled with dark blood. The blood was very dark and without its characteristic odor. The lungs were peculiar. The larger bronchial tubes were slightly filled with a pinkish froth. The lung substance was congested with black blood which made it resemble liver in its gross appearance; only a small portion of the border of the lungs had anything like the natural appearance of lung tissue. The lungs had the appearance of the *post-mortem* conditions of a late, or at least the second stage of pneumonia, "hepatization." A piece of a lung was cut off and dropped into water and readily sank.

"The heart was soft in texture, but neither dilated or contracted. There were no clots in or about it nor in any of the larger blood vessels. I was surprised at the size of the heart, for it was fully as large as that of an ox which would weigh sixteen or eighteen hundred pounds. Neither the brain or spinal cord were examined.

"Conclusions: From the above I should say:

- "1. That the horses were killed instantaneously.
- "2. That when a man is thoroughly electrocuted he is beyond any human power to resuscitate him. Just the same as he would be if he had been killed by lightning.
- "3. That a person may be only stunned by electricity the same as by lightning, and that if proper means are resorted to early enough there are great hopes of reviving him.
- "4. That it is our bounden duty to make every legitimate effort to resuscitate, or better, revive a person stunned or partially killed by electricity or lightning, for we may never be certain as to whether a person is dead or only stunned when so struck.

"I desire hereby to thank Dr. Trinder, veterinary surgeon of this city, for his kindness in assisting me so well in the above operation."—(From the *Pana Palladium*, Dec. 6, 1894.)
J. J. CONNER, M.D.

City Hospital in Wheeling.

WHEELING, W. VA., Dec. 14, 1894.

To the Editor:—For many years, Wheeling had but one hospital, the Wheeling Hospital, which is owned and controlled by the Catholic church. It has never had a regular medical and surgical staff, nor any special provision for charity cases, although at times such cases are received, especially in emergencies. For many years the late Dr. John Frissell did most of the work, both medical and surgical at this institution, of which he was really the founder. His son, Dr. C. M. Frissell, and Dr. G. Ackermann, are his successors, although any physician may attend his own private cases there. About three years ago another hospital was opened under Protestant auspices, in the hope of providing still more liberally for the treatment of the sick poor. A large building formerly used as a female seminary was purchased, and with some changes was made to serve admirably its new purpose. It stands on an acre of ground, on a high plateau away from the noise of the busy streets. The halls are large, and the wards and private rooms well lighted and ventilated, and neatly furnished. The building contains more than fifty rooms and can accommodate over a hundred patients.

This institution, although named the City Hospital, is in no way connected with the city government and receives no aid from it. It has no endowment, but depends for its support upon the receipts from pay patients and the contributions of the benevolent. The board of directors is composed of twelve prominent business men. This board is ably assisted by the Woman's Hospital Association, of which Mrs. W. F. Butler, daughter of the late Dr. W. J. Bates, is the efficient President. The hospital is superintended by Mrs. Johnson, formerly matron of the West Penn. Hospital, Pittsburgh. A training school for nurses has been established in the institution, lectures being delivered systematically and practical instruction given as well, by the members of the medical and surgical staff, which was originally constituted as follows:

Physicians: Drs. S. L. Jepson, E. Hoge, H. B. Baguley, R. M. Baird, R. H. Bullard, Eugene Hildreth. Surgeons: L. D. Wilson, J. L. Dickey, E. C. Myers, A. F. Stifel, R. J. Reed, J. Schwinn.

Of the above, Dr. Hoge resigned and was succeeded by Dr. W. E. Stathers, and Dr. Stifel, deceased, by Dr. F. J. L. Hipp.

What other city the size of Wheeling can boast of nine externes among its staff? We have also two private hospitals and a third in course of construction. There is no demand for so many, and as the City Hospital is unselfishly organized and conducted solely for the public good, it should be liberally supported.

If this should meet the eye of any former citizen of West Virginia, who has met with abundant prosperity in the great West, and feels like testifying to his appreciation of his early home, he can not do so in a better way than by extending aid to our young and very needy City Hospital.

S. L. JEPSON, M.D.

Treatment of Typhoid Fever.

HASELTON, OHIO, Dec. 17, 1894.

To the Editor:—In reply to Dr. A. S. Caldwell, of Freeport, Ill., who has published a letter in the *JOURNAL* of December 15, in which he says Dr. Woodbridge's treatment of typhoid fever has failed in his hands to show the marked change in the temperature curve, which Dr. Woodbridge's charts show in his own practice, I wish to say I have had some experience with Dr. Woodbridge's treatment, and having followed cases with him, I can say the treatment will do all that Dr. Woodbridge claims for it, if it is intelligently carried out. If the treatment is harmful in Dr. Caldwell's opinion, will he please state which he considers the most dangerous; the gr. one-sixth calomel, the gr. one-sixtieth podophyllin, or the non-toxic eucalyptol or guaiacol.

I have treated, and seen Dr. Woodbridge treat, the most severe cases of typhoid fever with better results than I have ever known him to claim. The treatment far exceeds in value any other treatment I have ever seen published or heard advised.

Truly yours,

J. O. YOST, M.D.

A Rabid Dog Bites Seventeen Persons.

MOUNT VERNON, OHIO, Dec. 15, 1894.

To the Editor:—We have had an experience here for a few days past with what was supposed to be a rabid dog and the victims of his work (eleven in number) are now at a Pasteur institute in your city, conducted by Dr. Lagorio (if I remember rightly). The so-called rabid dog was sent after the killing to Dr. Probst, Secretary of the State Board of Health, and a presumptuous diagnosis of rabies was made, and also inoculations have been instituted upon some guinea pigs and rabbits, for the purpose of making a conclusive diagnosis. The dog attacked seventeen persons (from about 6 P.M., to 10 P.M., when he was finally killed); eleven of whom had the flesh broken to a greater or less degree. The scare here has not abated and the destruction of canines is progressing steadily. Feeling that the subject is one of general interest, I am prompted to call attention to these cases so that you may, if possible, give us some special information in our *JOURNAL*.

Respectfully and fraternally,

BALDWIN B. SCOTT, M.D.

Cleft Uvula—(Case of Dr. Foster).

LOS ANGELES, CAL., Dec. 13, 1894.

To the Editor:—The *JOURNAL* of December 8 contains the report of an interesting case of cleft uvula, by Dr. Hal Foster, of Kansas City. I say, cleft uvula, because it is a case of cleft uvula rather than double uvula. I have a similar, if not identical case, in a boy of 12 years, a native Cal-

ifornian. There is nothing in his voice to indicate the anomaly, neither is there any interference with deglutition.

I can not believe the cleft in Dr. Foster's case has anything in particular to do with phonation, as the "fine" voice of his patient is in contrast with a rather coarse voice in my patient. The cleft is also complete in my case and does not involve other tissues or organs. The two rather long appendages frequently adhere but oftener separate and are carried outward and upward, until they are applied to the lower border of the soft palate on either side. Excision, or amputation of both appendages in each case will probably be best on account of titillation.

It has been suggested that the vermiform appendix was made for the benefit of the doctors, and the same may be said (with our existing knowledge of its office) of the uvula, though I can not quite agree with many in the complete ablation of the uvula for slight causes or elongation. Remove the elongated portion and if it elongates operate as often as indicated. While cleft palate is quite common, complete cleft of the uvula is comparatively rare,

Very truly yours

J. H. DAVISSON, M.D.

PUBLIC HEALTH.

Decreasing Death Rate of Stockholm.—Dr. Klas Linroth, of Stockholm, has recently published some interesting demographic tables of that city, the most remarkable of which is that showing the following diminution of mortality during the last thirty-four years:

| Years. | Deaths. | Population. | Deaths per 1,000. |
|--------|---------|-------------|-------------------|
| 1860 | 3,390 | 112,391 | 30.16 |
| 1870 | 4,037 | 135,598 | 30.22 |
| 1880 | 4,697 | 162,436 | 28.79 |
| 1890 | 4,699 | 228,218 | 20.60 |
| 1893 | 4,840 | 249,246 | 19.42 |

Incredible Mortality Rate of "Croup."—St. Louis is not the only American city in which vital statistics are made a farce by the carelessness, indifference, or worse, of physicians in certifying to the causes of death. But just now the Health Commissioner, Dr. George Homan, is reported to be indignant over what is styled "the persistent efforts of doctors to conceal the true cause of death when it is diphtheria." Added to this is a laxity in notifying the Department of existing cases of the disease. This is common in all large cities, and will probably remain so until there is some common-sense, equitable provision for securing the notification of contagious diseases. How farcical vital statistics, based upon the present system of returns, may be made, is shown by some of the tables in Dr. Homan's last report—that for the year ended March 31, 1894. Thus, in "Table 1. Record of Communicable Diseases," the total number of cases of diphtheria reported to the Department is 509; total number of deaths, 198—giving a mortality rate of 38.9 per cent. In the adjoining columns are given the total number of cases of "croup" reported—216, with 133 deaths, a mortality rate of 61.5 per cent! Dr. Homan wisely omits to state the mortality rates of these diseases, but gives the naked figures and leaves the reader to draw his own conclusions, which, certainly, can not be flattering to the diagnostic ability of the profession except at the expense of its therapeutic skill.

Shall Membranous Croup be made Reportable to Boards of Health?—The New York City Board of Health has for some months past required the reporting of cases of true croup. Dr. Emery the Commissioner of Health of Brooklyn, has recently, December 1, issued an order making the same requirement. Before taking this step all the larger medical societies were addressed regarding this subject, and he received from those societies replies sufficiently favorable to make him feel safe in making a regulation, as indicated in the following:

"By virtue of the authority conferred on me by Section 5 of the Sanitary Ordinances of the City of Brooklyn, and in conformity with the unanimous expression of the principal medical organizations of this city, I hereby notify you that true or membranous croup has been added to the list of diseases to be reported to this Department. I take this occasion to call your attention once more to the culture stations established in various parts of the city, and to request that in all cases of diphtheria and croup, you will either make cultures yourself or allow an Inspector of this Department to do so. When bacteriologic examinations of these cultures demonstrate the absence of Klebs-Löffler bacilli, school permits will be issued previous to the expiration of the ordinary period of exclusion. In order to limit as far as possible the spread of diphtheria, it is urgently recommended that the very poor, who can not afford to pay for medical attention and are unable properly to isolate patients, should be advised to take advantage of the desire of this Department to care for all such cases at the Kingston Avenue (or City Contagious Disease) Hospital. Free transportation will be furnished and in the immediate future the antitoxin treatment will be employed. For the latter reason it is important that the cases should reach the hospital at the earliest possible period of the disease."

Sanitary Observations during a Voyage to Arabia.—Dr. Justyn Karlinsky, a government physician of Bosnia and Herzegovina, detailed to visit Arabia, furnishes a summary of his sanitary observations to *Annales d'Hygiene*. A large number of pilgrims from these quasi-Turkish provinces yearly visit Mecca and, consequently, can easily bring back infectious diseases from the extreme Orient—to prevent which the authorities have taken energetic measures. Dr. Karlinsky arrived in Jeddah at the end of June. The city, surrounded by a high wall, has no aqueduct or other water supply save that brought in on camels' backs and stored in small cisterns. The climate is very hot and dangerous to Europeans. Part of the port has become a marsh through seepage from the canal. The pariah dogs are relied upon to act as scavengers, devouring offal, carcasses of animals, etc. The number of pilgrims annually varies between 80,000 and 500,000. According to Dr. Chaffy, the Egyptian delegate, the deaths from cholera during the last invasion were 10,000, which Karlinsky believes below the reality. There was not enough assistance to carry the sick to the hospitals or bury the dead. In one week there were 60,000 pilgrims in Jeddah. Heaps of corpses were left lying on the sand for days before being buried in it. One of the most crying evils was the embarkation, the ship agents speculating on the throng until the Turkish Government was forced to step in and fix the price of passage. The author embarked with fifty-seven others on an old vessel which already had 1,100 pilgrims on board. Before sailing there had been seven deaths and thirty-three more occurred on the voyage, twenty-seven of them due to cholera. The ship's papers were garbled, so that on their arrival at El-Cor, in spite of the yellow flag, synonymous with quarantine and epidemics, these papers mentioned only seven deaths, all due to natural causes. Another defect is the absence of baths; in the ritual ablutions the pilgrims bathe only their faces, hands and feet; during their sojourn in Jeddah they have no occasion to bathe, and the scarcity of water on shipboard renders a complete cleansing impossible. Many of the pilgrims are covered with abscesses, boils and sores. During their stay in quarantine they sleep on the sand, the temperature of which is much lowered at night; hence chills, rheumatism and bronchial catarrh are rife among them. Dr. Karlinsky thinks that the international measures taken to prevent the introduction of cholera into Europe still leave much to be desired.

Demography of Japan.—The following synopsis of a report made by Dr. Nagayo Sensai, Director of the Central Sanitary Bureau at Tokio, to the Minister of the Interior, possesses a timely interest. This report, which is published in full in the *Journal d'Hygiene*, covers the year 1890—the twenty-third year of the Meigi—but has only recently been made public. Under the heading, "Movement of the Population," the following figures are given: Births, 1,145,174

(61,536 less than in 1889), a natality rate of 28.15 per 1,000, or, on the total population of 40,688,000, one birth to 35.53 inhabitants; the natality rate for the decade 1881-1890 was 26.17. Deaths, 821,043, a rate of 20.18 per 1,000; the highest rate, 28.07, was in Osaka Fu, the lowest, 16.35, in Hakodadi; among the causes of death, affections of the digestive tract lead the list, with 193,690 deaths; diseases of the respiratory apparatus rank next, with 137,699 deaths, and infectious and contagious diseases third, with 78,583 deaths.

Physicians, midwives and druggists: The number of physicians in 1890 was 40,215, or a little over 1,000 of population to each physician; of these, 5,593 were authorized to practice upon passing examination, 1,340 upon the diploma of the Imperial University, 1,356 upon the diplomas of local medical schools, 19 upon foreign medical diplomas, and the remainder were engaged in practice before the reform of the laws on the practice of medicine. The number of licensed midwives in 1890 was 828, of whom 218 were licensed during the year; in 1880 there were only 274 midwives and 457 in 1888. There were 2,689 pharmacists in 1890, of whom 142 were graduates of the University, and the remainder had passed the old examinations; there were also 10,390 druggists and 1,201 manufacturers of chemic and pharmaceutical products.

Surveillance of prostitution: The total number of domiciliary visits in 1890 was 1,401,226, as appears from the following table:

| Years. | No. of Places. | Daily Average of Prostitutes. | Number of Visits and Examinations. | | | | Proportion of Diseased and Healthy. Per cent. | |
|--------|----------------|-------------------------------|------------------------------------|----------------|--------------------|--------|---|----------|
| | | | Total Number Visits. | Found Healthy. | Cases of Syphilis. | | Diseased. | Healthy. |
| | | | | | True. | False. | | |
| 1886 | 469 | 21,462 | 1,101,278 | 1,064,271 | 6,254 | 30,748 | 3.36 | 96.64 |
| 1888 | 464 | 32,465 | 1,247,269 | 1,199,767 | 10,857 | 37,145 | 3.81 | 96.19 |
| 1890 | 469 | 31,091 | 1,401,226 | 1,356,526 | 7,769 | 36,931 | 3.19 | 96.81 |

The cases of true syphilis diminished in 1890; the average daily number of prostitutes showed an increase of 1,394 over the year 1889; in two provinces, Wakayama and Okinawa, there were no visits, as no women of this class were found there.

Diphtheria and the Antitoxin.—During the recent Conference of State Boards of Health in Washington, the delegates visited, by invitation, the laboratory of the Marine-Hospital Service where Passed Assistant Surgeon J. J. Kinyoun, U. S. M.-H. S., gave an interesting and instructive *résumé* of the development of the blood-serum therapy of the infectious diseases, with especial reference to the antitoxin treatment of diphtheria. The demonstration was fully illustrated by an exhibit of the appliances in use at the Pasteur Institute in Paris under Professor Roux and a description of the technique there employed in the preparation of the toxin, the immunization of the animal and development in its blood of the antitoxin, and the subsequent clinical application of the remedy, together with the results of his own observations of the treatment of cases in the Paris Hospital for Sick Children. He had been enabled to watch these cases from the time they entered the hospital until their death or recovery; had noted everything that had been done; had maintained a critical attitude and sought sedulously for any flaws in the statistics. At the end of a month of assiduous study, he had arrived at the conclusion that the claims made for the antitoxin treatment of diphtheria were abundantly justified and that "we have in the serum the almost absolute preventive of epidemics of diphtheria"—that "the treatment was past the experimental stage and will in the future be reckoned in value for diphtheria as vaccine is for the prevention of smallpox."

In recounting the origin and development of the discovery of the bactericidal properties of the blood, Surgeon Kinyoun took occasion to refer to the claims of Dr. Nutall to an important share in the honors. Dr. G. H. F. Nutall, now assistant in the Hygienic Institute of Berlin, is an American

to whom the Harvard Medical School awarded the Boylston prize for original research while at the Johns Hopkins University; subsequently, while studying under Professor Flügge at Breslau and Gottingen in 1887-8, he made certain laboratory researches which enabled him to demonstrate that the normal blood of various animals possesses bactericidal properties and he made the results of these researches the subject of a thesis, published, it is said, in 1889.

It is announced that the laboratory of the Marine-Hospital Service is now open to a limited number of duly accredited representatives of State or local boards of health who may wish to familiarize themselves with the subject of the diphtheria antitoxin as demonstrated by Passed Assistant Surgeon Kinyoun.

ASSOCIATION NEWS.

The Baltimore Meeting.—The Committee of Arrangements met on December 14, at the new Hotel Stafford which has been selected by the committee as the headquarters of the Association. In the absence of Dr. Chisolm, Dr. Wm. Osler occupied the chair. The organization was completed by electing Dr. T. A. Ashby, Treasurer of the committee.

The Secretary read the following appointments to subcommittees which had been made by the Acting Chairman:

On Ways and Means, Drs. T. A. Ashby, H. P. C. Wilson, Thos. Opie.

On Places of Meeting, Drs. I. E. Atkinson, J. N. Mackenzie, Jno. G. Jay.

On Entertainment, Drs. Rob't W. Johnson, Henry M. Hurd.

On Registration, Drs. J. Edwin Michael, J. Fussell Martenet.

On Hotel Accommodation, Drs. Wm. A. Moale, M. W. Foster.

On Transportation, Drs. T. S. Latimer, L. McLane Tiffany.

On Reception, Drs. S. C. Chew, W. H. Welch, John Morris, Alan P. Smith.

On Printing, Drs. W. A. B. Sellman, B. Merrill Hopkinson.

Appointments for the Committee on Exhibits have not yet been made. For the present, applications for space can be made to the Secretary at Hotel Stafford, Baltimore. It is requested that all official communications to the committee be made to the Secretary as above. Secretaries of sections are requested to send as early as practicable a copy of the titles of papers to be read before their sections. Preliminary reports from the chairmen of the various subcommittees indicate a widespread interest in the coming meeting on the part of the profession of the city. The Committee on Entertainment expects to be able soon to announce the preparations for entertaining the visiting members of the Association. It is hoped that the various section dinners be given on the evening of the first day of the meeting, in order not to conflict with arrangements for the general entertainments.

GEORGE H. ROHÉ, Secretary.

SOCIETY NEWS.

Peoria (Ill.) Medical Society.—A regular meeting of the Peoria, (Ill.) Medical Society was held December 4.

Appointments.—Dr. H. C. Emerson, of Springfield, Mass., has been appointed assistant physician in the New Hampshire Hospital for the Insane at Concord.

The Eastern Shore Medical Society, Va., met at Eastville, Va., December 7. Dr. E. W. Robertson, of Onancock, Va., presided. The meeting was one of interest and the attendance was large.

The Syracuse Academy of Medicine held its annual meeting for the election of officers December 4, as follows: President, Dr. Alfred Mercer; Vice-Presidents, Drs. John Van Duyn and Ely Vandewarker; Secretary, Dr. T. E. Halstead.

Higher Medical Education.—At a meeting of the Faculty of the Barnes Medical College, held December 3, the following resolution was adopted:

WHEREAS, It is the announced purpose of the Faculty of the Barnes Medical College, to aid in advancing the standard of medical education; therefore be it

Resolved, That the Barnes Medical College declines to recognize the degrees of Ph. G., D. D. S. or V. S., as the equivalent of any part of the requirements for graduation adopted by said College.

Banquet of the College of Physicians and Surgeons.—The Faculty of the College of Physicians and Surgeons, of Chicago, held a banquet at the Grand Pacific Hotel, December 13. Dr. D. A. K. Steele was toast-master in the absence of Dr. J. A. Benson. Dr. Binkley responded to the toast of "The Spring Faculty," and Dr. T. A. Davis to "The West Side Free Dispensary." Dr. Wm. E. Quine, "Our College." In the course of his speech, Dr. Quine made the announcement that the committee appointed by the Trustees of the University of Illinois to investigate and report upon the expediency of having a medical department of the University, had reported in favor of having such a department, and recommended the College of Physicians and Surgeons as that department, provided that institution could be obtained at a reasonable price. It is said that the appropriation to be asked for is \$160,000.

At a joint banquet held at the Union League Club, Dec. 18, the arrangement is said to have been consummated, so far as can be done without legislative enactment.

The Chicago Ophthalmological and Otological Society.—Regular meeting held at Saratoga Hotel, November 13, Dr. Hotz in chair. There were thirty members and visitors in attendance.

The minutes of the last meeting were read and approved. Dr. THOS. FAITH was elected a member.

The Secretary read the applications of Drs. Mary Hollister, Paul Guilford and E. F. Garvin for membership, and the same were referred to the Committee on Membership.

Dr. OAKS showed a case of ulcer of the upper lid. The patient was a boy of 15, who had been struck with a stick in left eye about three months ago. Since that time the eye has been red, but there is no pain or irritation; slight mucopurulent discharge. On everting the upper lid, an ulcer about fifteen millimeters in diameter is seen near the outer canthus. There are no symptoms or history of syphilis. Dr. Starkey suggested it might be syphilis, but Dr. Holmes thought that the absence of any other syphilitic symptoms was against the diagnosis, and suggested tubercle.

Dr. BETTMAN showed a case of pterygium operated upon two weeks ago by "subvoluton" method. He also showed a man of 47 who three months ago could only count fingers in each eye at ten feet. The right lens was triturated and became opaque. It was removed three weeks ago. V. now equals 20-25.

Dr. WILDER showed a case of recurrent iritis with opaque membrane over pupil. Large blood vessels could be seen running over the iris and the membrane was covered with loops of small vessels.

Dr. STARKEY showed an opaque metal cylinder for argand burner. A movable outside cylinder containing different-sized holes fitted over this, and the amount of light could be regulated by moving the outer cylinder.

Dr. MEYER, of Kankakee, read an essay on "Modern Views of the Architecture of the Nervous System," showing many drawings of nerve tissue.

The Society adjourned by limitation.

C. P. PINCKARD, Secretary.

103 State Street.

NECROLOGY.

JOHN W. PINKHAM, M.D., died December 7, at Montclair, New Jersey, at which place had been passed his entire professional life. He was a native of Gardiner, Maine, and a graduate in arts at the Haverford College. He studied medicine at the Bellevue Hospital Medical College, graduating in 1866. He was one of the founders of Mountinside Hospital, opened in 1891, of which he was the sole consulting

physician at the time of his decease. He was a busy practitioner but found time to use his pen, oftentimes his subject being of a sanitary trend; such was his contribution to the "Household Practice of Medicine," and his address in 1884, before the New Jersey Sanitary Association. His subject at that time was the introduction of subsoil drainage of excreta, as a method of sewerage for suburban places. His death took place unexpectedly from cerebral hemorrhage.

EDWARD H. VAN WINKLE, M.D., of New York City, died December 7, nearly 80 years of age. He had been fifty-eight years in the profession.—William A. Morton, M.D., of Liberty, Mo., December 10, aged 72.—O. P. Geer, M.D., of Alloway, N. Y., December 7, aged 84.—Warren A. Knapp, M.D., of Pottstown, Pa., December 8, aged 30.—C. H. Butler, M.D., of Columbus, Ind., December 12, aged 78.

I. BERNARD BRINTON, M.D., died in Philadelphia December 6. He was born in New Hope, Pa., August 16, 1835, and was appointed a surgeon in the regular army at the outbreak of the war, and was Medical Purveyor of the Army of the Potomac under General Meade. He founded the Botanical Club of Philadelphia, and was a member of the Academy of Natural Sciences, of that city.

MISCELLANY.

License Fee for Transients.—By a recent act of the city council of Muscatine, Iowa, transient physicians attempting to practice in that city will be charged a license fee of \$25 per day.

Bacteriology at St. Petersburg.—A professorship of infectious diseases and bacteriology, with an infectious disease clinic attached thereto, is to be established at the Military Medical Academy of St. Petersburg. The clinic will be equivalent to a small hospital, since fifty beds will be put at the command of the professor.

Changes of Address.—Dr. Chas. G. Cannady to 112½ S. Jefferson Street, Roanoke, Va.—Dr. Walter Lindley to 524 South Main Street, Los Angeles, Cal. He has been elected to the chair of gynecology in the Medical College of the University of Southern California.—*American Journal of Insanity.* The office of publication of this journal has been changed from Utica, N. Y., to Chicago, 34 Washington Street.

Intestinal Antiseptic.—Paraform, according to Aronsohn (*Jour. der Pharm. v. Elsass-Loth.*) is a very strong intestinal antiseptic, superior to B-naphthol, iodoform, salol, dermatol and benzonaphthol, and having a marked inhibitory action on the propagation of bacilli. Paraform is a solid, white crystalline polymer, produced by heating formaldehyde in watery solution. One grain is said to be capable of completely sterilizing 200 grammes of urine.

Tuberculosis in a Lioness.—Strauss reports (*Archiv. Med. Exper.*) the necropsy of a lioness, 5 years old, which had been progressively emaciating for seven months. Both lungs were strewn with nodules, apparently fibrous; on section these proved to be small cavities, varying from the size of a pea to that of a large nut; the inner walls of these cavities were very smooth and studded here and there with grayish granulations; these lesions were developed in a surrounding interstitial sclerosis. The lungs presented a type of fibroid phthisis. Bacilli were found on the surfaces of the cavities. The localization in the lungs exclusively proved inoculation by the air passages.

Inter-State Commerce Commission.—The annual report of the Inter-State Commerce Commission has the following in regard to safety appliances on railway equipment: The "Commission calls further attention to the legislative enactment requiring the application of automatic couplers and other appliances on the locomotives and cars of the railways, and gives figures showing to what extent equipment had been fitted with such appliances up to June 30, 1893. It is stated that all new cars ordered by the railways are being supplied with automatic couplers, and a large proportion with air-

brakes. The accidents of the year show little decrease on account of the use of automatic couplers, and such a result is not expected until more uniformity in such appliances has been attained."

The Holy Coat of Argenteuil.—At the request of Monseigneur Goux, Bishop of Versailles, the famous seamless Coat, preserved as a relic in the church of Argenteuil, has been examined by MM. Lafon and Roussel, scientific experts, for the purpose of determining the exact nature of the spots on the garment, which, according to tradition, are the blood of Christ. The experts report, after describing the tests employed, that—"From the portion of the Coat marked with rust-colored spots we obtained: 1, a faint green coloration with tincture of guaiacum and essence of turpentine; 2, the revival of the red globules of blood with the artificial serum; 3, the formation of crystals of hemin or of chlorohydrate of hematin. These indications are sufficient to enable us to affirm that the spots examined are actually due to blood—and to human blood. Judging by the whole of our analysis we presume that this blood is very old."

An American Physician at the Korean Battlefields.—Dr. Wm. J. Hall, with two other Americans, was enabled to visit the battlefield of Pyong-Yang, in Korea. In this fight about twenty-four thousand troops were engaged, and the Chinese loss was very heavy. These Americans were too late for the battle, but rendered services to the wounded in the hospitals. Dr. Hall was also called upon to visit, in consultation with the Japanese surgeons, one of the generals of the Japanese army, who had been wounded. Dr. Hall is 35 years old, and a native of Canada. He was educated at the Queen's University at Toronto, Ontario, after which time he took up his residence in New York City with the design of fitting himself for work as a medical missionary in the far East. He identified himself with the work among the poor, as carried on by the International Medical Mission School, and in the year 1889 took his medical degree at Bellevue Hospital College. He has been in Korea since the winter of 1891, part of the time at Seoul and part at Pyong-Yang, near the place where the battle was recently fought.

Skiascopic Examination of School-Children's Eyes.—Nels and Diederichs (*Leipzig, Archiv. für Angenh.*, xxix, 1) have examined the eyes of 1,875 scholars aged from six to fourteen years. Ametropia was determined by the right image. The average of emmetropia was from 30 to 34 per cent.; of myopia from 18 to 21 per cent.; of astigmatism 12 to 13 and of hypermetropia 13 per cent. The number of myopes progressively increased from the lower to the higher classes; the number of hypermetropes, on the contrary, diminished, and in less considerable proportions; thus, while myopia increased from 15 per cent. to 26, hypermetropia decreased only from 51 to 39 per cent. The number of anisometropes was considerable; of 422 myopes 241 were anisometropic, and in these the right eye showed a marked degree of myopia in 55.1 per cent. of the cases. These figures seem to confirm the opinion of Sulzer, who found that in myopia of unequal degrees in the two eyes the right eye is the most affected, because children habitually turn the head to the right. But if the same inquiry be pursued in hypermetropia it is found that the right eye is the shorter in 51 per cent. Evidently there is no relation here to the inclination of the head.

Deep Well Pollution.—The useful lesson that the mere depth of a well does not necessarily afford evidence of the purity of its water, is furnished in the history of a well near Edinburgh, bored to a depth of 294 feet from the surface. The well was sunk at the site of a spring, 800 feet from a quarry which received the sewage of some twenty-five individuals—the sewage disappearing, as is believed, into fissures in the rock. At a depth of 114 feet the water was found to be

pure, but when the well was subsequently bored to an additional depth of 180 feet it was found to contain organic impurity. This additional boring had pierced an impermeable bed above which the water was pure, but below it the sewage had found its way through rock fissures from the quarry 800 feet distant and 60 feet higher. The source of pollution of the deeper water supply was made clear by bacteriologic examination; the cracks and fissures had allowed the sewage to pass in an almost unaltered condition, so that the bacteria discovered were not materially modified in their morphologic and biologic characters, as would have been the case had the sewage been subjected to the usual processes of filtration and aeration. The case is, also, cited by Dr. Houston, in the *Edinburgh Medical Journal*, as another argument for the necessity of combining the bacteriologic with the chemic examination of suspected water supplies.

New Theory of Seasickness.—The most generally accepted theory of the causation of seasickness is that which attributes it to an influence on the circulation of the cerebral cortex produced by the oscillation of the ship, thus accounting for the gastric symptoms. This will not, however, explain all cases of naupathia. Rubenstein has often observed that symptoms of *mal de mer*—for instance, paleness of the face, and especially of the lips—develop in some persons when the sea is calm and the vessel moves without oscillation. In these cases he concludes that the cause of the malady is the irritation of the retina caused by the solar rays reflected from the water. This irritation, transmitted to the brain, provokes the well-known symptoms. It is, therefore, well not to look at the water. *Mal de mer* is observed also on snow fields, on the sands of the desert and of the seashore. Under these conditions, gray or blue spectacles afford relief. The author (*Rev. Int. Med. et Chir.*) observed a hysterical female who had retinal hyperesthesia and on sunny days experienced scintillations, photophobia, nausea and vomiting. These symptoms were not produced if the back was turned to the sun. This hypothesis explains why the most nervous and hysterical women are most subject to naupathia. Rubenstein calls the attention of ships' surgeons to this observation and concludes with a play of words: "*Die Seekrankheit reducirt sich für manche Fälle auf eine Sehkrankheit.*"

Pathologic Relations between the Teeth and the Eyes.—Led thereto by his observation of a number of patients, with obstinate ocular affections which rapidly disappeared when a coexistent dental affection was treated, Courtaix concludes (*Rev. Int. de Med. et Chir. Prat.*), after a consideration of the anatomic and physiologic relations between the eyes and the teeth, that there exists a genuine pathologic relation between these organs. Some affections of the eye provoke such violent odontalgia as to lead to suspicion of caries, and thus to a useless sacrifice. Dental troubles may, on the other hand, cause varied symptoms in the eyes; among these are caries, alveolo-dental periostitis, alveolar suppuration, inflammation of the maxillary sinus or of the orbital cellular tissue, malposition of the wisdom tooth, foreign bodies in carious cavities, or poorly-fitted prosthetic appliances. Whenever painful or inflammatory conditions of the eye from unknown causes occur and resist usual treatment, when there is suppression or diminution of visual acuity which can not be explained by ophthalmoscopic examination, by changes in intra-ocular tension or by cerebral complications—in all these cases the teeth should be carefully examined and if any lesions are discovered appropriate treatment at once instituted. These ocular symptoms are usually transient and disappear when their cause is removed. In some cases, however, especially if the causes have been too long neglected, grave consequences ensue.

Abandonment of Fort Mackinac, Mich.—Fort Mackinac, one of the recently abandoned military posts, was so isolated that probably few medical officers of the Army will regret being deprived of the possibility of serving a four years' term of duty within its walls. It is true that of late one could reach a railroad station on the mainland at St. Ignace on

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ORIGINAL ARTICLES.

EXPLANATION AND DEMONSTRATION OF THE INFILTRATION (SCHLEICH) METHOD OF ANESTHESIA—PRE- LIMINARY PAPER—WITH TEN ILLUSTRATIONS.

Read before the Milwaukee Medical Society, Nov. 27, 1894.

BY H. V. WÜRDEMANN, M.D.

MILWAUKEE, WIS.

[Your attention is invited to a subject which from the humanitarian standpoint is of the greatest importance and of practical value to us as surgeons. Much of the effort of our profession is directed toward the relief or prevention of pain. Distinct advances in our art followed the introduction of the various narcotics, and the science of surgery took a long step forward when the use of sulphuric ether for anesthesia was discovered Sept. 30, 1846, by Dr. Wm. T. G. Morton, of Wellesley, Mass., and chloroform by Sir James Simpson, of Edinburgh, on Nov. 4, 1847; and these names will ever live in our memory.

But the great boon of narcosis is not unalloyed. Thousands have died from the effects of the volatile anesthetics, and every time we administer them we take upon ourselves the responsibility of a human life. Ether kills once in 15,000 administrations; chloroform once in 3,000.¹ In November, 1894, Dr. Karl Koller, a student in Arlt's clinic of Vienna, first demonstrated the practical value of cocaine,² and we hailed with gladness the promises made by subsequent investigators that the hypodermatic injection of this remedy would do away with the administration of ether or chloroform for all external surgery at least. The cases of intoxication and the fatalities attendant upon the hypodermatic injection of this drug have so discredited the method that many of its former advocates have practically given it up. A personal experience of several hundred cases has been unattended by fatalities although it has not been entirely satisfactory. Administered in this manner it is even four times as fatal as chloroform.

The local anesthesia produced by the application of this drug in ophthalmic and nasal surgery has revolutionized these branches and will probably never be superseded by other modes. The freezing methods are applicable to but a limited number of surface operations, and the plastic healing is not always so good as is desirable. The application of ether, ethylchlorid or rhigolene in spray is somewhat painful and their effect is evanescent. Dread of the pain to be inflicted by the surgeon's knife or of the dangers attendant upon general narcosis or cocaine injection keeps many a patient from a necessary operation until absolutely forced to consult a surgeon; as we daily have occasion to observe, he frequently waits so long that a primarily minor affair needs at last a formidable operation.

Within the last year the results of experiments and operations done in Germany have developed the surprising fact that endermatic injections and infiltration of the various tissues of the human body with water alone or with solutions of indifferent substances afford a practical anesthesia. In the early part of this year my friend, Dr. Casey A. Wood, of Chicago, called my attention to a letter he had received from Dr. Cholewa, of Berlin, who was enthusiastic over a new method of anesthesia, and had been personally operated upon by its discoverer, Dr. Schleich, who had then done 521 operations. Shortly afterward Dr. Wood published portions of this letter in the form of an article in the

OF THE AMERICAN MEDICAL ASSOCIATION, May 26, 1894;³ but as the directions therein were not explicit it has apparently not yet been used in this country.

In July, 1894, at the German Congress of Surgeons, Schleich presented the results of his labors (some three thousand operations) which shortly afterward appeared in book form. I ran across this monograph on "Schmerzlose Operationen,"⁴ and with some little diffidence began his line of experiments, the results of which I will detail later. The opportunities afforded me in special practice are not sufficiently great to permit of the corroboration of all his statements as regards general surgical procedures, so I bring the subject before you in the hope that you will try it in your work and further develop the usefulness of the method.

Schleich presents his claims so well that I have concluded to give them in the form of a translation, from parts of his brochure, which I am enabled to afford you by the aid of Dr. Gustave Kautzheim and which I have abridged for the purposes of this article.]

WHAT DO WE UNDERSTAND BY "INFILTRATION" AND
"ARTIFICIAL" EDEMA?

"Liebrieck's experiments in the production of local anesthesia have proven that subcutaneous injections of various substances will produce a loss of conduction of the sensitive nerves after a transient irritation, without allowing us to class them as anesthetics in the sense of producing a regional, purely narcotic and local anesthesia. In spite of the fact that anesthesia could be produced by destruction, colliquation, necrosis, or corrosion of the tissues infiltrated by chemically active substances, the prodromal pain was such that nobody conceived the idea of using this method for practical use in anesthesia. The greater number of these experiments was made subcutaneously on the skin and mucous membranes of animals. The problems to be unriddled were, however, of such a nature that only experiments on man would solve them, although Liebrieck strongly discountenanced such trials by one of his pupils. In fact, one such experiment (with ammonia) was attended by dire effect.

"In order to obtain positive results in the production of physiologic anesthesia, which could only be produced by injection experiments upon man, I (Schleich) tried them upon myself and my assistants. First of all we had to abandon the method (usually followed in cocaine injections—H.V.W.) of obtaining regional anesthesia by formation of a depot in the subcutaneous tissue, and having the effect carried thence outward to the cutis and inward to the deeper tissues. The subcutaneous cellular tissue is of itself not very sensitive and there was the possibility that the drug employed acted as an anesthetic without this action spreading along the nerve trunks. We might have subcutaneous without cutaneous anesthesia. Consequently we chose our own skin for the trials, particularly the very sensitive portion of the left fore-arm. I am greatly indebted to my colleagues for freely granted opportunities to repeat and

NOTE.—The illustrations accompanying this article are reproduced from Schleich's "Schmerzlose Operationen."

¹ H. C. Wood, *Therapeutics*, 1888.

² *Wien. Med. Wochenschr.* Nov. 1881.

³ Cholewa, on "Local Anesthesia Produced by Intra-cutaneous Injections," *JOURNAL AMERICAN MEDICAL ASSOCIATION*, May 26, 1894.

⁴ "Schleich Schmerzlose Operationen," Berlin, 1894.

verify my results upon their arms. We first tested the sensibility of an endermatic wheal produced by the injection of a few drops of fluid.

"If we inserted a Pravaz needle flatly under the epidermis, so to speak under the papillæ, and pass it intra-cutaneously until the lumen is fully inserted and then inject a few drops, we produce a white, strongly elevated wheal. (See Figs. 1 and 2.)

"This wheal, which can be increased in extent as far as we wish by renewed punctures within the raised area, is the test object for the anesthesia, paresthesia and hyperesthesia which may be produced by the contact of the fluid. By means of these wheals, we are able to measure exactly the alteration of sensibility produced. This manner of testing has the advantage that we are able to transfer the results obtained to all other tissues, as the skin, with its highly developed sensory organs furnishes a field for particularly accurate observations. The results were certainly applicable to other tissues, as the periosteum, fascias, muscles, the mucous and serous membranes.

"Our first attempt was to determine the lower limit of activity of cocain, as it was desirable to be able to dilute the usual 4 per cent. to 5 per cent. solutions without abolishing the anesthetic action. As with solutions of 5 per cent. we would administer the maximum dose in one to five syringes full we would be compelled to exceed the maximum dose and

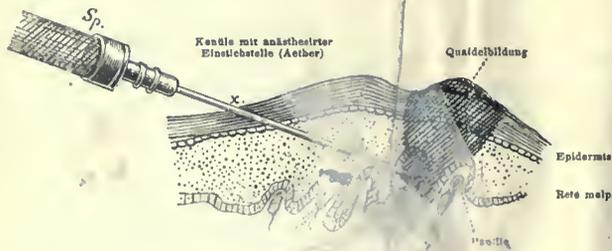


FIG. 1.—Diagram of a section of the skin, showing formation of the first wheal.

thus impress upon the method the objection of great danger, or restrict its use to a small number of trivial operations. The testing of the wheals by the use of cocain solutions below 1 per cent. gave the surprising result that 0.02 per cent. solution produced a complete anesthesia of the infiltrated area without the production of pain during the injection.^{4A}

"Immediately beside the white raised wheal which resembles a mosquito bite, complete sensibility with no reduction of sensation was found; 0.02 cocain to 100 parts aq. dest. is the weakest solution by which we can produce anesthesia without prodromal hyperesthesia. This infinitely small quantity of cocain (0.0002^{4B} to a syringeful, 0.000.001 to a single puncture) suggested the use of distilled water. It was found that this produced quite severe pain during the formation of the wheal, but later caused complete anesthesia throughout the extent of the infiltration. This proved that aq. dest. belonged to the class of *anesthetica dolorosa*, as surmised by Liebrich from experiments on animals. Water causes the same phenomenon not only in animals, as stated by Liebrich, but also in men as we have seen. Practically, this was of no importance, as the pain of injection is so severe that it can hardly be controlled by accessory methods such as the use of the ether spray. (Deep injections of cold water have been used for several years in sci-

atica as a local anesthetic with alleged benefit.—H. V. W.) With the aid of the ether spray, I performed several small operations by this method, but my experiments soon took a different direction.

"We soon found that physiologic salt solution of 0.6 per cent. caused a wheal without changing the sensibility of the skin. *There was no pain during or after the injection but there was no anesthesia.* We surmised that between pure water and 0.6 per cent., NaCl solution we would find a concentration which would admit of painless infiltration and later on account of its resemblance to pure water produce anesthesia. In fact, an 0.2 per cent. solution of salt produces during infiltration but a very trivial feeling of tension, with perhaps a little itching (paresthesia) but after a short time the area of the wheal is anesthetic, as if the solution had contained cocain. This solution is a practical anesthetic, and by its use I excised from the neck of Dr. Bergmann a nævus of the size of a 50-cent piece and united the skin with five stitches without producing the least pain. This solution of 0.2 per cent. salt is the vehicle of all my anesthetic fluids. It is the essential new basis of my method. To my great surprise I found that the lower limit of activity of cocain (0.02 to 100) could be reduced one-half if the salt were dissolved in this solution and in this concentration (0.01 to 100) it was perfectly active. Further trials with stronger salt solutions (over 3 per cent. or 4 per cent., showed that such liquids caused considerable burning and even hyperesthesia in the infiltrated tissues. Even stronger solutions of cocain (4 per cent. to 5 per cent.) will produce burning at first, followed later by anesthesia.

"Thus we find for cocain as for salt, three distinct zones of activity. With salt we find that in a concentration of 0.2 per cent. very slight paresthesia with succeeding anesthesia is produced; a concentration of 0.6 per cent. produces neither paresthesia or anesthesia but in the strength of 3 per cent. or 4 per cent. it produces distinct paresthesia. With cocain we find that a solution containing 0.01 per cent. causes, at first, paresthesia and then anesthesia; one containing from .02 per cent. to 2 per cent. is purely anesthetic, while above this its action resembles that of the *anesthetica dolorosa*. Similar results were obtained with numerous other remedies; thus morphin in the strength of 0.1 per cent. is an excellent pure anesthetic without paresthetic action. This, in spite of the dictum of the text-books that morphin has no local action, a statement which would not have been made if its endermatic action had been tried before. *In fact, the discovery of these truths, so valuable for the questions of local anesthesia, is due simply to a slight change of method, the application of the drug within and not under the skin.* In the strength of 1 to 1000 in water or 0.2 per cent. salt solution, morphin is a very useful anesthetic. Below this strength its action is irritative; in stronger solutions of 3 per cent. to 4 per cent. it causes burning and then anesthesia. Solutions of sugar (3 per cent.); bromid of potassium (8 per cent.); methyl-violet (1 per cent.) and caffeine (2 per cent.) are also pure anesthetics; above and below this strength they have an irritative action on the nerve elements. Carbolic solutions of 0.2 per cent. to 1 per cent. have a purely anesthetic action with the wheals. Two per cent. to 5 per cent. solutions cause smarting. We are convinced that a number of other bodies will be found to have an anesthetic action and possibly future discoveries

^{4A} In this abridged translation I have taken the liberty of italicizing certain important statements.

^{4B} Continental Pravaz syringe.

may have a great influence upon the method. However, the facts already demonstrated have enabled us to develop the method of local anesthesia to a considerable degree and to forever remove the objection of possible danger. With this achievement the method has reached a stage in which it enters into direct rivalry to general narcosis. The use of cocain, morphin, or carbolic acid in such great dilutions that a very large number of syringesful (100, 250, 500) would be required to reach the maximum dose permits us to perform extensive operations without using a dangerous quantity of these drugs. It is incontrovertibly proven that anesthesia can be produced by solutions of cocain of the proportion of 1 to 5 grams in 1 liter of water or of 1 to 5 grams in 10 liters of a two-tenths of 1 per cent. salt solution.

"We must not lose sight of the cardinal fact that the anesthesia exists only within the area infiltrated by these solutions and that outside of that, normal sensation exists. So that our method rests mainly on the principle of a complete artificial edema of the field of operation. The experimental facts teach us that the anesthetic action is not wholly due to the narcotic properties of the drug employed. The physiologic salt solution is too similar to the tissue juices to produce any alteration within the tissues. But a slight change in its concentration is needed to cause its anesthetic action. Even pathologic edema would produce anesthesia if instead of 0.6 per cent. it contained but 0.3 per cent. or 0.2 per cent. of salt. Conversely, by the use of 0.2 per cent. solution of salt I am able to produce an artificial edema which causes anesthesia of the edematous part. The variation of the quantity of salt contained in the liquid is not the only factor.

"Experiments have shown that in this and in all other anesthetics, other factors besides a chemic difference are at work. If the skin and cellular tissue be edematized under considerable pressure the entire area becomes ischemic. Not a drop of blood exudes from the cut surface. This of itself has a tendency to obtund sensibility. Besides this the tissues are under a much greater pressure than normally, by means of which a direct compression of the nervous elements is obtained. In the third place the difference in temperature, if the solution be of the temperature of the room, assists in reducing sensibility. All our dilute solutions lost their anesthetic power wholly or in part, at or above body heat, and showed decidedly increased activity when used cold. (0. degree Cent., or 32 degrees Fah.) To these predisposing and accessory factors the direct chemic alteration of the nerve elements by the narcotic drug is superadded.

"It has been asked why we use the narcotic drugs at all; why the 0.2 per cent. salt solution is not used alone, if it will produce anesthesia as we claim. The salt solution is sufficient for all those cases in which we operate wholly within healthy tissues, although this is but rarely the case in operation. We have always to deal with pathologic changes by which the normal sensibilities are more or less increased. Even if the one-third strength physiologic salt solution will cause anesthesia of normal tissues it will not do so in hyperesthetic areas. The tenderness is occasionally so intense over inflamed tissues that the symptoms evince the presence of mechanical pressure; anemia and difference in temperature will not suffice to abolish the increased nervous function. Here we require the direct coöperation of the narcotic poisons

and for this reason I believe that it will be difficult to use physiologically-indifferent remedies alone. However, as I have proven that cocain, morphin and carbolic acid are active in solutions *which are several hundred times weaker than those in common use*, it is possible to keep the doses necessary for the compensation of hyperesthetic nervous action absolutely below the poisonous limit. The strongest solutions which are used, and then only in the severest cases, contain only 0.2 per cent. cocain and 0.025 per cent. morphin, so that fully thirty syringesful of this absolutely anesthetizing solution is the maximum dose. We will see, however, that (for any operation?) at most ten syringesful of this solution are required (doses of 0.02 and 0.01) and in a manner radically different from their administration in a single dose. We shall further see that hardly one-third of this liquid is absorbed and we will prove by the history of our cases that among three thousand patients operated upon, not one showed the least symptom of intoxication. For the most cases a solution of 0.01 per cent. of cocain or morphin is required and in extremely rare cases as much as one hundred syringesful of this solution might be administered without evil effect. There is always a possibility that we may be able to reduce the dose to one-half or even one-fifth, long before this number is reached. The manner in which this is to be done will be detailed further on.

"The reasons why I combine morphin with cocain in my solutions and why I add a few drops of 5 per cent. carbolic solution to the 0.2 per cent. solution are these: I have found that infiltration of pure cocain solution in inflamed tissues in some cases causes pain before the occurrence of the anesthesia, especially in phlegmonous tissues where there is considerable hyperesthesia of the parts. This circumstance renders the method useless in the few cases in which it might be used if this drawback could be abolished. It must be remarked that this occurred in cases which owing to the size and extent of the operation lay well toward the limit of its availability. This trouble was, to our great surprise, almost entirely obviated by the addition of morphin to the cocain-salt solution.

"In the second place it could not be denied that occasionally the pain occurring after operation in inflamed tissues seemed to be stronger when pure cocain was used than after chloroform. Although a small dose of morphin removed the sequelæ of the operation very promptly, I was for a long time afraid that this circumstance would seriously interfere with the popularity of the method. To my great satisfaction I found that this combination thoroughly removed the objection. In many hundred cases I have found that the pain after operation with the use of the combined cocain-morphin-NaCl anesthetic is decidedly less than that after chloroform. On this account the solution I now use contains 0.025 per cent. morphin.

"The objection to the former methods of local anesthesia, the painfulness of the puncture, is obviated by the use of the ether spray upon the skin. (The ether spray need not be pushed to absolute freezing, as a moderate degree of chilling sufficiently diminishes the sensibility.—H. V. W.) or the application of a drop of carbolic acid or strong cocain solution upon the mucous membranes, and the use of a very fine needle. Then follows infiltration of the tissues; at first of the skin or mucous membrane by the formation of a line of adjoining wheals which

corresponds to the direction of the incision; deeper down everything is infiltrated that we wish to reach by operation. No part is to be operated upon until the artificial edema is complete.

“Only the edematous region is anesthetic. The anesthesia is caused by the anemia, the compression, and the cooling. The pain of the infiltration of indifferent solutions is abolished by the minute doses of narcotic drugs (morphin, cocain and carbolic acid.) Anesthesia occurs at the moment of the completion of the artificial edema. The action need not be waited for. It occurs at once.”

“This method of combined infiltration-anesthesia has great advantages over the old methods of cocain anesthesia. I refer to this particularly, as it has been frequently stated that my method was nothing absolutely new. Even if this be so, it is a matter of indifference whether a method be old or new, so long as it be good, but there is certainly a difference between using a 2 to 5 per cent. solution of a drug or solutions containing from 1 to 5 parts per 1000 and the latter of which show vastly greater eligibility and usefulness. The injection methods in use up to this time were even theoretically dangerous and very limited in application; numerous cases of intoxication discredited them; deaths have been recorded, and on this account the old injection methods could not be substituted for general narcosis, as they share its gravest objection.”

FORMULÆ, ETC.

The formulæ advocated by Dr. Schleich are as follows:

- | | | | |
|----|--|-----|-----------|
| R. | Cocain mur. | 20 | gr. iiij. |
| | Morph. mur. | 025 | gr. ¼. |
| | Natr. chlor. | 20 | gr. iiij. |
| | Aq. dest. ad. | 100 | ʒ iij. |
| M. | Sterilisat. adde. sol. ac. carbol. 5 per cent., gtt. ij. | | |
| S. | Solution No. 1, strong. For operation upon highly inflamed or hyperesthetic areas. | | |
| R. | Cocain mur. | 10 | gr. jss. |
| | Morph. mur. | 025 | gr. ¼. |
| | Natr. chlor. | 20 | gr. iiij. |
| | Aq. dest. ad. | 100 | ʒ iij. |
| M. | Sterilisat. adde. sol. ac. carbol. 5 per cent., gtt. ij. | | |
| S. | Solution No. 2, medium. For most operations. | | |
| R. | Cocain mur. | 01 | gr. 1-6 |
| | Morph. mur. | 005 | gr. 1-12 |
| | Natr. chlor. | 20 | gr. iiij. |
| | Aq. dest. ad. | 100 | ʒ iij. |
| M. | Sterilisat. adde sol. ac. carbol. 5 per cent., gtt. ij. | | |
| S. | Solution No. 3, weak. For superficial operations upon nearly normal tissues. | | |

All are to be kept strictly sterile; scorched cotton stoppers such as are used in bacteriologic experiments for the bottles; small quantities to be poured out in a smaller vessel for each operation. Just before operation the solution should be cooled by laying the bottle containing it on ice, and kept cold during the operation. The syringe should likewise be cooled. The common form of hypodermatic syringe with the finest of needles is all that is usually needed, although Schleich depicts in one place (see Fig. 8) a long curved needle. The former is kept in good order by being frequently soaked in a 5 per cent. carbolic solution, and the needles sterilized after each operation.

TECHNIQUE OF OPERATION UNDER INFILTRATION ANESTHESIA—INCISION OF THE SKIN.

“After thoroughly scrubbing, shaving and otherwise preparing the field of operation, we begin with the induction of anesthesia for the first puncture of the needle. (By use of the very fine needles of American make this preliminary procedure is practically un-

called for, as a fine sharp needle is scarcely felt when introduced even through the whole thickness of the skin of very hyperesthetic persons.—H. V. W.) Upon the skin this is done by means of a spray of ether, ethyl-chlorid (rhigolene, etc.) Upon mucous membranes we must apply a drop of 10 per cent. carbolic solution or cocain. The spray is directed to the point at which we desire to begin the anesthesia (it being, as a general rule, more convenient to proceed in a direction from the operator), until a slight discoloration of the skin appears. The needle is then inserted and pushed in parallel to the surface, until its beveled edge is covered. A slight pressure is then made upon the piston. A white wheal, the beginning cutaneous edema, appears at the puncture of the needle. (See Figs. 1 and 2.) This is increased to the size of a dime by continued pressure on the piston.

“The needle is moved and re-inserted at the periphery of the wheal, but still within it, and a new wheal raised. In this way the line of incision is marked out to any length desired. As soon as the line has reached the required length, we may use the knife, or we may prefer to infiltrate the deeper tissues through the skin. If the operation is to be a short one (not over twenty minutes) we may make the infiltration broad enough to include the line of sutures. In anesthetizing the subcutaneous tissue, I

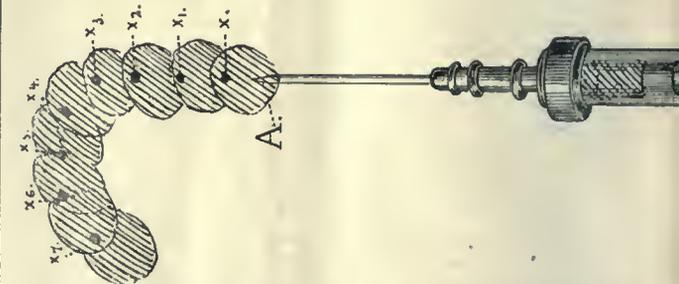


FIG. 2.—Formation of the cutaneous wheals. A. Spot made anesthetic by ether spray for the first injection.

allow a syringe full to three to four centimeters of length, so that the syringe may be at once emptied; even the fasciæ and muscles may be edematized through the skin. The entire field of operation appears as a high, tense, circumscribed edema projecting beyond the level of the skin. Whenever we wish to operate with exact anesthesia, the field of operation must be tensely filled with the solutions, so that it exudes from the cut surface.

INFILTRATION OF THE DEEPER TISSUES.

“Wherever the subcutaneous tissue is loose and easily distensible, infiltration is easy and requires but little pressure; as over the malleoli and condyles, in the scrotum, labia, eyelids, on the backs of the hands; in short, in the regions where pathologic edema first shows itself. Stronger pressure is required where the parts are dense and hard, as in the sole and palm, in cicatricial tissue, the matrix of the nails, and in the hard palate. It is advisable not to anesthetize deeper than into the superficial muscles through the skin, except in cases where the deepest tissue sought for lies superficially, as over bony projections, in the scalp, over the clavicle and sternum. By slowly pushing in the needle until we feel the bone in these cases, we may even anesthetize the periosteum.

“No tissue offers any deviation from the dictum:

Every tissue is anesthetic that can be artificially edematized by our solutions. This holds good for skin and mucous membrane, periosteum, synovial membrane, fascia, muscle, lymph glands, nerves, viscera, and even bone. The latter becomes anesthetic as far as its periosteum is infiltrated because its nerve supply is derived from the periosteum, and because we can infiltrate the medulla by subperiosteal injection. Of this we have been able to convince ourselves many times. The bone whose periosteum has been infiltrated in its whole circumference may be divided by saw or forceps without causing any sensation. Within the area of the periosteal infiltration we may hammer, chisel, break or burn; the patient notices nothing but the noises caused thereby (except vibration? H. V. W.) and if we close his ears, he knows nothing of it. This will be better understood when we find, as we did in every case, that the marrow was infiltrated. As all the nervous elements are surrounded by the anesthetizing fluid, they must be anesthetic. In inflammatory bone diseases (osteomyelitis) it is often advisable to chisel a small hole into the compact layer and through this to infiltrate the marrow.

"If, during the operation, we reach larger nerve trunks, they may be anesthetized for a short time by touching them with 5 per cent. carbolic acid, or by injecting them with the same if we do not care to

included. In longer operations we may form wheals from below the cut edge of the skin, at the places in which we wish to insert the needle. (See Fig. 4b.) For deep sutures the same rule is applicable.

HEMOSTASIS.

"In general, it may be remarked that hemorrhage in fully infiltrated tissues is minimal; bleeding points are caught with forceps and tied as usual. It occasionally happens that nerve twigs accompanying arteries cause pain during the moment of compression. In such cases the spot should be touched with a 5 per cent. carbolic solution before cleansing the forceps. This will usually cause enough superficial anesthesia. If not we will have to produce a circumscribed infiltration in the neighborhood. In operations upon mucous membranes in which the technique is identical with that described, the primary anesthesia is produced by touching the selected

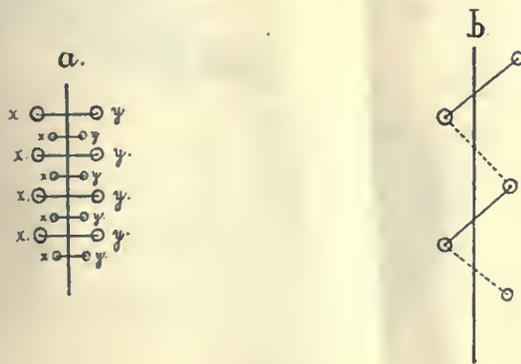


FIG. 3.—Sutures.

infiltrate the surroundings. After incision, in all cases, the incision should be kept open by gentle and steady traction and the infiltration cautiously pushed into the depths of the wound. In amputations the nerve trunks must be anesthetized separately. Operation in non-anesthetic areas is due to personal want of skill or a lack of understanding of the principle of the method which, if properly used, in regions where it can be technically executed can not fail but must lead to an often astoundingly brilliant result. The operator must ever keep in mind that when pain occurs it is a sign of insufficient edematization. It is a personal error to cause a patient pain with this method, wherever infiltration is technically possible.

SUTURES.

"It must be especially noted that the anesthetization of a given point lasts ten to twenty minutes. If during an operation we come to a tissue which was anesthetized more than twenty minutes before, the infiltration must be repeated. In this way we can operate for hours. For instance, new wheals will have to be produced at the point of entrance and exit of the sutures if the operation has lasted more than twenty minutes. (See Fig. 3.)

"For short operations it is advantageous to anesthetize the skin so broadly that the suture line is

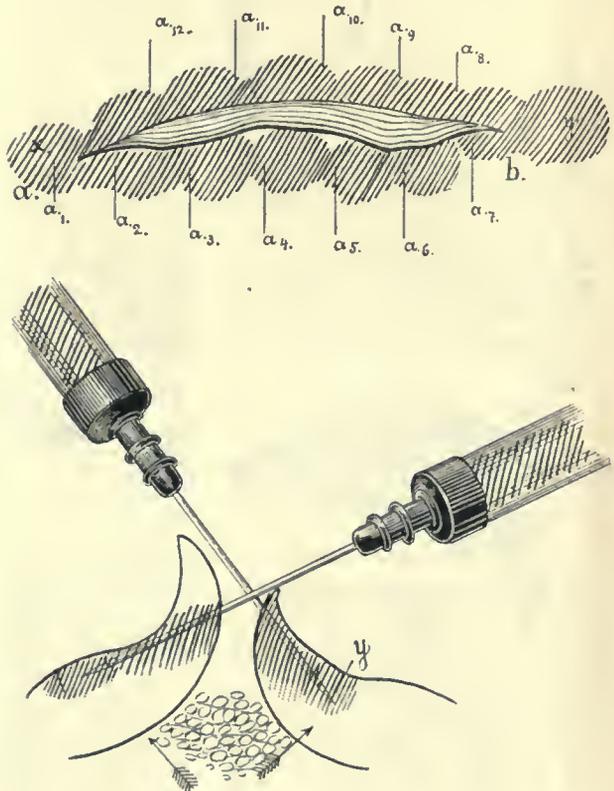


FIG. 4 A. FIG. 4 B. Secondary anesthetization of cut surfaces.

spot with a concentrated solution of carbolic acid or cocain. This is very readily done as it is much easier to insert a fine needle under the epithelium than into the skin. As soon as the first wheal is formed the rest is simple.

INFLAMED PARTS.

"There is, *a priori*, a very great difference between the anesthetization of a part with normal sensation and one with pathologically increased sensibility. In the latter case, the inflammatory hyperesthesia requires some deviation from the general rules of technique given. It is, however, indubitable that even the extreme hyperesthesia of inflammation is abolished by the artificial edema in our methods. As soon as infiltration is complete, pain during operation is excluded. But it is indispensable for the attainment of this object that the infiltration be begun in sound tissues at a distance from the inflamed

focus. (See Fig. 5.) We begin as far from it as practicable (several centimeters) with the ordinary cutaneous anesthesia (ether spray and skin puncture) and then push the needle obliquely through the skin, into the subcutaneous tissue, toward the inflamed focus, injecting slowly a syringeful of solution, being careful to keep the fluid outside of the inflamed area. In this manner, four or more depots of infiltration are placed about the inflamed part and then the cutis may be infiltrated completely around it. (See Fig. 6.)

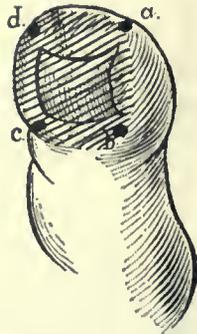


FIG. 5.—Infiltration for ingrowing toe-nail.

The inflamed skin with its dilated blood and lymph channels may be much easier and more widely infiltrated than sound skin. Especially in highly inflamed and swollen skin are we enabled to anesthetize quite a large spot from one puncture, and we may clearly observe the red color recede before the white zone of infiltration. At the same time we find

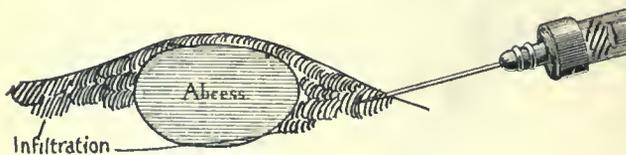


FIG. 6.—Infiltration of abscess.

that the fluid spreads easier in some directions than in others, especially between the spots of infiltration first made. The patient will be able to inform us exactly when the pain is still felt. The injection must be done at first very slowly. When, however, the point has been reached where the infiltration is only felt by its tension, we may rapidly flood the part to the required extent. In this way I usually

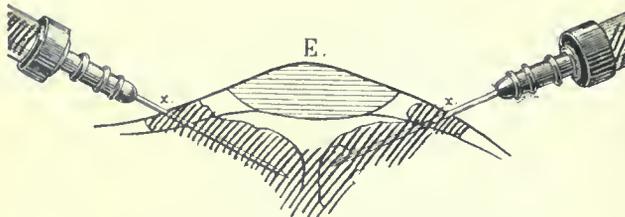


FIG. 7.—Infiltration of inflamed surfaces.

treat furuncles and carbuncles. If incision only is required, matters are much simpler. A straight or crucial line of infiltration is made and the knife used. If desired, the deeper parts can then be anesthetized.

“Under no circumstances must fluid ever be primarily injected into an abscess, an exudation or a pathologic focus. The only result is increased tension, which may be quite painful. Where an ab-

cess (deep?) exists or is suspected, it is better to first anesthetize the skin, incise it, to infiltrate further and make a minute incision to evacuate the pus and after this to complete the infiltration and operation. The most important rule in inflammatory cases is: Never begin the infiltration in an inflamed area or abscess, but surround it and advance upon it from all sides *via* the sound skin. (See Fig. 7.) In these cases we first use Solution 1, and when the infiltration causes no more pain, Solutions 2 and 3.

“In chronically inflamed tissues, especially when sclerosed or cicatrized, Solution 1 is needed, if the formation of neuromata renders the tissues more sensitive. In such tissues considerable pressure is necessary; in one case of mammary scirrhus, I was unable to inject a single drop into the tissue. Here the usefulness of the method reaches its limits, as in all cases where infiltration can not be done anesthesia does not result. These cases are extremely rare, even, compared to the cases in which narcosis is contra-indicated or in which it fails.”

In looking up the literature⁵ of the subject, by reference to the Index Medicus, I can find but the one article by Cholewa before mentioned. It is safe to surmise that this method has not yet been taken

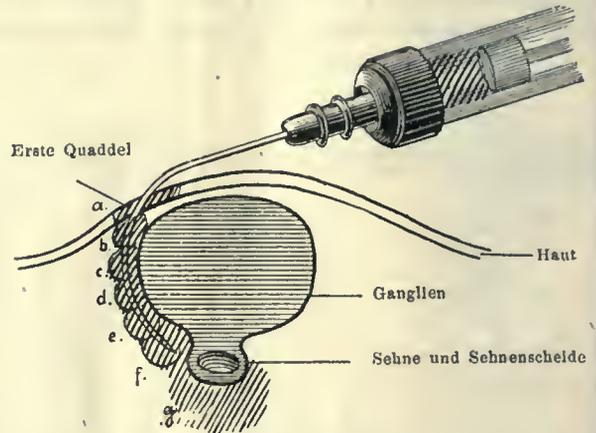


FIG. 8.—Tumors.

up in this country and that we are first in the field of American surgery to present our views in corroboration of his statements.

I began following out Schleich's line of experiments; at first trying his stronger solution (No. 1) and following directions carefully, was surprised to find that the second prick of the needle was not felt and after building the line of wheals along my forearm, I pricked and cut the skin afterward, weaving a suture needle in and out without the slightest sensation. I injected the various fluids into my own flesh many times before trying them on others. The thanks of the author are due to Drs. Barnes, Hitz, Hosmer and others together with some of my patients, for the use of their bodies in proving the anesthetic nature of these fluids.

My first operation was done upon my children's governess who had a deep felon on the index finger of the right hand, in which I made a free incision down to the bone without the slightest pain from the knife after the injection of the solution of medium strength (No. 2). After the anesthetic effect had passed away, the after-pain was less than would be expected and healing was perfect. I next evacuated an

⁵ In the Med. Record, Nov. 24, 1884, there is a brief note, the author of which is apparently not conversant with the subject.

abscess of the lid without pain, removed a papilloma from the inner canthus, opened another abscess of the upper eyelid which was extremely sensitive to palpation, without the patient perceiving the cut of the knife, and feeling the curettement as but a sensation of scratching; opened a painful stye and a number of other minor operations of like nature.

On detailing my experience to Dr. A. J. Burgess he was much interested in the method and desired to have a small growth removed from his own axilla, which Dr. F. E. Walbridge and I did, putting in four stitches without causing our patient a twinge. He then went about his usual work, using the arm freely. This was a sebaceous cyst, about the size of the first joint of a man's thumb. A circumstance which may militate against the method, should it happen in any proportion of cases was that, when the stitches were removed one week afterward, it was found that the wound had not yet healed, although there was no sign of infection. If I remember rightly, healing in the neighborhood of the armpit sometimes goes on very slowly. The demonstration to these surgeons was sufficient to warrant them in trying the procedure in their own practice and, accordingly, the next day Dr. Burgess called me in consultation at the Presbyterian Hospital, over a circumcision in an old man (with cardiac lesion) a former patient of mine. After I made the injections Dr. Burgess proceeded

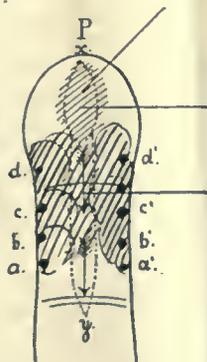


FIG. 9.—Infiltration of foreskin.

with the operation, Dr. Stanton Allen being present. The patient being talkative, was conversing about another subject while Dr. Burgess cut off his foreskin and sewed up the divided edges of mucous membrane and skin. Not the least twinge of pain occurred during the whole operation, which lasted fully twenty minutes. The effect on us was certainly conclusive, and we thought that we should not hesitate to try the method on an amputation or other major operation.

Later, Dr. Burgess excised an epithelioma with local anesthesia by this method from the face of an old lady who had been once before operated upon under cocain-anesthesia and who had refused further operation if it was to be used, as she had suffered from pain during the previous operation. The effect was here favorable and I understood that she remarked, when told that if it recurred, the growth should be removed: "If you don't hurt me any more than you did this time, Doctor, you may come up every day and operate if necessary."

Dr. Burgess did a clamp and Paquelin cauterization operation on a patient of mine, after I had infiltrated the parts with the solution of medium strength. The patient felt the heat on the surrounding parts and

only once during the operation when the third pile was seared away did he complain of any amount of pain. What did occur, I think could have been avoided by first cutting off the piles and then searing the stumps with the cautery instead of burning it all away.

Dr. Thos. Hay removed an epithelioma of the nose of the size of a quarter of a dollar, and put in three stitches after I had injected the No. 2 fluid, in an old man in whom general anesthesia would have been contra-indicated. Dr. K. Morris was present at the operation. When the man was asked in regard to his sensations he remarked during the curetting of the base, "that it felt as if one were scratching on the outside of his old leather boot." Only recently I took a patient of Dr. Thos. Hay, with a crushed toe, the result of a football injury. After injection with Solution No. 2, a knife was passed under the nail to the root and pus evacuated without sensation. I understand that Dr. Shimonek has done a couple of operations by this or a similar method.

I have done other cutting operations that would have caused pain which was entirely prevented and healing has properly progressed in all. Schleich claims that he and his colleagues have made 3,000 operations by this method, and it seems to me that it will certainly not only drive the hypodermatic injection of cocain and the freezing methods of anesthe-

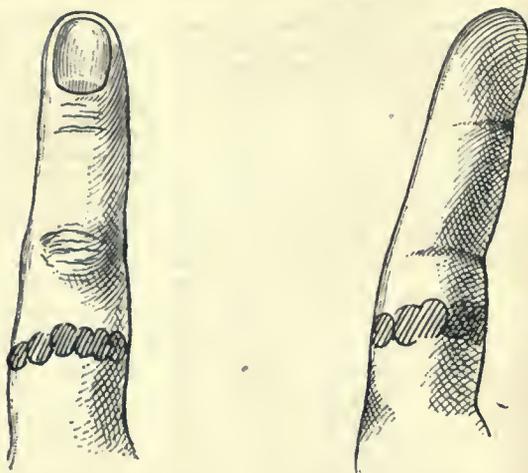


FIG. 10.—Infiltration for amputation of the finger.

sia from the field, but replace general narcosis for at least 75 per cent. of the operations for which it is now given.

There are, certainly, cases in which edematization of the tissues is impossible as heretofore noted, as in some cases where much handling or tension of the parts is necessary, as in most abdominal or pelvic operations, and in others it may not be advisable to have the patient consulting with the surgeon during the operation. Likewise when edematization would interfere with the nicety of the surgeon's work, as in some plastic operations, in ophthalmic surgery as relates to the eyeball, nasal surgery, etc., it is not to be recommended.

But the vast majority of cutting operations for which the surgeon is consulted, some gynecologic and rectal work, the greater number of plastic operations, abscesses, tumors and minor amputations, may be done by the method. According to Schleich, all operations should be done in this manner and he has given up general anesthesia entirely.

If by further trial, his statements be fully verified and the method becomes generally known, the fear of

the knife will go and the deaths from anesthesia will be fewer, as general narcosis will be employed for only the most formidable operations.

805 Grand Avenue.

DISCUSSION.

DR. WÜRDEMANN then demonstrated the technique of the method and the existence of absolute anesthesia therefrom, by injecting the skin of the fore-arm with the weaker solutions (Nos. 2 and 3), on several of the members of the society. A line of wheals was first made in the skin and then a large spear-pointed needle woven in and out of the whole thickness. This demonstration satisfactorily proved the painlessness of the procedure.

DR. BURGESS opened the discussion by saying that he had felt absolutely no pain during the operation on himself and that he could not account for the slow healing in his own case, except that the solution might not have been sterile although he said that now the stitches had been removed the wound was entirely healed. He described the operation for piles and attributed the pain that was felt to the heat on the surrounding parts. In the case of epithelioma and the circumcision, the operation and healing had been in every way satisfactory.

DR. SHIMONEK spoke of reading the article by Cholewa, in the JOURNAL, and of trying the method afterward. As the directions in the article were not explicit, he had mixed up a solution containing a fraction of a grain of cocain to the ounce and had operated upon an epithelioma of the face and upon a case of external piles (cutting operation) without causing pain, and healing had gone on normally. He asked Dr. Würdemann why it was that the skin just outside of the areas injected was in these cases apparently anesthetic.

DR. NOLTE desired to know if the solutions could be sterilized after being made up.

DR. KAUMHEIMER stated that on reading Schleich's brochure he found that Merck's cocain and morphin were stated to be perfectly sterile, and that he was much impressed with this method of anesthesia, although he had not yet an opportunity to try it in his practice. He stated that the pile clamp used in the operation done by Dr. Burgess reduced the edema of the tissues, allowing the return of some sensation.

DR. MERENESS wished to know if the application of a rubber ligature in amputations done by anesthesia of this method, would prove of service, as if ischemic, the tissues would more readily be edematized and the resultant enema would have a tendency to diminish sensation.

DR. WÜRDEMANN, in closing, said: That our experience was not yet sufficient to make a final judgment as to the application of the method or its disadvantages, and that he had brought the subject before the society on account of its novelty and promise of usefulness, in order to interest the many surgeons present to make a trial of the same in their own practice, beginning with minor operations and applying the same to more serious cases as they acquired confidence.

DR. SHIMONEK had apparently used a stronger solution of cocain than any advocated by Schleich, and had thus established narcotic depots in the site of his injections from which the surrounding tissues had been rendered anesthetic. Dr. Kaumheimer's reasons for the pain in the operation done by Dr. Burgess were substantial, as the clamp certainly squeezed the solution out of the tissues. Dr. Burgess had used a metal clamp from which for some reason the non-conducting plate had been removed and which had become quite hot, necessitating its cooling during the operation. He had also burnt away the whole substance of the piles without cutting. A change in the technique of the operation by which the instruments and surrounding tissues would not become heated would obviate this disadvantage. As much care should be taken of the solutions as is used in bacteriologic work and they should be sterilized by heat each time the bottles are opened. The slight amount of extra care involved would save many septic operations. The liability of sepsis would be the principal objection to the method by unskilful hands, as it was evident that this condition would be more likely to result if an impure fluid was infiltrated into the tissues than if only brought in contact with their cut surface by unclean hands, etc. He had brought the subject up as a statement of fact and had left it in the hands of the society with the recommendation for trial of the same in their own practice.

DR. FRIEND then moved that a vote of thanks be tendered the author and assistant for the preparation of the paper, which was carried.

ADDENDA.

Since writing the foregoing, our experience of in-

filtration anesthesia has been widened by a number of operations. While in Chicago December 2, through the kindness of Dr. J. B. Hamilton I was enabled to demonstrate this method upon several trying cases at the U. S. Marine Hospital. These were three cases of phimosis, the results of chancre and chancroid in which the foreskins could not be retracted sufficiently to expose the glans and permit of proper injection of the mucous membrane. After infiltration of the skin the dorsum was slit by scissors and the foreskin held by forceps and then cut off by the scissors, a number of stitches being afterwards taken. In the first case, the slitting of the foreskin was painful, as the mucous membrane had not been anesthetized and as I had unwittingly made several subcutaneous injections there was too much edema of the tissues which interfered with proper placing of the stitches. In the second case the surgeon endeavored to make the injections himself, but owing to inexperience with the technique of endermatic injection did not succeed in properly infiltrating the parts. He then determined to complete the operation without anesthesia "for contrast" and to get rid of the element of suggestion. This operation was done amid the yells of our patient. On the third case we were able to properly inject the structures; the only time that the patient showed that he experienced pain was when the dorsum was cut and at the first prick of the injection needle. In this case, the resultant edema did not interfere with the proper placing of the stitches. On the whole, the superior efficacy of this form of anesthesia over that given by general narcosis, was satisfactorily demonstrated. Since, I have used the method in one operation for ectropion and in several minor procedures. December 20, I assisted Dr. John McDill in excising a chancre of dorsum of the penis, using infiltration anesthesia. The patient watched the operation and said that he had absolutely no sensation of pain. December 10, I received a letter from Dr. Hosmer, of Ashland, in which he mentioned that he had operated upon a tumor, an abscess and a case of hemorrhoids with satisfaction to both the patient and himself. Drs. Wm. and P. H. Jobse removed necrosed bone from the leg by this form of anesthesia and a number of our colleagues have had experience with the method since my exposition before the Milwaukee Medical Society Nov. 20, 1894. Dr. Casey A. Wood, of Chicago, recently demonstrated the method at the Cook County Hospital. Dr. Rumpel and others in that city have since operated by this manner.

Too great stress can not be laid upon perfection of technique, as any spots which have not been infiltrated retain their sensibility. Although I have acquired a certain degree of skill in making these injections, my own experience is not sufficient to make me perfect in this procedure. Endermatic injection is somewhat difficult and until its technique is acquired the surgeon will not have satisfaction. Even those of wide experience, like the eminent surgeon before mentioned, will have to master the details by careful application. This may be raised as an objection by some. Again, the surgeon must become accustomed to working in edematized tissues and in certain localities the resultant swelling of the parts may decidedly interfere with the delicacy of the operation. When working on mucous membranes as in circumcision it would be better to combine the infiltration of the tissues with brushing over the mucous membrane by a solution of cocain of the

ordinary strength. I trust that the profession generally will test the method upon a wider range of operations than here described and that some will soon report their experience.

TOPICAL TREATMENT OF THE AIR PASSAGES, WITH EXHIBITION OF A NEW ATOMIZING VAPORIZER.

Read at the Chicago Medical Society.

BY HOMER M. THOMAS, A.M., M.D.
CHICAGO.

The topical treatment of diseases of the air passages is a subject of much interest to the medical profession. It is fortunate that such is the case when we consider that in the disease of pulmonary consumption alone, the death rate is one in six or seven of all deaths in the United States, not even counting those which result from other diseases of the respiratory organs. This statement is not true of any other disease or diseases. Probably the mortality is due to two facts: 1, that this class of diseases is very difficult to prevent or cure; and 2; that medical research has given less attention to these specific diseases.

In presenting the subject of topical treatment of the air passages, there is no intention of claiming



that a new method or remedy has been discovered, but rather a wish to emphasize the importance of thorough local application of drugs to the affected passages. For some ten years it has seemed to me that the most rational treatment consisted in the local application of drugs to the affected part as one media of cure, not neglecting, and recognizing the importance as well, of the great value of general constitutional treatment. One difficulty which has appeared to lie in the way of the thorough application of drugs to the affected air passages has been in the unsatisfactory action and hence imperfect construction of the various atomizing inhalers furnished the profession. These instruments have either been too delicate in construction to permit the use of sufficient pressure to make a possible deep penetration of the vaporized medicament into the air passages, or become so easily clogged up with the medicament used as to create great annoyance in their use.

The instrument which I am now able to present (made for me by Truax, Greene & Company) is the result of some little time and effort spent in striving to secure an atomizing vaporizer which would

overcome the objections mentioned, and make it useful for the purpose desired. It consists of a heavy glass bottle, ten inches in length and twelve in circumference at its widest portion, narrowing at the top to a circumference of three and one-half inches. The bottle part is of very heavy glass and is tested to withstand a pressure of one hundred and twenty pounds to the square inch. The atomized vapor is produced through a tube made of German silver and heavily nickel-plated, which is nine inches in length. Three inches from the lower end are two tubes, the ends of which approximate to within one-eighth of an inch of each other. The opening of the inner tube is one-third that of the outer tube, which is one-half inch in circumference. When in use, the motive power being compressed air, varying in pressure from five to fifteen pounds to the square inch, enters the main tube, and two-thirds of it is ejected at the mouth of the inner tube, the remaining one-third passing down into the medicinal menstruum, from which it assists in forcing a solid column of the medicament to the mouth of the outer tube. The whole mass is then projected in an atomized form against the inner side of the bottle near the top, from whence it falls in rivulets to the bottom of the bottle, the residue escaping from the top through an outlet opening in the form of a very fine smoke-like vapor. A screw cap, within which is a screw thread three-quarters of an inch in length, securely anchors the top to the bottle. I have found this instrument to be strong, durable, easily cleaned, perfectly antiseptic, and to meet the requirements of this special form of medication.

The uses to which this atomizing vaporizer can be put in the topical treatment of the air passages are many. I have found it of value in the treatment of acute Schneiderianitis where there is a marked swelling of the turbinated bodies, that is, in the intumescent states without true hypertrophy. It is also valuable as a protective to the inflamed nasal surfaces after the use of strong astringent applications. As a palliative to be used after deep linear galvanocauterizations it affords marked relief. The periodical attacks of acute influenza from which so many suffer in this climate are to quite a degree alleviated by the use of topical treatment with the atomizing vaporizer. It is of slight value in the treatment of hay fever, but its use in this affection is very limited.

In follicular pharyngitis, after the diseased follicles have been punctured or removed, the covering of the inflamed surface with an oily menstruum through the media of the vaporizer affords much comfort and relief.

In acute and subacute laryngitis, where you wish to secure an alterative, astringent, or soothing application over the entire inner surface of the larynx, it will be found useful for this purpose. The most striking benefits in the use of the atomizing vaporizer are to be found in the severest cases of acute, subacute, capillary and chronic bronchitis. In those cases, where there is a tenacious, thick, yellowish, and often greenish bronchial discharge accompanied with or without dyspnea, it is quite astonishing with what success old cases of bronchitis, even complicated with emphysema, will be benefited. Beginning the inhalation in these cases, you usually have explosive coughs accompanied by the expectoration of a large amount of phlegm, the vaporized medicament appearing to loosen the secretion from its membran-

ous attachment. The phlegm, as treatment progresses, usually loses its muco-purulent character and is decreased in quantity. As a general rule you will get the most marked benefits within the first ten days or two weeks of treatment. After that the improvement is slower and finally reaches its maximum effect. This treatment will not cure completely a large proportion of cases of chronic bronchitis, but affords very marked relief, and the incurable cases appear to me to be due to the reaction following the severe and sudden changes in temperature which we so frequently have.

I see no reason why, in cases of pertussis this form of medication should not be valuable, but my experience is limited in these cases. I have found in cases of fibroid phthisis, where no bacilli could be detected in the sputa, that the deep and prolonged efforts at inspiration assist greatly in enlarging the respiratory area; that is, a vaporized medicament carried into the lungs, under a pressure of some fifteen pounds to the square inch and assisted in its ingress by the voluntary deep inspirations of the patient, assists in opening many of the closed air vesicles. The greatest success in this method of treatment will depend upon the ability of patients to inhale the medicaments deeply. It is astonishing how few patients really know how to take a deep inspiration. As a rule the inspiratory effort is limited to the supra-clavicular and infra-clavicular regions, hence the necessity of the intelligent coöperation of the patients in inspiring the inhalants. Necessarily a vapor which is principally suspended in the mouth and throat is imperfect because of the lack of inhalation. Patients describe the sensation of the vapors as extending down into the lower and deeper portions of the lungs. Occasionally, there will be experienced a sensation as of the presence of the vapors as low as the diaphragmatic line.* In my experience there can be no possible danger to the patient from the persistent, prolonged and deep inspiration of the vaporized medicaments, the manner in which I use the apparatus making it entirely voluntary, and optional with the patient how deep and prolonged the inspiratory effort is. This I consider of marked advantage, as the sensations experienced can, as a rule, be relied upon as to the desirability of prolonging or discontinuing the treatment. Laying aside for the present any considerations of the therapeutic action of the medicaments inhaled upon the air passages, I believe the chest expansion of a patient can be increased from one-half to two and one-half inches by the daily use of the inhaler. My method of using the inhaler is to take for the nasal passage a tube like this (here the speaker exhibited a tube) if it is desired to treat only one nasal passage at a time. Where you wish to treat two at the same time I make use of the double bulb, and in giving the inhalations directly through the mouth, use is made of this tube. I now desire to present for your consideration a series of experiments with the atomizing vaporizer, which were undertaken to determine how deep the vapors penetrate into the air passages.

August 12, a kitten was placed in a pine box, twenty-one inches in length, eleven inches in width, twelve inches in height, with dove-tailed seams. A half inch hole, two inches from the bottom in the lower end was made for the entrance of vapor. A half inch hole at the top of the further end of the box, two inches from the top end was allowed for the

exit of vapors. A vapor consisting of 5 per cents pure iodine in a 2 ounce solution of blandin which I believe to be simply a neutral oil, was used for the experiment. A pressure of compressed air, about nine pounds to the square inch, was used to pass through the inhaler to generate the vapor. The vapor was introduced continuously for twenty minutes; at the end of this time the kitten was removed from the box and immediately killed by an injection of 60 minims of a 3 per cent. solution of prussic acid per rectum. The respiratory tract was then removed. The starch test for the presence of iodine was then applied to the air passages with the following result: Iodine was found to be present in the mucus from the mouth, on the tongue, in the pharynx and larynx. A typical reaction was obtained of the iodine the entire length of the trachea to just below the bifurcation into the bronchial tubes. A slight iodine reaction was also found in the upper part of the larger bronchi. No presence of iodine could be found in the smaller bronchial tubes or in the air cells.

A second experiment conducted on the same day consisted of placing a dog, weight ten pounds, in the same box. A solution of 5 per cent. methyl blue in glycerin and water, equal parts, in a 2 ounce mixture of blandin failed to vaporize sufficiently to make a satisfactory experiment, as viewed upon the nasal and throat passages of the dog. Then there was substituted 5 per cent. solution of methyl blue in blandin to the former methyl blue, glycerin and water solution, which produced a better vapor, but was too liquid to vaporize satisfactorily. However, this latter solution was introduced into the box for twenty-three minutes under the same air pressure as the former experiment, at the end of which time no evidence of methyl blue could be found in the nasal passages, the throat or tongue by inspection, and it was deemed a failure as a test. I was assisted in these experiments by Dr. Adolph Gehrmann, and Dr. E. F. Wells, to whom I am under many obligations.

August 14, a third experiment was made with a kitten. A 10 per cent. solution of the trichlorid of iron in blandin was vaporized in a box for twenty minutes. The kitten was then killed by a 3 per cent. prussic acid solution introduced per rectum. A solution of ammonium sulphocyanide was then used, to determine the presence of iron salts. The result showed a marked reaction in the mouth, tongue, pharynx and larynx. No test visible on the epiglottis, trachea, bronchi or air cells. Dr. Adolph Gehrmann assisted me with this experiment.

August 14 a fourth experiment was made under the same conditions as the former ones and a ten pound dog was used. A 7½ per cent. solution of pure iodine used with blandin as a base was introduced into the box for twenty minutes. During the course of the experiment this dog was very much excited and made strenuous efforts to escape from the box, and as a consequence his respiratory efforts were greatly accelerated. At the end of twenty minutes the dog was killed with a 3 per cent. solution of prussic acid injected per rectum, and the starch solution used upon the air passages to determine the existence of iodine. This test was a very satisfactory one. There was a hypersecretion of mucus which upon test with starch showed the existence of iodine on the tongue, pharynx, larynx, trachea and larger bronchial tubes down to the medium sized bronchial tubes.

Dr. Adolph Gehrmann made a microscopic exami-

nation of the mucus which was found to contain iodine, and demonstrated its existence down to the openings of the smaller bronchial tubes.

This experiment positively demonstrated that the starch test solution was colored by iodine to the mouths of the smaller bronchial tubes. There was no evidence of iodine to be found in the pulmonary alveoli.

On August 16, I secured a dog, weighing some twelve pounds, and placed him in a box of the following dimensions: Twenty-seven and three-quarter inches long, eighteen and three-quarter inches high and twelve inches wide, inside measurement. This would make the capacity of the box equal to 6,243 $\frac{3}{4}$ cubic inches. A one-quarter inch opening was made in the middle of the top of the box for the entrance of vapor, and a one-half inch opening two inches from the bottom of each end of the box for the exit of vapors. For fifteen minutes a vapor consisting of a solution of equal parts of blandin and a saturated solution of starch was vaporized continuously in the box. During the whole progress of this experiment the dog remained very passive and quiet in the box without the slightest resistance, and in fact appeared to rather enjoy what must have been to him a novel proceeding. At the end of fifteen minutes the dog was removed, and as there was found no evidences of starch upon the air passages easy of inspection without killing the dog, it was concluded that the starch had not penetrated any considerable distance, and hence a new vaporized solution consisting of 20 per cent. solution of iodine in blandin was substituted in the vaporizer. This same dog was allowed to remain in the box twenty-three minutes, at the end of which time he was killed with a 20 per cent. solution of the cyanide of potassium introduced per rectum, 6 drachms of the solution being required to produce death, which occurred in three minutes. Upon removing the air passages, the starch test failed to show the presence of iodine anywhere except in the mouth. Also a microscopic examination of the air passages failed in showing the evidences of any penetration of the iodine. I was assisted in this experiment by Dr. C. D. Wescott and Dr. Adolph Gehrmann.

I am unable to explain the failure of this test to demonstrate the existence of the vaporized inhalant in the air passages, and I believe both Dr. Wescott and Dr. Gehrmann were equally at a loss to understand its failure, as the conditions under which the test was made appeared to be favorable for a successful demonstration. Possibly the inertness of the animal used had something to do with it, as he appeared to make no effort at deep breathing whatever.

In conclusion, it seems to me as a result of quite an extensive experience in the use of vaporized inhalants among patients, as well as in the light of the experiments upon animals quoted, that we are justified in claiming that it is possible for vaporized medicaments to penetrate the air passages as far down as the openings of the mouths of the minute bronchial tubes, and that we may reasonably expect in cases where the inhalants are used that the benefit to be derived is in proportion to the therapeutic relation that the vaporized medicaments bear to the diseased condition. I have purposely avoided any suggestions as to the use of any particular combination of drugs to be used for any given condition in the inhaler. In a general way, I would advise the selection of such combinations as are but slightly irritat-

ing to the air passages to begin with, and then as the patients become more tolerant to the action of the medicaments their strength can be increased as necessary. I have thought that in cases of pulmonary tuberculosis considerable benefit was derived by the inhalation of a 1 to 3 per cent. solution of beechwood creasote, used in solution with some neutral oil, as blandin or albolene.

The paper, as presented, I hope to be but a preliminary one to a series of more extended and extensive experiments, which will have for their purpose the demonstration of the extent and permanency to which vaporized inhalants may penetrate the air passages.

DISCUSSION.

DR. E. FLETCHER INGALS said that experiments showed that the vapor occasionally penetrates to the larger bronchial tubes, in rare instances to the finer tubes, and in the rarest instances to the smallest tubes. The topical treatment in diseases of the air passages must be confined largely to the larynx and trachea, and perhaps to some extent to the bronchial tubes. The suggestion that the remedy should be non-irritating is very important for physicians who desired to medicate patients in this way. Some benefit might be derived from the inhalation of the vapor in tuberculosis. The instrument exhibited was an excellent one, but there was a possibility of the tubes becoming clogged. This was largely true of all other instruments that had been invented.

DR. MOREAU R. BROWN had the pleasure of seeing some experiments made on dogs and other animals similar to those reported by the essayist, and the results were that the vapor did not penetrate very deeply into the bronchi. He was inclined to believe that in the human subject we can get a solution deeper into the air passages than in animals, because in man there was the power of deep inhalation and the attempt to draw the solution deep into the air passages. The ipecac treatment penetrated well into the tubes. He thought iodoform dissolved in either, deeply inhaled, would penetrate further than an iodine solution, if carried in by the globe inhaler. The only objection to the instrument exhibited was that it does not properly vaporize watery or oily solutions. This could be accomplished by the globe nebulizer.

DR. WILLIAM E. CASSELBERRY directed attention to the proper position of the head and tongue when an attempt is made to give a spray for inhalation into the air passages. This might explain the diversity in the results obtained from the numerous remedies used. Some penetrate deeply, while others did not. He was satisfied that the spray could be made to penetrate a considerable distance into the bronchial tract.

DR. NORVAL H. PIERCE directed attention to the closure of the nose. If a tube is inserted in the mouth and the patient told to breathe through it, he used the nose instead; therefore in the use of any inhaler the nose should be closed and respiration carried on through the tube. He had used the globe atomizer in forcing vapor into the middle ear in a case of otitis media, after having performed paracentesis, and there was no doubt but that the vapor had penetrated the middle ear.

THE TEETH OF OUR SCHOOL CHILDREN; WHAT CAN BE DONE TO SAVE THEM?

Read in the Section on Dental and Oral Surgery, at the Forty-fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1894.

BY J. C. McCOY, M.D.

SANTA ANA, CAL.

No doubt this question has been asked by every intelligent practitioner, as day by day he looks into the oral cavities of Young America, seeing there the almost universal dissolution of the masticatory organs. Those who live in small cities or towns and practice for all classes of society, have a better opportunity to know the condition of the teeth of the masses than does our city brother with his aristocratic patients.

A large majority of the people can not pay for

skilful operations, and their teeth must be saved in an inexpensive manner or be gradually lost before middle age, to be replaced by miserably fitting rubber dentures, with the accompanying shrunken alveola and uvula-like appendages called gums, condemned to worry through the remainder of their earthly existence feeling that nature did a poor job on their masticatory organs, or they would have lasted till old age, irrespective of ignorance and neglect from their earliest childhood. Ignorance and neglect go hand in hand, and are the cause of more diseases and of the loss of more teeth than all other causes combined.

For the past ten years my practice has been in a community that numbers among its citizens many persons of culture and refinement. Others whose exterior apportionments of life are all that could be desired, and whose children are being trained in all the arts and sciences of the day except that of cleanliness of the mouth. We have thousands of this class. I have examined and worked for hundreds of them in the past ten years. The ignorance on the part of the parents, and neglect on the part of the children who know better, is one of the wonders of the nineteenth century.

In one school of 700 pupils, 500 from 10 to 18 years of age, I distributed printed slips with the following questions: Do you cleanse your teeth with a brush every day? Do you cleanse your teeth with a brush twice a day? The teachers requested the pupils to answer the questions by writing the word yes, or no, to each question. The slips were immediately gathered up. On summing up it was ascertained that out of 500 pupils, 50 cleaned their teeth twice a day; 275 used a brush sometimes; while 175 did not own a brush. Notice, the ages were from 10 to 18. In the primary department of 200 pupils, from 6 to 10 years of age, the teachers said they did not think there were 10 children in the department who used a toothbrush.

This school is not an exceptional one in this matter, as further inquiry and investigation demonstrated. In fact its graduates take high rank at our universities, and if there is any difference, it is in advance of most schools in percentage of those who have clean mouths, as well as neat clothes and bright faces.

When there is so much neglect, and so little real care of the mouth, it is not at all strange that the sixth year molars have to be sacrificed daily, because the parents can not go to the expense of treatment to have them preserved, thinking all the time that this most valuable tooth is deciduous, and soon to be replaced by one that is bacteria proof and will last forever, in a mouth that has never been properly cleaned.

The school of 700 pupils mentioned, where only 50 made any pretense to regularly care for the teeth, shows what a field for instruction and training every teacher has. What an opportunity for philanthropy and missionary work!

Our children's teeth must be saved. Experience has taught us that it is impossible to repair the ravages of decay, except in a limited degree. Prevention through cleanliness and proper care of the teeth is the only way possible and practicable, to limit the wholesale destruction. Yes, I say limit, for even when ordinary care is used there is still room for the work of the skilful dentist.

The question before us is, What can we do to save the teeth of our school children?

American dentistry leads the world to-day, and the world justly honors us for the great advances we have made in the preservation of teeth; but the fact still confronts us that millions of teeth are annually lost in America, that need not have been sacrificed if proper care and cleanliness of the mouth had been begun in childhood and continued to manhood and womanhood.

The dentists of America, a noble and philanthropic band of 20,000, have done much to educate and train our citizens in the care of their teeth. We must do more. And at the same time in order to multiply our usefulness, we must solicit the aid of our public school teachers. With their coöperation we can reach and train millions of children.

A majority of the children of our land are in our public schools. They are under the teacher's instructions from 5 to 17 years of age. If the teachers were required to instruct and train the children in the proper care of their teeth, and to insist upon their carrying out such instructions practically at home, we would have accomplished—or at least begun—a great work. If such pupils could be trained from infancy up through all the grades to the high school, I am very sure we would see men and women with better teeth than the average American of to-day. The teachers are the only ones who can do this work. The parents of a large per cent. of the pupils are ignorant and careless almost beyond belief, and their children will follow in their footsteps, unless we dentists of America come to the rescue.

How can we bring this matter prominently before the educators of our land and secure their hearty coöperation?

I hope this ASSOCIATION will pass resolutions on the subject, indorsing the plan, and by its sanction give prominence to its importance.

Let the dental and medical press advocate it. Let each State dental association not only pass resolutions on the subject, but appoint a competent committee to arrange a manual on the subject of the care of the teeth. Let the same committee induce the State board of education to adopt such manual as a text-book to be used by teachers, and taught in our normal schools, requiring teachers to be able to pass an examination upon the contents of such manual, and then require them to carry out such instructions in their respective schools. May each one of us constitute ourselves into a special committee, to see that the spirit of this paper is carried out practically in the schools of our neighborhood.

It is not necessary for me to give more than a few hints on the subject to this body of intelligent dentists before whom I have the honor to speak. I hope to gain not only your hearty approval to this plan, but your enthusiastic coöperation, so that inside of twelve months every public school in our broad land will have begun the much needed reform of cleanliness of the teeth and mouth. So that in the future examinations of schools on the subject of oral hygiene, instead of there being only 50 out of 700 who clean their teeth regularly, we will not find 50 careless ones in 1,000.

This is a great work. We alone can do it. Let each one of us resolve to do our full share and prove ourselves philanthropists to the rising generation.

ORIGINAL INVESTIGATIONS ON THE
NATURAL HISTORY, (SYMPTOMS
AND PATHOLOGY) OF YELLOW
FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.

NEW ORLEANS, LA.

(Continued from page 948.)

CHAPTER II.

The following cases will serve to illustrate the effects of a preceding attack of malarial paroxysmal fever, upon the progress of the symptoms and pathology of yellow fever:

PATHOLOGY OF YELLOW FEVER RELATIONS TO
MALARIAL FEVER.

Case 17.—Remittent fever followed by yellow fever; patient reduced in strength and anemic before the attack of yellow fever; fatal issue; liver presented the marks of both yellow fever and malarial fever. Mark Curtis; age 22; native of Germaoy. Entered Charity Hospital, Oct. 18, 1873. Patient states that on October 3 he was seized with vomiting followed by high fever; the vomiting and fever returned every alternate day, until his entrance into the hospital. Previous to this time had been exposed to the malaria of the swamps; came to New Orleans on October 3, 1873. Has resided in America five years, and in Louisiana since October 1 of the present year.

October 18. Patient very anemic and sallow; lips bloodless; gums pale; tongue very pale and flabby, with edges indented by the teeth; pulse 92; respiration 26; temperature of axilla 101.5 degrees.

October 19, 8 A.M. Patient complains of pain in upper and lower extremities. Tongue pale, flabby and furred at the center. Patient anemic, feeble, lethargic and without appetite. Urine abundant and without albumen. Bowels not constipated. Pulse 66; respiration 22; temperature 99.5 degrees. 7 P.M., pulse 72; respiration 20; temperature 100 degrees. Tongue pale, almost as colorless as his face, and furred in the center; gums pale and bloodless; conjunctiva a light yellow, not congested. Patient complains of dizziness in his head. Has been placed under the influence of quinin and has taken about 20 grains during the day.

October 20, 8 A.M. Complains of pain in head, back and lower extremities. Presents the appearance of great anemia about the lips and face, although the surface is now somewhat congested, and the patient has high fever. Pulse 104; respiration 22; temperature of axilla 104.5 degrees; 7 P.M. Patient complains of pains in all his bones. Urine contains no albumen. Pulse 112; respiration 26; temperature of axilla 105.4 degrees. Has taken 10 grains of sulphate of quinia at 10 A.M. and at 12 M. (20 grains in all) without any apparent effect upon the fever. Ordered 20 grains of sulph. carbolate of sodium, every three hours during the night, until 60 grains are taken. Ice, brandy and carbonic acid water and iced milk.

October 21, 8 A.M. Complains of pain in head, back and extremities; capillaries of eyes and surface congested; conjunctiva and surface generally present a yellow jaundiced hue. Urine contains no albumen, light colored and abundant. Pulse 80; respiration 16; temperature of axilla 100 degrees. As there appeared to be a remission in the fever, ordered 3 grains of sulphate of quinia, every three hours, until 24 grains are taken. Continue fragments of ice, carbonic acid water and brandy and iced milk. 7 P.M., the quinin has not prevented the rise of the fever. Pain in the head and bones continues. Pulse 90; respiration 22; temperature of axilla 103.7 degrees. Continue sulpho-carbolate of sodium, ice, brandy and carbonic acid water and iced milk.

October 22, 8 A.M. Patient restless; slept not at all during the night. Complains of pain in right side in region of liver. Capillaries of surface congested, but tongue and gums anemic, great prostration, patient desponding, depressed and restless. Pulse 96; respiration 22; temperature of axilla 103 degrees. Continue sulpho-carbolate of sodium. 7 P.M. Pains in bones and extremities continue. Pulse 86; respiration 24; temperature of axilla 104 degrees.

October 23, 8 A.M., capillary congestion increasing. Complains of pain in right side; loss of appetite, nausea and restlessness. Pulse 94; respiration 23; temperature 100.9 degrees. 7 P.M., pulse 80; respiration 26; temperature 104.5 degrees.

R Quinia sulph gr. xx.

Divide into four powders; one powder every three hours October 24, 8 A. M. Capillary circulation very imperfect. When fingers are pressed upon the purplish congested surface a white mark is left into which the blood slowly returns. Conjunctiva yellow and congested. Intense jaundice. Spirits greatly depressed; restless; complains of pain in right side. Pulse, 94; respiration, 21; temperature, 100.4.

R Sulpho-carbolate of sodium 5i

Divide into three powders; one powder every three hours R Quinia sulph.; pulv. rhei ññ ʒi

Mix; divide into two powders; one powder every two hours.

7 P.M., pulse 70; respiration, 20; temperature of axilla, 102. Breath very offensive. Body emits a foul odor.

October 25, 8 A. M. Bowels constipated, breath and odor of body very foul. Complains of pain in both sides and abdomen. Epigastrium and abdomen generally very tender on pressure. Tongue, gums and lips anemic. Surface of face, trunk and extremities purplish yellow. Conjunctiva congested and very yellow. Tongue white and furred at center; large with edges indented by the teeth; this condition of the tongue is attributed to the preceding action of malaria. Urine loaded with albumen and biliary matters. Pulse 78; respiration 22; temperature of axilla 101 degrees.

R Quinia sulph.; pulv. rhei, ññ ʒi

Mix; divide into four powders. Take one powder every three hours.

Continue sulpho-carbolate of sodium with milk, brandy and ice as before.

At 7 P.M. the rhubarb has caused small action in the bowels, and the patient says that the pain in the side and bowels is much less and that he feels better. Pulse 70; respiration 19; temperature of axilla 101 degrees.

October 26, 8 A. M. Pulse 93; respiration 24; temperature of axilla 100.5 degrees. The quinin appears to have reduced the temperature, and the action on the bowels caused by the rhubarb appears to have afforded much relief. Continue sulpho-carbolate of sodium, 20 grains every four hours. 6 P. M., pulse 71; respiration 25; temperature of axilla 99.2 degrees. The patient vomited his food about 4 P. M. Continue brandy and iced milk.

October 27, 8 A.M. Pulse 72; respiration 20; temperature of the axilla 99.6 degrees. Great capillary congestion; deep jaundice, nausea and vomiting. Continue sulpho-carbolate of sodium, 7 P. M., pulse 62; respiration 18; temperature of axilla 99.2 degrees. Urine scanty and loaded with albumen casts, granular matter, excretory cell and biliary matter.

October 28, 8 A. M. Patient presents a fearful appearance; great capillary congestion, with yellow and purple surface. Yellow congested eyes, urinary excretion scant and loaded with albumen and casts. Has vomited curdled milk streaked with dark flakes. Pulse 60; respiration 16; temperature of axilla 97.2 degrees. The pulse, respiration and temperature give no indication of the extreme danger of this case. Continue sulpho-carbolate of sodium, 20 grains every three hours; ice water injection to rectum; iced milk; brandy and carbonic acid water; ice bag to epigastrium. Black vomit. Notwithstanding the occurrence of black vomit and the great capillary congestion of the surface, the tongue and gums still continue pale. 7 A. M., pulse 58; temperature 99.1 degrees. Vomiting of black vomit continues. The ice-cold enema appeared to restore the action of the kidneys temporarily. Continued to throw up black vomit during the night.

October 29. Died at 6:30 A.M.

The following table presents the relations of the pulse, respiration and temperature:

| Date. 1893. | Pulse. | | Respiration. | | Temperature. | |
|-----------------|--------|-----|--------------|----|--------------|--------|
| | M. | E. | M. | E. | M. | E. |
| Oct. 18 | | 92 | | 26 | | 101.5° |
| " 19 | 66 | 72 | 22 | 20 | 99.5° | 100.0 |
| " 20 | 104 | 112 | 22 | 26 | 104.5 | 105.4 |
| " 21 | 80 | 90 | 16 | 22 | 100.0 | 103.7 |
| " 22 | 96 | 86 | 22 | 24 | 103.0 | 101.0 |
| " 23 | 94 | 80 | 23 | 26 | 100.9 | 104.5 |
| " 24 | 94 | 70 | 21 | 20 | 100.4 | 102.0 |
| " 25 | 78 | 70 | 22 | 19 | 101.0 | 101.0 |
| " 26 | 93 | 71 | 21 | 25 | 100.5 | 99.2 |
| " 27 | 72 | 62 | 20 | 18 | 99.6 | 99.2 |
| " 28 | 60 | 68 | 16 | 20 | 97.2 | 99.1 |

Necropsy.—Three hours after death. Body still warm; weather cold and frosty; temperature of cavities of heart 97.0 degrees. There had evidently been no rise of temperature after death in this case. Ex-

terior: Deep yellow color. Conjunctiva of eyes yellow. Dependent portions of body mottled. Surface presents the appearance of great capillary congestion. Lips and gums pale and of the same color as the skin of the face. Tongue also pale and bloodless. Throughout the illness of this patient the tongue has been very pale, and I called the attention of my medical students to the effects of the preceding malarial disease, in rendering the blood watery, and in affecting the color of the tongue. The appearance of the tongue in this case was decidedly different from that of uncomplicated yellow fever.

Thorax: Recent pleuritic adhesions in the lobes of the right lung; the patient during life had complained of pain in right side, as well as in abdomen. Dependent portions of both lungs much congested. We have in this pleuritic inflammation, proof that inflammation may arise, in a system depressed by the action of the poisons of malarial and yellow fever. Heart: Cavities distended with dark fluid blood. When abstracted, the blood from the heart formed a loose voluminous soft coagulum which did not completely gather up the colored blood corpuscles. Reaction of blood neutral. Red blood corpuscles greatly diminished; colorless corpuscles very abundant. Under the microscope some of the colored corpuscles presented a crenate stellate appearance, but the vast majority were normal in appearance. After prolonged and careful microscopic examination with magnifying powers ranging from 420 to 1050 diameters, I was unable to discern any bacteria, or living animalculæ in the blood of the heart. Blood thin and watery. Serum golden colored. Muscular fibers of heart, pale and of a yellow color. Upon microscopic examination, the transverse striæ of the muscular fibrilla are to me indistinct, and granular matter and oil globules were numerous; but the amount of oil and granular matter appeared to be less than in uncomplicated cases of yellow fever. The patient was anemic and emaciated before the attack of yellow fever.

Abdominal cavity: Liver. This organ presented on the exterior a bronzed and mottled color, resembling a liver of malarial fever, which was in the early stages of fatty degeneration. The general appearance of this liver would lead the superficial observer to repeat the assertion which unfortunately has been too often made by those who have enjoyed every opportunity to crush the error, "*that there is no characteristic lesion of the liver in yellow fever, and that this disease has no pathology.*" The surface of the liver presented a mottled color of bronze and deep yellow. Many of the lobuli presented a deep yellow color, like the liver of uncomplicated yellow fever. When sections of the liver were carefully washed, the distinct deposit of yellow fever was everywhere discernible and the more deeply colored portions were chiefly in the peripheral capillary network of each lobule. Under the microscope the liver was found to be loaded with oil globules and yellow granular matter, and also with numerous masses of hematin, deposited chiefly in the peripheral system of portal capillaries. The peculiar color of the liver, therefore was clearly referable to the combined action of yellow fever and malarial fever. The presence of the pigment particles revealed the previous action of the malarial poison. Gall bladder flaccid; contained no bile, and only a small quantity, about twenty drops of a thick cream-like semi-liquid substance; which also filled and ob-

structed the gall ducts under the microscope. This was found to consist chiefly of desquamated epithelium from the mucous membrane of the gall bladder. Mucous membrane of gall bladder, thickened and intensely congested, presenting a deep red and purple color. Spleen enlarged and softer than in uncomplicated yellow fever. This organ contained much pigmentary matter.

Kidneys: Congested. When sections were made and washed, the kidney structure presented the characteristic yellow color of yellow fever. Sections with Valentine's double-bladed knife, under the microscope, presented the usual appearance of Malpighian corpuscles and tubuli uriniferi impacted with oil globules, granular matters and detached cells.

The urinary bladder: Contained about one fluid drachm of turbid yellow urine, loaded with colorless corpuscles, casts of the tubuli uriniferi, detached excretory cells from tubuli and pavement epithelium from pelvis of kidney, ureter and urinary bladder.

Spermatozoa: The urine contained albumen. I have observed spermatozoa in the urine of several cases of yellow fever after death.

Stomach and intestinal canal: The stomach contained about one pint of a mixture composed of milk and black vomit. A portion of this milk soon coagulated. Under the microscope the contents of the stomach consisted of the oil globules of the milk, masses of hematin, detached cells from the mucous membrane of the stomach and also the spirules and matters of a delicate fungus resembling the torula, which is very common in the black vomit of yellow fever. I have frequently observed the same fungus in the urine of yellow fever, after it has been allowed to stand for a certain time. The sulpho-carbolate of sodium did not prevent the formation of this fungus. The mucous membrane of the stomach congested and ecchymose. The mucous membrane of the ileum and colon greatly congested, presenting a brilliant injected appearance. In portions the mucous membrane was softened, eroded and covered with effusive blood.

The peritoneum exhibited evidences of recent inflammation. The omentum was intensely injected. Coagulable lymph of a yellow color and in some places of a red color was thrown out in small amounts upon the surface of the peritoneum. The inflammation of the pleura and peritoneum in this case may have been excited by the cold weather and the sudden changes of the temperature of the ward, in which the stoves had not been erected.

In the preceding case, we have a complication of diseases, namely, malarial fever, yellow fever, pleuritis and peritonitis.

It is a matter of great moment to determine whether the malarial poison under any circumstances induces fatty degeneration of the heart, liver and kidneys. If the malarial poison acted in a manner similar to that of yellow fever in producing fatty degeneration of these organs, a strong argument could be established for the identity of these two diseases in their origin and manifestations. I have endeavored to investigate this question thoroughly, by carefully observing the individual cases and noting the chemic and microscopic changes after death, in the blood and different organs, and especially in the liver, spleen, kidneys and heart. In no instance have I observed the production of fatty degeneration of the heart, liver and kidneys in malarial fever. All

the various forms of malarial fever have been subjected to critical investigation, including remittent fever, pernicious, malarial or congestive fever, malarial hematuria, quotidian, tertian and quartan intermittents and chronic malarial poisoning.

If in any condition, fatty degeneration of the heart, liver and kidneys results from the action of the malarial poison, it should be most clearly shown in prolonged cases of malarial poison. I selected the following from a large number of similar cases:

Case 1.—Chronic malarial poisoning, anemia, destruction of colored blood corpuscles, high temperature, fatal issue. Samuel Erhart; age 35; native of Germany; entered ward 13 Nov. 22, 1873, in a feeble depressed condition, with continued fever and sallow greenish-yellow complexion. Has been in America about eight months. In Europe his profession was that of an architect, but during his residence in America he has worked as a laborer in the low swamp lands of Louisiana. About eight weeks before entrance into the Charity Hospital, had a chill followed by fever, which has remitted occasionally, but has never been entirely absent. During his sickness has had scant supplies of food, and has had little or no medical attendance. The effects of the action of the malarial poison are manifest in his pale, sallow, greenish-yellow surface, pale lips and gums, muscular and nervous prostration, continuous febrile excitement, bloated countenance and swollen extremities. His present condition Nov. 22, 1873, is clearly referable to the action of the paludal poison of the swamps, bad diet and neglect.

November 23, patient pale, anemic, rapid pulse, high temperature. Nausea and vomiting of bilious matter. Quinin is retained with difficulty on the stomach and the patient takes little or no nourishment. November 24, A.M., temperature of axilla 105 degrees; pulse 112; respiration 21. Urine high-colored, but free from colored blood corpuscles and albumen. Chlorids greatly diminished. Nausea and jaundice. Great nervous and muscular prostration. 8 P.M., temperature of axilla 104.7 degrees. November 25, A.M., temperature of axilla 103 degrees, pulse 116. 8 P.M., temperature 104 degrees; delirious. Strength failing. November 26, A.M., temperature 102 degrees; P.M., temperature 103 degrees. Notwithstanding the great prostration of the patient, the fever still continues. We observe in the record of temperature no decided decline of the fever, but only fluctuations which correspond with those of the so-called bilious remittent fever. The disease has evidently run into this continued stage from the absence of all remedial agencies. It was impossible to produce any impression upon this patient by means of quinin, administered either by the mouth or rectum. November 27, patient died at 6 A.M.

Post-mortem, three hours after death. Body warm, limbs flaccid. Exterior, of dingy greenish-yellow color. Lower extremities edematous.

Thorax: The pericardium contained about two fluid ounces of golden yellow serum. Heart presented a deep color and firm texture. Under the microscope, no textural changes were observed in the muscular fibrillæ of the heart, and the microscopic characters, as well as the chemic constituents, were wholly different from those of yellow fever. Examination of the blood from the cavities of the heart: Light yellow fibrinous concretions were observed in both cavities. The fluid blood from the cavities of the heart, when viewed by the microscope was found to contain a large number of dark masses of hematin of various sizes, from one three-thousandth of an inch to one seventy-five hundredth of an inch in diameter. These masses were similar in all respects to those observed in the spleen and liver. Specific gravity of blood from cavities of the heart, 1021; solid residue in 1,000 parts of blood, 73.00. Specific gravity of serum of blood, 1015; solid residue in 1,000 parts of serum, 58.00. The fluid blood from the cavities of the heart coagulated after abstraction, and numerous oil globules were observed upon the surface of the coagulum. Coagulum large and soft;

fibrin diminished in amount. Lungs normal; hypostatic congestion of dependent portions of lungs. Stomach distended with gas; mucous membrane pale and anemic. Stomach contained partially digested food discolored by bile. Liver enlarged and hardened; deep slate color on the exterior and bronze within, and contained numerous black pigmentary particles, deposited chiefly in the peripheral network of the portal capillaries. Spleen enlarged and softened and loaded with altered blood corpuscles and dark masses of hematin. Gall bladder flaccid and contained about fifty grains of thick mucus, which was loaded with the desquamated cells of the mucous membrane of the gall bladder. Kidneys normal, with the exception of slate-colored spots, about one and one-half inches in diameter, on the surface of each kidney; and when thin sections of the discolored portions were examined under the microscope, the discoloration was found to be due to the deposit of black pigmentary particles in the capillaries.

(To be continued.)

THROMBOSIS.

Remarks made at the Opening Exercises of the College of Physicians and Surgeons, Boston, Sept. 19, 1894.

BY E. CUTTER, M.D.

NEW YORK.

HEART CLOTS OR THROMBOSIS.

Practically this subject is in my line of genealogy, as my father, Dr. Benjamin Cutter, died of thrombosis; in my line of clinical morphology, as it includes the detection of the pre-thrombic or embolic state, and in the line of applied medicine, which teaches that thrombosis is caused by soured food and is curable by diet, mainly, an American idea practically proved.

The subject has been studied much and well. I own a Latin essay on the polypi of the heart, published in 1729, at Jena, and read before a critical audience, including Dr. Hermann Frederick Teichermeyer, President of the Medical College, by Dr. John Christian de Winterbach, as his inaugural thesis for the doctorate of medicine. Not a bad custom for to-day! The essay is short, but deep and creditable now. It shows that fibrinous concretions in the heart and blood vessels have been observed from Galen down. By Altinus, Antipater, Andreas, Bonetus, Lithias, Malpighius, Mangetus, Morgagni, Pacchionius, Pichlius, Peyer, Smith and others; that some deny this, *i. e.*, that they are formed in life; that Malpighius admits that the fibrin of the blood is the substance of the polypi, "*Polyporum origo est coagulatio sanguinis*;" that acid is the prime cause of the coagulation, "*Causa coagulationis primaria acidum est*," and that the diet must be attended to in the cure.

In 1862, Sir B. W. Richardson, in London, gave me his monograph on fibrinous concretions of the heart. Going to Washington I found that the Army Medical Museum was destitute of such works and I delighted the Librarian, my friend, Surgeon J. J. Woodward, by the gift of my copy to the library. Sir B. W. Richardson wrote learnedly, exhaustively and originally, made many vivisections and *post-mortem* experiments. He thus found that clots were formed during life. He actually drew them from the beating hearts of dogs just before death! Says this distinguished

author: "I am not without hope that the day may come when science shall show us how the dissolution of these concretions may in some cases be effected, for I have seen them partly dissolved as an effect of alkaline treatment."

Later, in the admirable "Medical and Surgical Memoirs of Prof. Joseph Jones, M.D., L.L.D.," of New Orleans—which ought to be in every American medical library, as they are comprehensive, encyclopedic, intensely graphic and unprovincial—we find this subject treated at length, two cases given where Professor Jones diagnosed cardiac thrombosis before death and verified by autopsy. If this is a fair sample of his clinical teaching the New Orleans medical students have had fine instruction from this prince of clinicians.

Dr. Jones quotes the following authors who affirm the existence of thrombosis in life: Altinus, Andral, Baillie, Cloquet, Sir Astley Cooper, Crewell, Crompton, Dessault, Duncan, Gaspard, Graham, Hewson, Hodgson, Jones, Kirkes, Langstaff, Lee, Lobstein, Louis, Meckel, Martel, O'Halleran, Otto, Paget, Petit, Rokitsky, Richardson, Stengel, Mackra, Tiedmann, Virchow and Wardrup. Dr. Jones italicizes Dr. Richardson's words that "the diagnosis must rest upon the general symptoms rather than the physical."

Dr. Woolridge, a late English author on coagulation of the blood, comes down to 1890. His experiments are not clinical and mostly refer to *post-mortem* blood. He does not take into account the morphology of the blood in the pre-thrombic stage. He throws no light on the cure. His work is rather that of the physiologic laboratory chemist; careful, ingenious, strictly original, but gives no aid to those who treat thrombosis.

From what has been said about acid clotting blood, is it not strange that none of those gentlemen named, thought of feeding animals on acidulated foods, to see if thrombosis did not result? But it happens that thousands, if not millions, of American animals are fed on acidulated food, and that the diseased action of such foods has been studied in America.

In 1858 Dr. Salisbury (see "Alimentation and Disease," J. H. Vail & Co., New York, 1888) worked up this subject. Some of his results were briefly as follows: Of 104 swine fed on rum distillery swill till they died, 104 had thrombosis, embolism and vinegar yeast in the blood as shown by microscope. Vinegar and alcoholic yeast were found in the digestive organs; 103 had thrombi of the heart before death; 15 of these had them dislodged as emboli. The speaker testified that he had seen cases of swine fed on swill with like *post-mortem* concretions, and confirms these statements.

Where there is thrombosis, skeins of fibrin filaments, massive and large as compared with the normal fibrin filaments—are found in the blood before death and during life. They are single, double, multiple, straight, twisted, in bunches like skeins, like balls of twine, sometimes in balls of fibrin inclosing gravel like plums in a pudding. I once saw a lady just before confinement whose blood was quite full of skein-like silk threads—thus diagnosing the pre-embolic state. By dieting these were removed before her labor, which her attending physician said was the most normal one he ever attended!

The treatment consists in withdrawing foods that are undergoing or will undergo vinegar fermenta-

tion, and substituting foods which do not undergo this acetic acid fermentation. Beef and mutton are such foods.

It will not do to deny these facts as some deny, for example, the existence of the one seventy-fifth inch objective. The only way to disprove is by like observations conducted under like circumstances.

It is my hope in the coming season to develop the clinical morphologies as applied to these diseases of the heart and blood vessels, and to make these statements clearer by means of solar projections direct from typical cases, than they can be in these few brief, hurried practical remarks.

A CASE OF SARCOMA OF THE RIGHT SUPRARENAL BODY CAUSING OBSTRUCTIVE JAUNDICE IN AN INFANT.

Read before the Chicago Pathological Society, Oct. 8, 1894.

BY FRANK B. EARLE, M.D.,

AND

GEORGE H. WEAVER, M.D.

CHICAGO.

CLINICAL HISTORY.

Georgie L., born Jan. 9, 1891, the only child of robust parents free from disease of all kinds. From birth the patient was extremely anemic; never grew strong but was exceptionally free from the disorders of babyhood and was regarded a healthy child until he was past 2 years old. In February, 1893, he became jaundiced, which increased rapidly, accompanied by clay-colored offensive stools, increased anemia, emaciation and rapid loss of strength. In less than a month, the liver was enlarged to such an extent that it reached below the umbilicus, one-half the distance to the pubes. The gall bladder, greatly distended, was easily felt as a firm body. Pressure on the adjacent organs was so great that vomiting continued incessantly and almost no food was retained. The dyspnea was so troublesome that the recumbent posture was almost impossible.

At this time the patient was seen, separately, by Drs. C. W. Earle, Christopher and Fenger, and each made a diagnosis of malignant disease of the liver or behind the liver. The child was placed on increased doses of pot. iod., and iron was given in full doses.

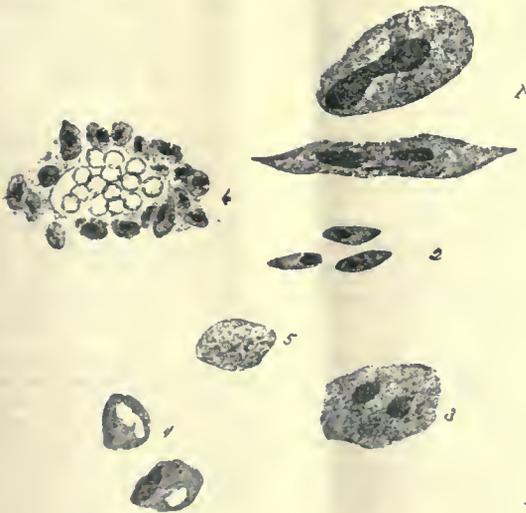
Much to the surprise of all he gradually improved, so that in May he was able to go into the country. Frequent reports of continued improvement were received, notwithstanding the fact that the patient suffered from several severe attacks of epistaxis. When he returned in the latter part of October he had gained in flesh, improved in color, and was playing about with almost as much vigor as a perfectly healthy child. The liver had decreased to one-half its former size, and the jaundice was scarcely perceptible. General improvement continued until December, when the urine became scanty and a condition of general edema developed. It was the most extensive edema I have ever seen, but lasted only a couple of weeks. By the middle of January the child appeared as well as before the attack. He was seen occasionally at the office during February, March and the early part of April and had good appetite, was digesting his food; feces normal in color and consistency. He was again gaining flesh and making blood. On April 18 he again became rapidly edematous, was unable to sleep, developed a typhoid state—temperature 103—and expired suddenly on April 23. The treatment was tonic and alterative; pot. iod. was taken for a long time and tonics all the time. Dr. Weaver will speak of the *post-mortem*.

AUTOPSY.

Nine hours after death. Body emaciated, skin pale yellow, rigor mortis fairly developed. The examination was limited to the abdomen. The peritoneal cavity contained one pint of clear serous fluid. Surface smooth. The stomach was small and the intestines macroscopically normal. The mesenteric lymph glands were slightly enlarged. The spleen was about the size of a normal organ in an adult; dark purple

surface and fairly tense capsule. The section showed a dark-red color, with a distinct increase in the fibrous tissue. The follicles were not distinct. Pancreas about normal in appearance. The kidneys were larger than normal, pyramids red, cortex yellowish with very indistinct markings. The liver reached from the second interspace on the right side, and the third rib on the left, to two inches below the costal arch on the right side, and one and one-half to two inches below the ensiform cartilage in the median line, causing a displacement and compression of the stomach. The surface was olive-green in color and finely granular. The edges were rounded. Both lobes were alike. The organ cut with difficulty, grating under the knife like dense fibrous tissue. The section was olive-green in color, the periphery of the lobules being paler than the center.

The gall bladder (*f*) measured three inches by one and one-half inches. It was tensely distended with clear, colorless watery fluid. The fundus projected one inch beyond the border of the liver *in situ*. The cystic duct was completely obliterated except



Examples of the different varieties of cells in the tumor and a small blood vessel.

one-fourth of an inch at its upper end (*d*), becoming lost in a dense firm mass at its lower portion (*b*). The lining of the remaining portion of the duct was slightly rough. The hepatic duct (*c*) was pervious throughout. At its lower portion it was much compressed and only possessed a fine caliber. On this part where compressed by the surrounding dense mass, the wall of the duct appeared thin and fibrous with its inner surface uneven. The portal vein was surrounded by the same dense mass but, while compressed, was patent. The mass above referred to (*a*) was found to consist of the altered suprarenal body. It lay behind the vessels and ducts in the portal fissure and they were fitted into it. The upper portion was three-fourths of an inch to an inch in diameter; dense, white, and fibrous on section. The cystic duct at its lower portion was lost in it. The lower portion of the gland was flattened, resembling a little more a normal adrenal. On section of this portion the tissue was yellowish-brown with a small central soft portion of darker color. The whole gland was three inches long. A few enlarged lymph glands were seen in the fissure above the adrenal.

MICROSCOPIC EXAMINATION.

The liver was cirrhotic, corresponding to the condition brought about by chronic obstruction to the outflow of bile. The portal lymph glands were the seat of old hemorrhages. No tumor growth was found in them. Sections were made from various parts of the adrenal body. Those from the parts not occupied by the firm, dense formation were as follows: At the outer part of the section was a zone which consisted of small round cells with numerous well preserved red blood corpuscles scattered among them. In a few places the cells were more of a fibrous character and formed fine meshes. There were few blood vessels in this portion of the section and they were filled with blood. The central portion of the section was unstained by hematoxylin. It contained abundant granular blood pigment in the most central part with very much deformed red corpuscles. Between this central area and the outer zone of stained tissue, above described, was an unstained zone, in which were seen red blood corpuscles variously disintegrated making up most of the picture, and among them a few large unstained cells with faintly visible nuclei. These large polygonal cells were probably necrotic suprarenal cells in an area of hemorrhage.



Section from tumor of the supra-renal body.

The section through the dense fibrous portion of the suprarenal body presented every appearance of a mixed-celled sarcoma. The cellular elements seemed to be entirely spindle-formed or only slightly varying from that, the apparent varieties of shape in the cells being due to the direction of the section through them. The cells were arranged in imperfectly defined bundles and were consequently cut in various directions and at various distances from the center, giving the appearance of oblong, polygonal, and larger and smaller round cells. The nuclei were also on this account at times cut so as to present a larger or smaller round form. When cut parallel to the long diameter, the cells were always spindle-shaped, and had oval or oblong or spindle-shaped nuclei. The size of the cells varied from that of cells found in ordinary small-celled sarcomata, to very large ones (Fig. 1) with a length equal to the diameter of ten to twelve red blood corpuscles. The most were about midway in size between the two extremes (Fig. 2). The varieties were quite uniformly mixed, but the large cells were more numerous in some areas, and in some portions of the sections only the smaller cells were seen. The smaller and medium-sized cells

had a single elongated nucleus located in the center of the cell. The nuclei of the large cells were oblong, being about of the diameter of a leucocyte in thickness and three times as long as thick. They stained deeply with hematoxylin and usually lay to the side or at the end of the cell. They were usually single, but some cells contained from two (Fig. 3) to four nuclei. The body of the large cells was usually homogeneous, but in a few was slightly granular, and in a very few there was the appearance of vacuoles (Fig. 4) of various sizes. In cross sections there was sometimes produced the appearance of large oval or round cells without nuclei (Fig. 5), dependent upon the location of the nuclei in the side or at the end of the cells. The intercellular material was homogeneous, transparent and highly refractile. It was present in only very small quantity, and was continuous with the cells at their ends. There were numerous small blood vessels scattered through the tissue, having their walls entirely made up of a single layer (Fig. 6) of cells. Also a smaller number of larger vessels with a similar thin wall were found.

Sections were made to include the dense tissue and the remains of the cystic duct, and the hepatic duct at the point of greatest pressure. The ducts had lost the normal lining, only showing a few irregularly arranged cells in places. The inner surface of the hepatic duct was very irregular and not possessed of a lining mucous membrane. The tumor passed gradually into the duct walls. As the duct was approached, the tissue became more fibrous and there was a layer of mature fibrous tissue making up the duct wall, which was not infiltrated by tumor or inflammatory cells. From a morphologic standpoint the dense structure in the upper part of the suprarenal body corresponds to a mixed-celled sarcoma.

Sections from this portion were kindly examined by Prof. W. H. Welch, and he says that it is not certain that the tissue is a sarcoma, but he should be inclined to so regard it. The long duration of the clinical course of the obstruction and the outflow of bile is not what would be expected in a sarcoma, as a tumor of a larger size would usually be reached in so long a time. The complete destruction of the lower portion of the cystic duct is, however, an evidence of malignancy.

I am under great obligation to Dr. E. R. Le Count for the very accurate drawings he kindly made for me to illustrate the sections.

A CONTRIBUTION TO THE STUDY OF MALIGNANT GROWTHS IN THE LOWER ANIMALS.

Presented before the American Microscopical Society, 1894 meeting, and read by V. A. Latham, D.D.S., before the Chicago Pathological Society, Oct. 8, 1894.

BY EVA H. FIELD, M.D.
CHICAGO, ILL.

The study of disease among the animals used for food has occupied much of the time of our most earnest investigators; the horse, probably on account of his great value as a carrier, has received his share of attention, but I find that "the children's playmates," the cats and dogs, have been in a measure neglected.

There is, I think, no little danger in this fact, inasmuch as enough cases have been reported to prove that these animals are subject to diphtheria, pneumonia, asthma, tuberculosis, cancer, etc.

Historical Sketch.—Osler¹ says: "Cats are subject to a pseudo-membranous disease, and there are many cases on record in which children appear to have caught diphtheria from them." "On the other hand," he says, "I know of one case in which a cat died of angina and intense pseudo-membranous colitis and the children who nursed it did not take the disease; and of a second case in which a pet cat had coryza, difficult breathing, fever, and enlarged cervical glands and here too the children were not affected."

A case of asthma in a cat² was mentioned in the *British Medical Journal* in 1891.

Dr. C. Creighton³ records a case of tumor of the mammary glands of a bitch. The double chain of glands was affected with nodular enlargements at several points, and one of the tumors was large with evidences of malignancy. He found that the micro-characteristics were identical with those of mammary cancer in the human subject. The same author⁴ reports also several other cases of tumors in dogs, viz.: 1, a sero-sanguinous cyst of the neck; 2, a mucous sarcoma of the neck with a cystic interior; 3, a fluctuating tumor from the subcutaneous tissue of the hip of a dog of precisely the same structure as number 2; 4, a spindle-celled sarcoma from the head of a dog, with its center excavated into a cystic cavity crossed by a close network of cystic trabeculae.

A very interesting paper⁵ on "Cancer in Domestic Animals" by W. H. Birchmore, M.D., reports a number of cases of both carcinoma and sarcoma.

Case 1—was a chicken who sustained a fracture of the humerus which did not unite. A lump the size of an egg formed about the ununited ends of the bone. The animal died of exhaustion and on examining the tumor, which weighed 64 grms. it was found to be a large round-celled sarcoma.

Case 2—Another, an old hen whose feet had been frost-bitten and sore, developed an encephaloid cancer as large as a pigeon's egg on the sole of the left foot. The hen died marasmic. Lymphatic glands were found to be enlarged and the tarso-metatarsal bone a mass of encephaloid disease.

Case 3—was a capon. Glands removed by the usual operation. Three months later the capon died of acute peritonitis which was caused by the bursting of a cyst containing an irritant fluid. This cyst formed part of a tumor as large as an egg occupying the place of the right testicle. The tumor was an adenoid sarcoma.

A typical osteo-sarcoma developed from an ulcerated tooth-socket of a fine setter which had been wounded in the mouth by the discharge of a gun. He reported in the same paper the case of a cow supposed to be suffering from snake-bite. There was found on the udder an ulcerated mass which proved both macro- and microscopically to be a nodular mammary cancer. He also mentioned the following cases: A large mixed spindle- and round-celled sarcoma from the lower lip of a mule, caused by the irritation of the bit. A papilloma irritated by rubbing of the bridle behind the ear of a horse, became ulcerated, and when removed was found to be a connective tissue tumor, containing nests of pseudo-epithelial cells. The same author reported⁶ an account of a morbid growth in a pig's stomach. This growth was about two centimeters in length and raised one centimeter above the surrounding tissue. He does not give the form of cancer. An interesting description of a case of carcinoma of all the mammary glands of a cat was reported in the proceedings of the London Pathological Society by W. G. Spencer.⁷ These tumors measured from one-half to one and one-half

inches in diameter. He says in summarizing: "This specimen illustrates two points:

1. A carcinoma of all the mammary glands most marked in the hinder ones, has grown apparently from the ducts, and secreted by the nipples an irritating fluid. At the same time the new growth had a great tendency to undergo degeneration, both in the mammæ and lymph glands. The degeneration is seen to have progressed by the breaking down cells, the nuclei of which still appear at the margin, shrivelled but staining. It is open to conjecture whether the degeneration was not a perverted production of milk by the cells of the cancer and therefore whether the term, 'caseous,' is not in this case the correct term.

2. Extension has taken place by the lymphatic leading directly to the thoracic and right lymphatic ducts. In this way the disease gained the pulmonary circulation, but it had advanced no farther. Therefore the emboli were large enough to stick in the capillaries of the lung. It would have extended to the general circulation without doubt in a short time, by the communication of the nodules in the lung with the pulmonary veins."

J. Jackson Clarke⁸ mentions a case of a tumor found on a cat's lip. These are the only cases I have found recorded.

Transmissibility.—It has been stated⁹ that the lower animals can not be infected with carcinoma or sarcoma from the human subject or from any animal except it be of their own kind.

Among successful experiments, we find that Dr. Hanan, of Zurich, has transferred a squamous-celled carcinoma from a rat with such a growth on the vulva, to a series of other rats. Wehr has transferred a vaginal carcinoma from one dog into the subcutaneous tissue of the abdomen of another. Eiselberg has also successfully grafted fibro-sarcoma from one rat to another. Moran reports a female white mouse inoculated with a piece of cylindrical epithelioma taken from an animal of the same species. A tumor resulted which was retarded during pregnancy but began again immediately after delivery. It will be noticed, however, that in these cases, pieces of tissue from the cancers were transplanted and the usual method of inoculation was not resorted to.

Some little discussion has taken place concerning the endemic nature of the disease, and the conditions under which it arises.

Williams says: "The augmented cancer mortality coincides with progressive population, increased national wealth and marked improvement in the general well being. In Ireland where there has been a decrease of population and wide-spread poverty, the cancer death rate has been much lower than in England or Scotland. Also, the decline in the death rate in phthisis and other tubercular diseases in Great Britain has coincided with the great increase in the cancer mortality."

At a meeting of the London Pathological Society, Mr. Shattuck cited one case in which, in a particular house in a certain spot in South Devon, four cases of cancer had occurred in different families in a few years. Haviland, from his extensive statistics has shown that those countries were particularly the seat of cancer which were traversed by rivers that frequently overflowed their banks. Piessinger has pub-

lished a paper in the *Revue de Médecine* in 1892 on this subject. He has observed a series of cases occurring in villages sometimes consecutively, at others simultaneously. He believes that such groups of cases are particularly liable to occur on the banks of rivers and in their immediate vicinity.

As a further contribution to the subject I wish to report the following recent cases:

Case 1. Cystic Round-celled Sarcoma.—The first case to which I wish to call your attention is that of a supposed abscess below the ear of a cat. A swelling appeared close to the ear and in a short time began discharging a foul-smelling purulent material. Aside from this, the animal was to all appearances healthy. The cat was chloroformed and a portion of the diseased tissue was cut out and brought to the laboratory for examination. There was a space about five centimeters in diameter where the hair had fallen out, and in the center of this space was the spot where the tumor had opened. The tissue on section, had a honey-combed appearance. No examination of the viscera was made. Viewed with the microscope this growth was found to be a cystic round-celled sarcoma.

Case 2. Scirrhous Carcinoma of the Mammary Gland.—A cat between 15 or 16 years of age was noticed to have a hard lump on one of the mammary glands, which grew steadily for about six months. The animal became very much emaciated and was noticed to cough. One evening she was found apparently suffocating, and her mistress hastened her death by giving chloroform, after which she cut out the growth including the axillary glands and brought the specimen to the laboratory for examination. On making section and examining them it was found to be a carcinoma of the scirrhous variety. As none of the organs could be obtained the case is necessarily incomplete, but from the fact that the cat coughed much of the time and finally nearly died of suffocation I think it highly probable that there were metastases in the lungs and possibly in other organs.

It is a noteworthy fact that this cat's age was equivalent to about 70 years in the human subject, and that pregnancy had not occurred for three years prior to death. The history in this case as well as in the following one is perfectly reliable, as the lady who owned them is quite a cat fancier, having from six to ten all the time, giving them their close attention.

Case 3. Primary Mammary Cancer with Metastases.—A few months after the death of the cat in Case 2, a lump was noticed on the breast of another one. The animal had been picked up as a stray kitten eight years before, hence the idea of heredity can be excluded. Knowing that the other cat had had cancer, the lady allowed me to examine this one and gave me the following history: After first noticing the lump, it increased in size and remained hard for a period covering five months when she, thinking it was an abscess, poulticed it and after this it ulcerated and for ten weeks discharged a purulent substance. During this time the cat became much emaciated and after ulceration had begun, seemed to have considerable fever and thirst. Incontinence of urine was present and micturition painful, causing an outcry. The bowels were regular and paroxysms of coughing were noticed. To end her suffering, chloroform was administered. On making an autopsy, I found a hard tumor, the size of a hen's egg, in the left posterior mammary gland lying to the anterior border of the nipple which was not involved. The other mammary glands were somewhat enlarged and hard, as were also the axillary and inguinal glands. A few nodules were found on the peritoneum; the mesenteric glands were enlarged and hard; one nodule the size of a pea was found on the serous surface of the stomach, and numerous nodules on the serous surface of the intestines throughout their entire length. These growths macroscopically, do not seem to extend through to the mucous membrane of the stomach or intestines. The spleen was much enlarged and contained, besides, a number of small nodules, three white masses three centimeters in diameter and about one centimeter in thickness, over which the capsule was tense and glistening. The kidneys were somewhat enlarged and studded with numerous white nodules from five to ten millimeters in diameter to which the capsule was adherent, though otherwise it was free. The cut surface shows also, some white areas in the cortex which

NOTE.—A resumé of the theories regarding the etiology of tumors has here been omitted for lack of space.—[EDITOR.]

do not extend to the capsule. The connective tissue between the kidneys contained a bunch of enlarged glands. The ovaries were examined and found to be diseased; the right containing a small cyst and the left being firm and hard to the touch. The uterus' right horn apparently was normal, but the left contained in the center a lump about the size of a filbert. On opening the thorax, the anterior mediastinal glands were found enlarged and hard. The parietal pericardium contained several small nodules. The heart on the cut surface revealed a nodule three millimeters in diameter in the apex. The lungs were enlarged, completely filling the cavity, but were removed with ease, there being no adhesions. There was scarcely any of the normal lung tissue to be seen on the external surfaces, they being completely filled and covered over with nodules ranging in size from one to ten millimeters. A small area at the apex on each side was free from nodules and was markedly emphysematous. The lungs had, if examined apart from the other viscera, the appearance of miliary tuberculosis, the nodules being hard and shot-like to the touch. They were all under the pleura which showed no signs of inflammation. An examination of the brain was not allowed. However, from what I can learn there were no apparent symptoms of motor or sensory disturbance, the animal retaining its intelligence to the last.

Microscopic Examination.—As the specimens were not obtained until a number of hours after death, the material was only hardened in alcohol and Miller's fluid and was cut by freezing.

Primary Growth.—Sections stained with logwood and examined with low power, showed over the surface a very thin layer of epithelial cells much flattened in appearance and taking a very deep stain, in some places only a fine dark line being visible. Running down from the superficial epithelium are a few hair follicles, sebaceous and sweat glands, the greater number of which are surrounded by a zone of rounded infiltration. Other evidences of inflammation are present, for in the connective tissue lying immediately beneath the epidermis, a large area of granulation tissue occurs in which we see connective tissue fibers and cells, the latter being for the most part fibroblasts and may be seen varying in shape, from round and oval to elongated cells with prolongations. A large number of blood vessels are also found in this area, one being cut lengthwise so it can be traced for about four inches. The capillaries may be easily distinguished from the newly forming vessels by the former containing blood as do nearly all the larger vessels. Below this area we have the fibers forming themselves into a stroma, in some places very delicate with very small alveoli, in others much thicker and the alveoli larger. These all contain epithelial cells of the glandular variety, and many of them are seen to communicate with each other through openings into the stroma which is exceedingly vascular.

The cancer cells present a variety of appearances, some of them being round, others oval and still others cubical in shape; in size many of them might be mistaken for leucocytes, while others are as large as the cells of a squamous epithelioma; in fact, in several places collections of cells are to be seen which, both in shape and arrangement resemble the "bird's nests" of that growth.

The arrangement of the cancerous cells throughout the growth presents as great a variety of appearances, as may be seen in their size and shape. In some parts are found a single layer of cells cubical in shape, nucleated, arranged around an alveolus, and in such a place we find the central portion filled with a delicate homogeneous substance taking a very light stain; in other places the alveoli are packed with cells which seem to have lost their well-defined shape and are round or oval in appearance, some small,

others very large and multinucleated, some presenting the appearance of endogenous cell division.

The blood vessels, instead of being confined to the fibrous stroma, in many places are seen to penetrate it and run in direct contact with the cells. This, our text-books on pathology say, is seldom if ever seen in the carcinomata, they even going so far as to give that as a means of differentiating alveolar sarcoma from carcinoma. Another thing noticeable about the blood vessels is their contents, the white blood corpuscles in some nearly equalling the red in number. One large vessel near the center of the growth contains both red and white corpuscles; outside this vessel wall in the connective tissue are two well-marked areas of infiltration of leucocytes, closely packed together and deeply stained, while red blood corpuscles and a few leucocytes may be seen passing from the vessel to the areas mentioned. In another vessel I find a blood clot which probably was a thrombus. Red and white blood corpuscles are present inside the lumen, the latter massed into the center; among these are some spindle-shaped cells, probably fibroblasts, and the whole is held together by a network of fibrin well seen at the periphery of the clot and attached to one side of the vessel wall. Here there are a few large cells, evidently cancer cells which seem to have invaded the wall and are passing through. In about the center of the specimen, and in all specimens examined in comparatively the same position, we find a large area of degeneration including both the stroma and cancer cells, the former seeming to have been first affected. The connective tissue fibers first assume a swollen cloudy appearance, next the corpuscles are missed, and ultimately the whole framework is lost sight of and we have, in its place, a granular homogeneous material, the exact appearance of granular cloudy swelling.

Where we find the cancer cells just beginning to degenerate, there will be occasionally a nucleus missing; the cells become swollen and cloudy and like the fibers lose their outline and we see the same appearance as in the degenerated stroma. This degeneration very closely resembles hyaline. It does not stain well with logwood but stains much better with aurantia. A number of cysts are present, varying in size, some containing cystic material, others not, and some with a little of the cystic material clinging to the wall. Some of the cysts are round, while others are very irregular in outline.

Lymphatic Glands.—The first examined was the left inguinal glands and as the other present the same appearance only the one will be described. The capsule, for the greater part of the circumference of the gland is not increased in thickness, however, in one portion the fibers seem to have separated and inclose in their network a large number of cancer cells. We also find congestion of the blood vessels in the capsule and in some places clots and well-defined fibrin are present. There is also proliferation of the spindle-shaped fibroblasts. In the gland substance we find the lymph sinuses everywhere invaded by the cancerous stroma containing the same variety of epithelial cells as are met with in the primary growth. In the center of the gland, we here met with the same degeneration as has already been described.

The Lungs.—Beginning at the pleural surface, we find the pleura neither thickened or congested, but immediately under it are numerous cancer nodules which differ but slightly from those already de-

scribed, the main difference lying in the relative amount of stroma and cancer cells; the latter being much more abundant than the former and very densely packed together. A granular *débris* similar to the degeneration described is found here and is not confined to the cancer nodules, but may frequently be seen in the alveoli, in some places entirely filling them. Aside from the cancer nodules, the lungs are found to be in a state of chronic venous congestion. The capillaries are filled with blood, the interalveolar septa thickened, the alveoli here and there containing a few scattered epithelial cells and detritus, in others being entirely filled. Some of these cells are unusually large and lie singly in the middle of an alveolus, while others are small and closely massed together.

Heart.—The heart muscle shows but little change although there is some cloudiness in places. Cancer nodules are found in the apex which are mostly microscopic in size only one being visible to the naked eye while fifteen can be counted in the specimen under examination. These nodules are without doubt the result of a recent invasion. The stroma is delicate, cells stain deeply and may be seen in large numbers infiltrating the heart muscle, the fibers of which are pushed to one side, and in some cases are replaced by cancerous stroma. Another reason for considering this a recent invasion is that there is no sign of degeneration present, but instead a rapid proliferation of tissue.

The question arises, How did this infection of the heart take place? There are three possible ways: 1, from the blood as it passed through the ventricle; 2, by the coronary or nutrient arteries; 3, by the lymph spaces in the serous covering.

The last, I think, is the most probable, as it will be noticed the growths in all the viscera lie immediately under their serous covering.

Intestines.—In the intestines we find the growth in some places directly under the serous coat, and in others between the longitudinal and circular muscle layers, the two having apparently separated to allow the cancer nodule to form there. The description need not be repeated for this specimen is microscopically the same as those already described, the position being the point most worthy of attention. The cancer does not penetrate the circular coat of muscle fibers, however, we find the mucosa considerably altered, possibly from pressure. The villi in some places are absent, in others much diminished in size.

Kidneys.—Nodules are found, for the most part, immediately under the capsule, although microscopic nodules are seen as far as the medullary portion. No description of the cancerous tissue is necessary. The epithelium of the uriniferous tubules is cloudy and so swollen as to nearly fill the lumen. Nuclei are plainly visible. There is some glomerulitis present and Bowman's capsule is in many places thickened.

The Spleen only differed in that the degeneration was more advanced, as might have been expected from the size of the nodules.

The other organs, viz., uterus, pancreas, suprarenals and ovaries will not need description, inasmuch as they are identical with those already described.

The means by which this growth became so generally disseminated was probably by the lymphatics to the nearest lymphatic glands, from them it is easily traced through the thoracic duct to the circulatory

system. It is somewhat strange that the liver entirely escaped inasmuch as it is generally the first one of the viscera to become involved in a carcinoma with remote metastases.

CONCLUSIONS.

1. That the malignant tumors of the human species have their homologue in the lower animals.

2. That we have in Case 3 a scirrhus cancer of the mammary gland, followed by metastatic deposits in the lymphatic glands, lungs, heart, stomach, intestines, uterus, ovaries, kidneys and suprarenal capsules.

3. Inasmuch as inoculation experiments have when practiced on animals of the same species been in a large measure successful, it seems to me that the cat will furnish us a good opportunity of studying and experimenting. If another cat having a cancer can be found, it will be an easy matter to find others to complete the experiments, and inasmuch as the three cases here reported came under observation during a little less than a year's time, one may certainly consider it as not exceedingly rare but that those animals suffering from the disease have simply passed unnoticed.

4. Greater care should be taken by parents and those who have children in charge to see that the animals they play with are free from disease. True, it is said that infection only obtains between those of the same species, still because experiments in this direction have thus far failed, we must not make up our minds that it has been absolutely demonstrated that there is no danger. It certainly is more rational to be on the safe side, at least until it has been actually proven that there is no possibility of infection.

To Dr. Vida A. Latham and Dr. Bertha E. Bush I wish to return most grateful thanks for permission to work in the laboratory and also for their kindly words of suggestion.

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SOCIETY PROCEEDINGS.

Chicago Pathological Society.

Regular Monthly Meeting, Oct. 8, 1894.

RANDOLPH N. HALL, President, in the Chair.

DEMONSTRATION OF SPECIMENS.

DR. E. R. LECOUNT—These are some specimens that have been collected from the County Hospital morgue. This specimen of amyloid liver and kidney came from a patient who was very much deformed by some spinal trouble and also had deformed tibiae. The only fact in the clinical history that seemed to have any bearing upon the amyloid disease was a possible rachitis in infancy and this resulting deformity in the bones; there was no tuberculosis in the lungs, no dysentery, and as far as the history showed no syphilis.

This is a slice through the spleen of a patient who died from diffuse tuberculosis. The spleen was very large, weighing about eight hundred and fifty grammes and measuring twenty-one centimeters in its longest diameter. Examina-

tion in the morgue and subsequent microscopic examination of the tissues showed tuberculosis of the lungs, kidneys, spleen and liver, and intestinal tuberculosis as well. This spleen was very interesting, as in the morgue it showed no tuberculosis to the naked eye, but on section there was noticed minute pin-point nodules, the nature of which could not be positively stated, but from the fact that the spleen was so much enlarged and tuberculosis was present in the other organs, being visible to the naked eye in the liver and kidney, it was thought that this might be minute miliary or sub-miliary tuberculosis, and this was confirmed by the microscope.

The section of the liver showing carcinomatous nodules came from a patient who had carcinoma in the stomach and secondary infiltration by direct extension to the pancreas and also this regional metastasis in the liver. In favor of the view that the primary tumor was in the mucous membrane of the stomach, was the fact that adhesions had taken place between the stomach and pancreas at points where the pancreas was not carcinomatous, while the mucous membrane of the stomach was involved at this point, and the mucous membrane was involved to a greater extent than any of the coats of the stomach.

From the patient who was the victim of such a diffuse tuberculosis there was removed this fibroid tumor from the neck. It was perfectly encapsulated, not attached to the trachea or in any way connected with the thyroid gland, lying on the right side of the neck below the ear and easily removed by dissection. Sections were taken from different portions of the tumor because it was supposed that it might prove to be a mixed tumor on account of the varying appearance; certain parts appearing hard, almost cartilaginous in consistency, others soft and apparently edematous, but much to our surprise microscopic examination showed the same histologic structure throughout. The examination of this clinically benign tumor was interesting from the fact that as far as the histologic appearance of the specimens went, one could not say whether the sections were cut from a benign tumor or a malignant tumor of the spindle-celled sarcomatous group. The tumor was lying between the muscles entirely free, that is there was not sufficient attachment to afford any clew as to its originating from surrounding structures. My thanks are due Drs. Walker and McGrew of the house-staff for the privilege of presenting these specimens.

DISCUSSION OF PAPER OF EVA FIELD.

(See page 982.)

DR. G. H. WEAVER.—When I first saw these specimens with Dr. Latham, she spoke to me of the fact of there being more than one case of malignant disease among the cats in the house. The first case proved upon microscopic examination to be sarcoma, this case carcinoma, and there was a third suspicious case in which a hard indurated mass was located in the mammary gland. A number of cats are kept in the house. The rarity of malignant growths in animals has been explained by the fact that they die at an early age as compared to human beings, and on that account the tendency to diseases which occur during or after middle life is not marked. Experiments made so far, do not prove that cancer is contagious or even infectious. Everything done so far has been the transferring of portions of the tumor from one animal to another of the same species, with the result that they have grown. But this is a transplantation of tissue and not necessarily an infection of the animal. These cases on account of several cats being affected in the same house are interesting as suggesting a contagious element.

DR. V. A. LATHAM.—We had another cat from the same house affected by carcinoma of the mammary gland, but we did not get so complete a *post-mortem* as in the case reported. A third case was sarcoma. I have also had a case of epithelioma, with hare-lip in a cat when in the Michigan University. Miss Field looked up the bibliography but she found no recorded case of carcinoma in the cat. Bland Sutton takes up the subject of pigs, fowls and almost every one of the lower animals except the cat. The case here presented, I believe, is the first one of its kind placed on record in this country.

DISCUSSION OF PAPER OF DRS. EARLE AND WEAVER.

(See page 980.)

DR. J. M. DODSON.—I would ask Dr. Weaver if there was anything in the symptoms which might throw light upon the functions of the suprarenal body? Physiologically it seems probable that the suprarenal body is one of the blood-elaborating structures like the thymus gland, and therefore of great physiologic importance, especially in the young. I wondered whether or not in this case, with a tumor

involving that structure, any symptoms appeared which seem indicative of interference with the special function of hematogenesis.

DR. G. H. WEAVER.—So far as I know there was nothing to indicate anything of the kind, but the obstruction to the outflow of bile causing disturbance of the hepatic function was sufficient to mask anything else that might possibly have occurred without that complication. An examination of the blood was made but without anything being found.

MUCINURIA SIMULATING ALBUMINURIA.

DR. J. H. SALISBURY—exhibited a specimen of mucinuria simulating albuminuria, and said: This was the case of the wife of a physician who during pregnancy had edema. An examination of the urine undoubtedly showed albuminuria with a few hyaline and some granular casts. Delivery was made with forceps, and the patient did well, except that there was more or less prostration after delivery. Before delivery there was almost complete loss of sight. I do not know whether there was an ophthalmoscopic examination, but it was understood that there was some affection of the retina. After delivery I examined the urine, and at first I assumed that there was albuminuria, as it responded to all the ordinary tests for albumen, but I noticed a cloud somewhat above the contact line of nitric acid with the urine, that is the cloud reached up higher in the urine than it should for albumen, and I concluded there was also mucin present. I therefore precipitated the mucin with acetic acid and to my surprise found that the clear filtrate gave no reaction for albumen. It is well known that mucin may simulate albumen to the extent of misleading incautious observers, but the cloud is higher up than the one produced by nitric acid and albumen and it does not, so far as I know, give any reaction upon boiling; in fact it is stated in some works that mucin does not react upon boiling. I found, however, that this specimen reacted with nitric acid close to the contact line, and also reacted upon boiling, and yet upon precipitating it with acetic acid and allowing it to stand for twenty-four hours and filtering, I then found no reaction with nitric acid. Recently, attention has been called to the fact that mucin gives this reaction and it has been suggested that it is this mucin reaction which has given rise to the assertion that there is a normal presence of albumen in the urine, and that the numerous cases in which minute quantities of albumen are found in the urine may be due to mistaking mucin for albumen.

DISCUSSION.

DR. J. M. DODSON.—This question of mistaking mucin for albumen is of a good deal of interest to me, for I have known a number of blunders to be made in this matter in life-insurance examinations. I would call especial attention to the value of the under-laying method of using nitric acid as contrasted with the over-laying method. Professor Haines lays especial stress upon this. He called my attention to it not long since, and illustrated it very beautifully in a specimen of urine I was examining. The urine is placed in the test-tube and then the nitric acid is allowed to flow very slowly down the side of the tube. A sufficient degree of acidity is given to the urine above, to dissolve small traces of mucin; then too, after the contact line is formed, as the nitric acid disseminates in the urine, the mucin cloud gradually recedes toward the top of the fluid and disappears. In the specimen of which I speak there were both mucin and albumen. When the nitric acid was first introduced there was the distinct line of the white albumen cloud, which is more opaque in appearance than mucin, and above, at first blending with it, was the more opalescent cloud of mucin. Gradually that opalescent cloud receded toward the top of the liquid, the clearer line of albumen remaining distinct.

DR. J. H. SALISBURY—in closing the discussion, said: The sight has been improved but not completely restored. I should judge that the mucin must be in solution, because I get the reaction after careful filtration and this liquid seems to be entirely clear, so I doubt if the centrifugal machine would remove the mucin that complicates this case. It seems to me the principal point of importance in this case, is that, in case mucin is present if we do not precipitate it by acetic acid and so separate it, we may be in danger of assuming that there is albumen present when there is not. It seems to me that this would be especially important in life-insurance examinations.

DR. DODSON.—Does not that interfere with examination by nitric acid?

DR. SALISBURY.—I think not. Two or three years ago when I was examining a specimen and could not certainly decide whether it was albumin or mucin, Professor Haines advised me to precipitate with acetic acid, let it stand twenty-four

hours, filter and test the filtrate. In that case the cloud was not well marked but in this it was, and I am sure would have deceived nine out of ten observers.

Dr. HALL—Is it not the instruction of Professor Haines in every examination for albumen to add acetic acid to the specimen to be sure that it has an acid reaction?

Dr. SALISBURY—Yes, that is the direction in testing the urine by the heat test, unless it is already acid. If it is, the acetic acid need not be added, and may sometimes be even prejudicial. But in case it is not acid, acetic and not nitric acid should be added before boiling. A subsequent examination of another specimen of urine from this case shows the presence of a small quantity of albumen and of some epithelial and hyaline casts.

DEMONSTRATION OF SURGICAL SPECIMENS.

Dr. J. L. McCULLOM—The first case I have to report is one of intestinal end-to-end approximation. The patient, Mrs. G., 32 years of age, a French Canadian; I was called to see her June 4 by Dr. Hyleman. The history as I obtained it from the Doctor and the family was that the woman while urinating about 5 o'clock in the morning, was taken with severe pain and became unconscious. Her husband found her some time afterward lying upon the floor entirely unconscious. When she came to she began to vomit, and this continued with slight interruptions until the operation. Dr. Hyleman was called in the morning and undertook to give an enema. He introduced a rectal tube about eight inches into the rectum and succeeded in introducing a quart of water, but she continued to vomit. He gave her cathartics and I believe a hypodermic of morphia and some morphia by the mouth. I saw her a week afterward and learned that she had been operated upon two months before by Dr. Newman. Upon examination there was no tympanitis of any consequence, no marked tenderness that would attract attention to any definite locality as the seat of trouble. The diagnosis lay between intestinal obstruction and appendicitis, and we excluded the latter as there was no marked tenderness in McBurney's point. I advised immediate operation as the only possible hope of recovery, consent to which was readily given. We sent her to St. Elizabeth's Hospital and at 7 o'clock were ready to begin the operation. In opening the abdomen I followed the median line of incision. The omentum was everywhere adherent to the peritoneum and very much thickened. I incised the omentum and peritoneum with the scissors in one cut. Immediately upon opening the abdomen a very decided odor of decomposing flesh could be detected, even by those who were not very near the patient. The light was poor and everything had to be done by touch. I found in the left side of the small pelvis a tumor which appeared to fluctuate and was bound down by firm adhesions. By careful manipulation I brought to the surface, after cautiously separating it from its adhesions, a portion of the gut of a dead black color. Although I had not brought a Murphy button, fortunately Dr. Frank had provided the hospital with a set of them, and they were sterilized and ready for use. A ligature was passed at either extremity of the necrosed portion of gut and the necessary omentum quilted off with a double row of lock stitches and eleven and three-fourths inches of gut, together with the omentum included between the two rows of lock stitches excised, and the button inserted and hastily approximated, care being taken that the omental portions should come together. The gut was dropped back into place and a glass drainage tube introduced at the site of the button. The wound was then closed with silk-worm-gut sutures. The next morning the patient was calling for something to eat. We put her on a liquid diet, giving her no morphia until it was time for the button to pass. She occasionally vomited lightly and these attacks grew less and less frequent. On the fifth day she passed wind by the rectum, and on the morning of the seventh day had colicky pains and a slight evacuation of the bowels. We had not expected the button to pass so soon, and an under nurse had been put in attendance on her, but the patient tells me that this seventh morning there were hard masses which she had to get rid of by introducing her finger into the vagina and forcing it out through the rectum. We watched for the button during the three weeks she was in the hospital, but none made its appearance. After forty-eight hours I removed the drainage tube and inserted gauze drainage. After twelve days the sutures were removed. Upon removing the suture at the upper angle of the wound there was a gush of greenish fluid through the opening of the drainage tube. I immediately surmised that we had a fecal fistula and was fearful of the outcome. This continued to discharge for about twelve days, and once or twice some solid feces came through this open-

ing. But finally it ceased to discharge and the opening gradually filled up. On the twenty-second day after the operation the patient went home. In a couple of days I was sent for and found that this fecal fistula had reopened; but after ten days it healed and the woman made an uninterrupted recovery from that time on.

The next case is one of pylorotomy with gastro-enterotomy. In July I was called to see a German, 52 years of age, who had been under the care of different physicians for about a year. He first consulted a physician because he could not retain food but vomited continually. There was a history of more or less pain in the region of the pylorus for more than two or three years. Upon physical examination a well-defined tumor could be made out in the region of the pylorus. I could not get any history of hemorrhage, no coffee ground discharges by the mouth and no tarry evacuation from the bowels. I told him he might get some relief and his life might be prolonged by an operation, but it was questionable. September 1, I received word that he had made arrangements to go to the hospital for an operation. Edema had set in, in his hands and legs, and been gradually increasing for three or four months. I was not positive as to the diagnosis, there not being any hemorrhage, and the pains being rather obscure. The man was anxious for an operation, and after preparing him for several days I performed the operation on September 11, assisted by Drs. Luken, Effa Davis and the internes of the hospital. An incision was made directly over the tumor, which was found to be adherent to the abdominal wall, to the transverse colon, and to the duodenum. It was my opinion that the disturbance was very largely due to pressure upon the portal vein. The man had been reduced from a weight of 170 pounds to a mere skeleton. His pulse was 160 and sometimes even higher. By means of an artery forceps, I succeeded in freeing the tumor from all its adhesions without rupturing the stomach or intestine, Dr. Luken's fingers being used as a clamp to compress the vessels. I removed the tumor and the pyloric end of the stomach and closed the wound with running Czerny-Lembert sutures, making three layers; one for the mucous membrane, one for the muscular layer and one for the peritoneal coat. Having a long Murphy button I had expected to make an approximation without closing the duodenum, but the button was too large for the opening in the bowel, so I closed this and made an anastomosis. The patient died two hours after the operation.

The next specimen is a femur with an exostosis upon the extremity. The patient, Miss S., 16 years of age, a Canadian by birth, gave a history of having been kicked upon the knee a year previously. Some months afterward she thought she had rheumatism and was treated for three months for articular rheumatism by a prominent homeopathist, but failing to benefit her he told the family he did not know what was the matter. Dr. Newman was called in and after seeing the case a few times with him, it came under my care. I advised operation as the patient's life was in jeopardy, and she was sent to St. Elizabeth's Hospital. I cut down upon the tumor at the head of the tibia and found a large mass of sarcomatous tissue. An incision was made two inches above the knee, and the limb amputated; after checking the hemorrhage with hot water the flap contracted so that it was necessary to cut off two more inches from the femur. This operation was done on May 22, and two months afterward she began to have a burning sensation in the angles of the wound. Upon examination I found adhesions to the end of the femur. A month later a sharp protuberance could be felt and I advised another operation, when the remaining portion of the femur was removed. The patient rallied promptly from the operation and was in good spirits for a couple of months, when I was called upon to prescribe for what they considered to be a cold. She was very anemic, and upon examining the chest I found the respiration very shallow and every evidence of an invasion of the lungs by the sarcomatous disease. The symptoms continued to increase until she died of suffocation on January 30, three months after the last operation.

PRIMARY CARCINOMA OF THE PANCREAS.

Dr. D. W. BISHOP—I have here some specimens of primary carcinoma of the head of the pancreas, with secondary metastasis in the duodenum and liver. The specimens were sent to the college by Dr. John B. Hamilton; they were removed by autopsy from a patient at the U. S. Marine-Hospital. The specimen is quite fresh and the sections show remarkably well. They are shown simply as examples of carcinoma of the pancreas with secondary involvement of the other organs. The liver was considerably enlarged, but no measurements were made.

Proceedings of the First Meeting of the American Academy of Railway Surgeons.

Held at the Grand Pacific Hotel, Chicago, Ill., Nov. 9 and 10, 1894.

(Continued from page 954.)

During this time a skeleton program was projected and invitations extended to charter applicants in addition to a few others, to participate in the scientific work of the meeting and, with three exceptions, written replies were received and all but two surgeons in their replies, accepted the invitation. But in each instance the replies were received too late to change the program, as it was assumed on the part of the committee that where no objections were raised silence meant consent. Fortunately, however, our program as you will see is so large that the omission of a few from the same will still leave abundance of scientific work.

A galley proof of the program was sent by your committee to the leading medical journals of the United States, the majority of which either published it in full or made a suitable announcement of the meeting.

3. In addition to that, a program was prepared a copy of which, we take it for granted, is in the hands of each applicant for fellowship at this time. A copy of the program together with the following circular was sent to the presidents and managers of the railroads which, up to this time had not responded to the former circular, while a copy of the program without the circular was sent to those who had, in order that those who had replied might see that the committee was carrying out its work in good faith, and those who had not replied could see that the committee was in earnest and working conscientiously in the line proposed by the original circular:

AMERICAN ACADEMY OF RAILWAY SURGEONS.

Office of Chairman Committee on Permanent Organization.

COLUMBUS, OHIO, Oct. 20, 1894.

DEAR SIR:—Please find herewith inclosed the program of the meeting of the American Academy of Railway Surgeons, to be held at the Grand Pacific Hotel, Chicago, Ill., Nov. 9 and 10, 1894.

If you find the program of sufficient merit to warrant your recognition, we will be pleased to have you indicate the same by a letter to the Chairman of this Committee, informing him whether your company will agree to give a limited amount of transportation, provided such is requested through the proper officers of the company by which the surgeon is employed. The amount of transportation necessary for the coming meeting will be very small, as the entire fellowship is limited to not exceed a total of 200 in the United States, Canada and Mexico. An early reply will be greatly appreciated. Very respectfully submitted,

R. HARVEY REED, M.D., Chairman,
Consulting Surgeon B. & O. R. R., Columbus, Ohio.
W. H. ELLIOTT, M. D.,
Chief Surgeon Cent. R. R. of Ga., of Savannah, Ga.
C. K. COLE, M.D.,

Chief Surgeon Montana Central R. R., Helena, Mont.

As a result of these formal interviews with the management we are pleased to report to you that the following railroad companies controlling over 84,000 miles, out of a possible 130,000 miles having railway surgeons in their employ, responded favorably many of whom, as you will see by the letters placed on file elsewhere for your inspection are quite enthusiastic in their support of the proposed organization, provided it is controlled in the manner set forth by the original circular.

List of railway companies from which replies were received together with the mileage of their road:

| Name. | No. of Miles. | Name. | No. of Miles. |
|------------------------------------|---------------|--------------------------------|---------------|
| Allegheny Valley | 259 | K. C. St. J. & C. B. | 314 |
| A. T. & S. F. | 9,320 | Kanawha & Mich. | 167 |
| Baltimore & Ohio | 2,136 | Lake Erie & Western | 720 |
| Boston & Albany | 389 | M. St. P. & S. S. SM. | 1,170 |
| Boston & Maine | 1,294 | New York & New Eng. | 534 |
| B. & M. R. R. in Neb. | 3,421 | N. Y. C. & St. L. | 513 |
| Cent. R. R. of Ga. | 1,384 | N. Y. N. H. & H. | 1,473 |
| Chicago & Alton | 843 | N. Y. O. & W. | 477 |
| Chicago & East. Ill. | 503 | Northern Pacific | 4,494 |
| Chicago & Northwestern | 5,066 | Ore. Ry. & Nav. Co. | 1,066 |
| Chicago B. & C. C. | 195 | Phil. & Reading | 891 |
| C. B. & Q. | 2,175 | Phil. Read. & New Eng. | 181 |
| Chicago & Great Western | 922 | Pitts. Shen. & L. E. | 182 |
| C. R. I. & P. | 3,570 | Plant System | 1,492 |
| C. St. P. M. & Omaha | 1,492 | Queen & Crescent | 1,145 |
| C. A. & C. | 177 | Rio Grande Western | 530 |
| C. C. C. & St. L. | 2,305 | St. A. & T. H. | 240 |
| Cleve. Lorain & Wheel. | 165 | St. L. C. & St. P. | 96 |
| Col. Hock. Val. & Toledo | 326 | St. L. K. & N. W. | 276 |

| | | | |
|--------------------------------|-------|----------------------------------|-------|
| Col. San. & Hocking | 271 | St. Louis Southwestern | 1,227 |
| Del. Lack. & Western | 882 | S. P. Atlantic System | 1,742 |
| Denver & Rio Grande | 1,687 | Southern Ry. Co. | 4,399 |
| Fitchburg | 450 | Texas & Pacific | 1,499 |
| Florida Central | 933 | T. & O. C. | 357 |
| Grand Trunk | 3,510 | T. A. A. & N. M. | 800 |
| Ga. South. & Fla. | 382 | Union Pacific | 4,469 |
| Hannibal & St. Joe | 395 | Wahash | 1,980 |
| Ill. Cent. | 2,888 | West. N. Y. & Pa. | 655 |
| K. C. F. S. & M. | 1,192 | West Shore | 512 |
| Mex. Cent. | 1,847 | Wisconsin Cent. | 765 |

84,143

While there are quite a number of railway companies of no mean importance which have not answered to either circular, it is certainly very gratifying to note that without a single instance those who did reply were favorable to the proposed organization, and we are certainly not justified in assuming that those who did not reply were unfavorable.

4. To further assist in the permanent organization and to avoid unnecessary loss of time, Dr. C. K. Cole was requested to draw up a skeleton constitution and by-laws which was submitted to the various members of the committee, as well as others who were interested in this work, from which the Doctor has prepared a constitution which will be submitted to the Fellows of the Academy for adoption, with such alterations or modifications as in the judgment of the majority may be thought wise and prudent.

In entering into a permanent organization of this character, your committee recognized the necessity of allowing every applicant for fellowship the inalienable right of every American citizen to express his views by ballot as to who should be a fellow-member and associate with him in this organization. It was, therefore, thought wise to have the name of every applicant for fellowship placed on a separate slip which may be designated as a ticket, on which are two blanks opposite each name; one for "yes," and one for "no."

It is, therefore, recommended that one of these tickets be given to each formal applicant for fellowship in the proposed Academy, and at the appointed time a ballot be had whereby each applicant will be enabled to vote on every other applicant proposed for the Academy on said ticket. It is further recommended that each member write the word "yes," in the proper column, opposite each name proposed for fellowship, provided he is favorable to the same; and to write the word "no" in the proper column opposite each name of an applicant he is unfavorable to, and that it shall require at least three negative votes to reject an applicant for fellowship in the proposed Academy.

It is also recommended that the ballot be kept as secret as possible, so that no conference be held that will in any way hurt the feelings of any one who may be an honest applicant for admission, and that each ticket be placed in an envelope provided for the same and handed to the tellers whose duty it shall be to open and report the same to the Fellows in session, being careful to keep every ballot on file for reference should such be necessary.

You will observe that we have left it to the applicants for fellowship in the proposed Academy to settle how many negative votes shall be necessary to reject a member, and we would respectfully request you as members of the Association to take proper action upon the same before the ballot is taken. We would also recommend that this ballot be taken immediately following this report, in order that the fellowship of the proposed Academy may be definitely settled and those who have and who have not a right to vote in its proceedings be determined at the earliest possible moment.

It is also recommended by your committee that only those holding charter fellowship certificates, duly signed and numbered, should be entitled to a vote on permanent fellowship in the Academy, that each applicant holding such certificate should be entitled to one vote, and further, that no applicant should be permitted to vote by proxy, but must be in attendance, and when he casts his vote demonstrate his right to cast the same by exhibiting his charter fellowship certificate, which has been furnished every formal applicant for admission to the proposed Academy. If, however, a formal applicant has failed to bring his certificate with him, or has lost it, he can be identified by the roll of formal applications in the hands of the chairman of your committee. But without such identification, it has been thought wise and prudent not to permit such parties to cast a vote. It is also recommended by your committee that immediately after the election of the temporary secretary a roll call of charter members be had, as provided for in the program, and that the said secretary satisfy himself beyond a question that no one is admitted to the executive sessions except those who are formal applicants in the proposed Academy, as it is the firm belief of the committee that this is in the

best interest of the Academy and for the maintenance and promotion of harmony and good fellowship with all concerned.

In closing, the members of your committee beg leave to express their regret at not being able to complete their work more satisfactorily, but at the same time they can assure you that under the circumstances they have tried to do their duty carefully, impartially, conscientiously, and in the interest of the promotion of railway surgery and the railway companies of this continent.

Very respectfully submitted.

R. HARVEY REED, Chairman,

Consulting Surgeon B & O. R. R., Columbus, Ohio.

C. K. COLE, M.D.,

Chief Surgeon Montana Cent. R. R., Helena, Mont.

W. H. ELLIOTT, M.D.,

Chief Surgeon Georgia Cent. R. R., Savannah, Ga.

On motion of Dr. W. H. MEYERS, the report of the Committee on Permanent Organization was received and referred to the Committee on Publication, and the committee discharged.

On motion of Dr. F. H. PECK, Dr. C. K. Cole, Dr. R. Harvey Reed and Dr. F. H. Caldwell, were appointed a Committee on Constitution and By-Laws.

(To be continued.)

CORRESPONDENCE.

Minutes of Ophthalmic Section—A Correction.

DENVER, COL., Dec. 19, 1894.

To the Editor:—In the number of the JOURNAL for September 15, in a report of remarks made by me before the Section on Ophthalmology, which report was published without my knowledge or revision, occurs a passage (page 419, foot of first column) so worded as to be capable of interpretation as a personal reflection on a fellow member of the ASSOCIATION. No such reflection was intended; and I am not aware that any one who heard my remarks so misunderstood them.

My argument would have been better reported thus: "The Congress is not a representative body at all. It does not invite delegates from other associations. It has a different basis of membership. Others prominent in the work of this section intend to be present at the Congress, but it has not occurred to them that delegates should be appointed from this body. Dr. Savage might be as good a delegate as we could find, but we should not appoint delegates merely because it has been suggested to us to do so. To appoint delegates where delegates were not invited would be undignified."

If possible, I should like this correction published in the current volume.

Cordially yours,

EDWARD JACKSON, M.D.

Treatment of Typhoid Fever.

HASELTON, OHIO, Dec. 19, 1894.

To the Editor:—In answer to Dr. A. S. Caldwell, of Freeport, Ill., I should like to report my experience with Dr. Woodbridge's treatment of typhoid fever. I called him in consultation on October 27, last, to see the wife of a brother physician, who had been sick ten days with typhoid fever. The pulse was 120; her temperature was 104.5; rose spots abundant, marked tenderness in right iliac fossa, with enormous tympanitic distension. Her nervous symptoms were very bad; in fact, it was a typical and severe case of typhoid fever, with a feeble breath and a pulse which became dicrotic. I heard Dr. Woodbridge say in answer to the husband's anxious inquiries that he did not consider her in as much danger as he would a well person, taking the ordinary risks of out-door life. Her temperature went to normal on the tenth day of treatment and never rose above normal after that day.

I heard Dr. Woodbridge give equally remarkable prognoses in two other cases in the same family, both of which were verified by the results, both cases being cured in less than ten days.

I have since treated cases of typhoid fever by this method, without consultation, with equally wonderful results. It seems to me that the most remarkable thing about Dr. Woodbridge's treatment is the rapidity with which patients regain their strength and vigor after the temperature touches normal.

J. H. BENNETT, M.D.

BOOK NOTICES.

Weekly Medical Review, Pocket Reference Book and Visiting List. Perpetual. St. Louis: J. H. Chambers & Co. 1895.

A useful annual, handy and convenient.

The Sympathetic Nervous System. A Chart. By BYRON ROBINSON, M.D. Chicago: E. H. Colegrove & Co.

This useful chart represents the careful and accurate dissection of the ganglia and trunks of the great sympathetic nerves. A numbered index in the margin gives the names of the parts displayed. The pelvic plexus has been very carefully dissected and deserves especial commendation.

Obstetric Surgery. By EGBERT H. GRANDIN, M.D., Obstetric Surgeon to the New York Maternity Hospital, Gynecologist to the French Hospital, etc.; and GEORGE W. JARMAN, M.D., Obstetric Surgeon to the New York Maternity Hospital, Gynecologist to the Cancer Hospital, etc.; with 85 illustrations in the Text and Fifteen full-page Photographic Plates. Royal octavo, 220 pages. Extra cloth, \$2.50, net. Philadelphia: The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street.

This timely volume is elaborately illustrated, and gives a clear description of the modern obstetric operations. The titles are as follows:

Obstetric Asepsis and Antisepsis (Introduction). Chapter I, Obstetric Dystocia and Its Determination; II, Artificial Abortion and the Induction of Premature Labor; III, The Forceps; IV, Version; V, Symphyseotomy; VI, Cæsarean Section; VII, Embryotomy; VIII, Surgery of the Puerperium; IX, Ectopic Gestation.

This book gives in moderate compass the details of applied principles of aseptic obstetric surgery. It is carefully written and we commend its perusal to our readers.

A System of Legal Medicine. By ALLAN McLANE HAMILTON, M.D., and LAWRENCE GODKIN, Esq. With the Collaboration of James F. Babcock, Esq.; Lewis Balch, M.D.; Judge S. E. Baldwin; Louis E. Binsse, Esq.; C. F. Bishop, Esq.; N. T. Bristow, M.D.; B. F. Cardozo, Esq.; C. G. Chaddock, M.D.; A. F. Currier, M.D.; C. L. Dana, M.D.; G. R. Fowler, M.D.; W. T. Gibb, M.D.; W. S. Haines, M.D.; F. A. Harris, M.D.; W. A. Hornblower, Esq.; Chas. Jewett, M.D.; P. C. Knapp, M.D.; R. C. McMurtrie, Esq.; C. K. Mills, M.D.; J. E. Parsons, Esq.; C. E. Pellew; E. M. Judge; C. E. Pratt; W. A. Purrington, Esq.; B. Sachs, M.D.; F. R. Sturgis, M.D.; Brandreth Symonds, M.D.; V. C. Vaughan, M.D. Illustrated. Pp. 738. Vol. II. New York: E. B. Treat (5 Cooper Union). 1894.

We have already expressed our high estimate of the first volume of this work, and we can only reiterate what we then said, as applying equally to the volume under consideration.

The volume opens with a paper by Mr. Hornblower on the Duties and Responsibilities of Medical Experts; then follow II, Insanity in its Medico-Legal Bearings, by Allen McLane Hamilton; III, Mental Responsibility of the Insane in Civil Cases, by Judge Pratt; IV, Insanity and Crime, by B. Sachs; V, On the Relations of Mental Defect and Disease to Criminal Responsibility, by L. E. Binsse; VI, Aphasia and other Affections of Speech, by C. K. Mills; VII, The Effects of Electric Currents of High Power upon the Human Body, by Allan McLane Hamilton and G. DeF. Smith; VIII

Accident Cases, by Lawrence Godkin; IX, Mental Distress as an Element of Damage in Cases to Recover for Personal Injuries, by Jno. E. Parsons; X, Feigned Diseases of the Mind and Nervous System, by Philip C. Knapp; XI, Birth, Sex, Pregnancy and Delivery, by A. F. Currier; XII, Abortion and Infanticide, by Chas. Jewett; XIII, Genito-Urinary and Venereal Affections in their Medico-Legal Relations, by F. R. Sturgis; XIV, Marriage and Divorce, by S. E. Baldwin; XV, Sexual Crimes, by C. G. Chaddock; and XVI, Surgical Malpractice, by G. R. Fowler. There is also an appendix giving extracts from the laws of the different States and Territories of the United States which relate to the care of the insane.

One of the most interesting of the many instructive chapters is that on the effects of electric currents. The cases are cited of the criminals electrocuted in New York, and Hamilton says:

"This case and another quite recently reported in France by Arsonval, raise a grave question of how electricity kills; and whether the production of asphyxia is not what really takes place. The subject of the French case was a workman who received 5,000 volts (!) in some way and was restored to life by artificial respiration and other means. Again and again, cases 'struck' by lightning have, though apparently some time dead, been resuscitated, and it certainly is a grave question whether *post-mortem* examinations should not always be delayed until the matter of death is indisputably settled."—The article on surgical malpractice should be read by every surgeon.

Higher Medical Education; the True Interest of the Public and the Profession. By WILLIAM PEPPER, M.D., LL.D. Philadelphia: J. B. Lippincott & Co. 1894. Price \$1.

In this volume of one hundred closely printed pages, are included two addresses by Professor Pepper. The first was delivered in 1877, at the opening of the one hundred and twelfth course of lectures in the medical department of the University of Pennsylvania. It presented the position of medical teaching in America at that time, pointed out its chief defects and indicated the causes which led to them and the evils to which they in turn gave rise. In the appendix to this lecture, a statement was made giving the requirements of the systems of medical education in foreign countries.

The second address was delivered sixteen years later, in October, 1893, and the occasion was again at the opening of the annual course of lectures. This time the course had been extended to four years, Professor Pepper mentioning with just pride the great advances that have taken place in the system of teaching since his previous lecture. He has the right to feel proud of its accomplishments. He justly concludes as follows:

"I have told you at great length the story of the recent changes in medical education; of the way in which we have tried to secure the reforms recognized as necessary, of the admirable results already secured in the increased renown and prosperity brought to the University, and in the gratifying success and position of our graduates. When we reflect that not at the University of Pennsylvania alone, to which I have limited my remarks, but in many other institutions, the same righteous effort for sound learning and higher education is being made and is meeting with a like encouraging appreciation, it is a proud thought that in this Columbian year we may invite attention, not only to our vast material prosperity, but to the splendid development of our educational resources; to the rapid elevation of our standards, and to the pure intellectual life so strongly fostered in many great centers as it is in this venerable University.

"We have stood on that bridge that spans the lagoon in Jackson Park and have realized, as we gazed to the right, to the left, or ahead through the stately peristyle to the great lake beyond, that we were surrounded by such triumphs of art as not even Athens, in the golden age of Pericles and Phidias, could display. That one scene will pass, its purpose having been effected; but the impression it has produced will never pass away. It has introduced a new

standard; it has furnished a new inspiration; it has shown the astonished world that the fifth act of the world's great drama of empire, as sung by Berkeley, opens on no sordid scene, but on one whose noble ideals and noble opportunities await Time's noblest offspring. And to us who labor here in the departments of this great University, consecrated by the memories of the good and the wise who have lived here, consecrated also by the thousands of pure, high-minded youth who throng her halls, to us this year more clearly than before a vision arises of what she shall come to be, a vision as of temples not built with hands, where Truth shall dwell forever, and from whose glittering portals shall go out to all parts of the world knowledge for the healing of the nations."

NECROLOGY.

DR. OERTEL.—The death of Dr. Oergel, an assistant in the Hamburg Institute of Hygiene, is reported in the *Deutsche Medicinische Wochenschrift*, October 15, and was briefly noticed at the time in this journal. This was a sad case, the cause having been Asiatic cholera probably from laboratory infection. There is no positive evidence as to the manner in which the infection was accomplished, but he was daily engaged in cholera work. This is sufficient in the view of some to account for the event, but others have pointed out that Dr. Oergel may have gone counter to the rules of the laboratory. For example, some time before his death it was reported that he had been experimenting on himself with certain cholera-like vibrios from the water of the River Elbe. When he became ill he was asked whether he had to his own knowledge experimented with cholera germs also. His reply was not determinate; he said he would not have ventured to do anything of that kind, during the absence of Professor Dunbar, whose duties he, Dr. Oergel, had been detailed to perform. The attack was an excessively severe one, as judged by the very complete history of symptoms and treatment, so that there can be little doubt but that the disease was cholera asiatica, most likely contracted accidentally while handling the cultures of the bacillus of that disease in the laboratory.

The victim was yet a young man, having been born in 1864. He was for a time at Greifswald, as an assistant to Professor Löffler, but in June of last year he accepted an appointment at the Hamburg Institute. He was a man of marked ability, admirably adapted to the work of his choice, and highly esteemed by his colleagues.

DR. GEORGE A. PETERS, of New York City, who died December 6, was one of the consulting surgeons to the New York and St. Luke's Hospitals, positions that mark their holder as being of senatorial rank in his profession. Dr. Peters was the son of a clergyman. He took his degree in 1846 at the College of Physicians and Surgeons, N. Y., so that he was not far from entering upon his fiftieth year of practice in upper New York. He was not a frequent writer, but he has left behind him a valuable essay on acupuncture. He had been long connected with the Academy of Medicine, and an office-bearer therein. He was a member of numerous societies and a valued consultant to several other institutions besides the two above mentioned.

C. A. Brooks, M.D., of Americus, Ga., December 17.—W. A. Morton, M.D., of Liberty, Mo., December 10, aged 82.—J. T. McPherson, of Cambridge, Ohio, December 15, aged 70. A. B. Smith, of Geneva, N. Y., December 18, aged 75.—Dr. Foster, of Iowa Falls, Iowa, December 14.

The Manhattan Dispensary of New York.—The will of the late Mr. Hood Wright, of the old banking house of Drexel, Morgan & Co., gives to that institution the residue after certain specific bequests have been paid, and of this residue, the sum of \$100,000 is to be set apart as a building fund.

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SATURDAY, DECEMBER 29, 1894.

THE SANITARY INQUIRY AS TO TENEMENT-
HOUSES IN NEW YORK CITY.

A Commission, appointed by the Governor of the State at the instance of the last Legislature, has been engaged on an investigation of the evils of the tenement-house system in New York City. Public hearings have been had, from time to time, for several months. At a recent meeting it was shown that money-taking—proved conclusively to have been the order of the day in other departments—was not foreign to certain Tammany-appointed officers of the Department of Health. It was stated that one officer, concerned in the inspection of tenement-houses, stooped to take blackmail from a little boy who wanted to keep a few pigeons at his place of residence. Another case, lately brought to light, showed the "tenderloin instincts;" it was that of a poor woman, who was keeping a cow under conditions contrary to the sanitary ordinances. Her testimony showed that she had thrice paid money to an alleged officer or officers of the Board of Health, to induce him or them to shield her from complaints against the cow; and her money had, in fact, bought "protection" for quite a while.

Testimony has been received by this Commission to the effect that the tenement-house rentals in New York are about twice as high as those of London. For example, on the "East Side" of New York, the average monthly rent paid for three rooms is \$11.43; for two rooms \$7.86 and for one room \$5.04. Another set of figures, deduced from a canvass of six hundred families, also on the "East Side," places the weekly wage earned by those families that occupy four rooms at \$16.50; three rooms, \$11.99; two rooms, \$10.90; the occupiers of single rooms receive about \$8.50 per

week. So that it may be roughly stated that a fourth or a fifth part of such wages goes to the landlord. Not a few of the landlords are wofully remiss as to taking care of this class of property. In fact, a large percentage of them resist all orders for sanitary repairs until after prosecution in the courts puts a compulsion upon them. It is a felt want in New York to obtain by legislation larger powers for the municipal authorities in order to a condemnation and vacation of tenements, whose owners are wilfully neglectful of their tenants' sanitary needs. Report, to this effect, will be made by the Tenement-House Commission to the Legislature, soon to convene.

The work that has been accomplished for Dublin, in respect of a material reduction of its death rate, is claimed by SIR CHARLES CAMERON, M.D., to have been the result, in no small measure, of the systematic condemnations and vacations of fever-nests and tenement rookeries, many of which are ancient and dishonorable, dilapidated beyond redemption. The power to distenant these Dublin domiciles was obtained through special dispensation by the Local Government Board, in order to enable DR. CAMERON to make the attempt to stamp out the endemic typhus fever of Ireland's capital. The recently published experience of Dublin¹ will be ammunition for our American cities, which have unwholesome old structures that are too old and frail to warrant a bill for repairs.

One of the witnesses before the New York Commission, SANITARY ENGINEER WINGATE, testified to his belief that there should be more frequent and systematic inspection of tenement-houses, that the corps of inspectors should be much more numerous than it is, and that this corps should be composed of a higher grade of intelligence. The most desirable men can not get appointments under a Board that has been Tammanized for years. Political misrule has compelled some of the best employés to resign, and has tainted, with a few exceptions, the system of appointments, promotions and removals. Tammany Hall has, it is true, been "downed" this year, but it may be many years before its baleful influence in sanitary affairs can be nullified. One of the reforms that needs instant proposition is that which will make it possible for a medical man to be placed at the head of the New York Health Department. A plumber or a stock-broker may, under existing laws, be its president, but the medical man is specifically ostracized in that regard.

One of the proposed amendments to the tenement-house laws is one that will forbid the construction of houses, arranged for four families on a floor, on lots that are not more than twenty-five feet wide. Another means of relief in overcrowded sections will be advanced, namely, the tearing down of buildings

¹ See page 562 of this JOURNAL for Oct. 6, 1894.

that are unfit for human habitation, and the creation of small parks in their stead; it has been recommended also that these small parks should be laid out around the public schools, for the double benefit to both neighborhoods and schools.

So rapidly as the clutch of the ward heeler can be loosed from the neck of New York City, in that proportion may be expected a purification of the tenements; and this purification will redound to the perpetuity of our American government. For, as some one has said: "Scratch a tenement-house dweller and you find an Anarchist," or the material for one. The houses that have little light and impure air are the recruiting ground "for the ranks of the socialists and anarchists. Social discontent is bred in overcrowded tenements, and these stifling places may become the incubators of mobocracy. Give the people a chance to breathe, and they will gain in tone, both physical, psychical and political." And the REV. DR. PARKHURST has recently pointed out that the polyglot populations of lower New York are not so blind to their true interests as many have believed. He says that "one of the most interesting and surprising lessons of the recent upheaval is the impression that has been made on the masses; the change of sentiment in this respect in the eastern and southeastern portions of the town during the last year is simply phenomenal." These people are poor citizens, not because they are vicious, but because they have had no opportunity to learn where their higher interests lay, and because they have seen corruption and perjury, during the rule of the bosses, "take all the honors," especially among the police and the courts of justice, so-called. Now it should not be forgotten, in this connection, that the president of the police force is an ex-officio member of the Board of Health, and appointed in the old partisan way.

INCREASE OF THE MEDICAL STUDENT CLASS.

Through the courtesy of the Deans and Registrars of 98 out of the 117 existing regular medical colleges in the United States and Canada, the JOURNAL is enabled to present some interesting data concerning the growth of medical colleges in general, and especially concerning their increasing classes. Since many of the returns were made early in November and before the enrollment was completed, the figures herewith given are below rather than above the exact numbers. Another source of incompleteness also exists in the fact that no note has been taken of newly-organized institutions; in order to institute comparisons, the colleges invited to furnish returns were limited to those listed in the last Report on Medical Education of the Illinois State Board of Health—that dated Jan. 1, 1893, and dealing with 117 institutions which gave graduating courses in 1892.

As already indicated, ninety-eight of these institu-

tions have transmitted to the JOURNAL returns of the total number of students and of the numbers in each grade in attendance upon the current sessions and upon previous sessions covering a period, in many cases, of five years. These returns, with the comments of the reporters, will be published *in extenso* in a future number of the JOURNAL; meanwhile, the following summary statement should serve to drive the iron still deeper into the collective soul of our British brethren, who are bitterly bewailing the decadence of the medical student class, and the consequent diminishing output of medical practitioners, in the United Kingdom.

In 1892 these 98 colleges reported a total of 15,330 students out of a grand total of 18,340 in attendance at the entire 117 colleges; that is, the 98 colleges now reporting for 1893 and 1894 had 83.5 per cent. of the total attendance of 1892. For 1893 they report an attendance of 16,267, and for 1894 an attendance of 17,701. On the same basis of 83.5 per cent., the total attendance in 1893 was 19,481, and for the current sessions the total attendance is 21,186. As before remarked, this latter number will be increased on the completion of the enrollment. The percentages of increase are 6.2 for 1893 and 8.7 for 1894, and the average annual increase since 1881 has been 8 per cent., or an aggregate increase of 104 per cent. in thirteen years.

It is a little difficult to compare these figures with those of the medical schools of the United Kingdom, since the only data at hand are those contained in SIR RICHARD QUAIN'S address as President of the General Council of Medical Education and Registration at the beginning of its winter session, Nov. 27, 1894. In a table, compiled by DR. QUAIN, showing the number of medical students registered in the three divisions of the United Kingdom in the four last quinquennial periods, the following figures are given: 1874-78, total 7,540; 1879-83, total 9,931; 1884-88, total 9,604; 1889-93, total 8,696. If it be assumed that one-fifth of any one of these quinquennial totals were in attendance during any given year of the respective quinquennium, then there were only 1,739 registered students in 1893 and there had been a loss of 14.2 per cent. during the preceding ten years. But the stars and stripes—*pace* OLIVER WENDELL HOLMES—waved over a 99 per cent. increase in the same period, and the American eagle screams with delight to see an aggregate of more than 20,000 neophytes in the Temples of Esculapius during the current year.

Nor do our French *confrères* make a much better showing than the English. According to PROFESSOR BROUARDEL, Dean of the Paris Faculty of Medicine, made at the November meeting of the Council of the Academy, the total number of students inscribed on the books for 1894 is only 5,144—and of this number

1,002 are foreigners; largely, no doubt, from this country. Paris is, in effect, France; but even Greater New York is not the United States. And yet the New York medical schools to-day have an enrollment of more than 2,500 regulars and some 300 irregulars, as against the enrollment of Paris with one-fourth more population.

Congress may put tariffs up or down, or abolish them entirely; may threaten currency legislation, or railroad-pooling bills, or any other device for or against the industrial prosperity of the nation. But here is one American infant industry that thrives apace and asks for no protection. What the struggling practitioner in the already over-crowded ranks thinks of it belongs in another category.

THE ANTITOXIN OF DIPHTHERIA AT NEW YORK CITY—COST OF PLANT.

It is reported that the young medical men attached to the Board of Health of New York are bearing the expenses of the present antitoxin experiments from their own purses. They, some months ago, duly made application for an appropriation of the city's funds for the purpose, but they were denied. It is possible that money may be voted by the authorities after New Year's Day. The sum asked for and refused was \$27,000; it is computed to be none too much to enable any Department of Health to maintain a station with fifty horses for one year. The first half-year mainly is preparatory, and non-productive of the remedy; although this period of delay may be reduced by certain proposed changes in the maturing of the product. The following is an estimate that has been published in New York. It may be interesting to readers in other places, where it is proposed to establish antitoxin stables. The average monthly cost for a stable, having fifty horses under cultivation, will be during the first year about \$2,300. The average cost per horse, during the first non-productive half-year, will not be far from \$290; in the second half-year about \$250. This shows an expense account that will deter some from rushing into the field. It is already apparent that certain people are offering an immature and hurtful (because valueless) product. *Caveat emptor* must be the motto of the profession, just now.

This statement is intended to show: 1, the approximate cost of preparing fifty horses so as to render the latter available for the production of antitoxin. The period which will be necessary to effect this preparation is estimated to be about five months:

| | |
|--|----------|
| Cost of horse | \$40 |
| Cost of keeping horse (per month \$25) five months | 125 |
| Total | \$165 |
| Cost of fifty horses (each \$165) | \$8,250 |
| One veterinarian, five months (\$100 per month) | 500 |
| Two experts, five months (\$150 per month) | 1,500 |
| One helper, five months (\$45 per month) | 225 |
| Apparatus | 1,500 |
| Total | \$12,075 |

At the end of the five months the following expenses will be necessary:

| | |
|---|---------|
| Fifty horses (stabling, \$25) | \$1,250 |
| Two experts (\$150 each) | 300 |
| One helper | 65 |
| Apparatus | 100 |
| Loss on horses | 250 |
| Total | \$1,965 |

It is estimated that each horse will produce sufficient serum to treat about fifteen cases per month. This is a conservative estimate, which would be for the 50 horses 750 cases per month. In other words, 50 horses would produce about 2,500 doses per month.

THE DOCTORS MOST OF ALL.

Referring to the public movement in this country in favor of good roads, the *Journal of Commerce* says that it is a mistake to suppose that only farmers are concerned in the movement for good roads. "City merchants and manufacturers," says the *Journal*, "who depend largely on the country for their patronage, are also interested, and ought to join the movement."

We might add, with much force the assertion, that the country doctor, and as well those doctors engaged in suburban practice, are as much interested as the farmers; indeed, four-fifths of the time given to practice is taken up in driving from house to house. It is therefore clear that no single class of our citizens, is more interested than the doctor, and when we consider that much of his travel is done at night, it is apparent that the doctor needs good roads more than any other. The whole profession therefore should use its powerful influence in support of all reasonable legislative enactments in favor of good roads. It is a mistake to allow such a wise and advantageous measure to drift into the custody of mere partisans or cranks, and physicians everywhere, having influence with legislators, should throw that influence in favor of this movement, for the doctor most of any, is interested.

HOSPITAL APPOINTMENTS.

Physicians in this country so commonly serve without salary or hope of reward on the staffs of our large hospitals, that it is only fair, that when a change is to be made, the Medical Board should be consulted.

A recent case in Philadelphia where a well-known physician, (DR. JUDSON DALAND) was summarily removed, without notice to himself or his colleagues on the staff, brings the matter once more to the surface.

It is greatly to the credit of the new appointee (DR. HOBART A. HARE) that he very properly and promptly declined to accept the appointment, which although complimentary to himself, he could not accept without seeming to acquiesce in the reflection cast upon his predecessor. Newspaper statements, unsustained by any investigations, reflecting upon DR. DALAND, were published after his removal, thus

adding a positive injury to the moral grievance sustained by the removed physician.

DR. HARE in thus acting up to the motto, *noblesse oblige*, has given the lay members of the hospital board a needed and useful lesson.

PUBLIC HEALTH.

Leper Home at Jerusalem.—A Moravian institution has long existed at the Holy city, for lepers. Its last annual report shows that the year was begun with twenty-eight patients, an increase of four; of these sixteen were males and twelve females. Two of them have been at the Home not less than twenty years. Six deaths occurred in the year, some of them from causes, as apoplexy, that were intercurrent with leprosy rather than secondary to it. The inmates are given light work to do, and when they consent to it, they appear to do much better physically than when they remain unemployed.

Improving Health Conditions.—In the closing week of December the reports of JOURNAL correspondents indicate a generally improving condition of the public health as compared with the month of November and with the first ten days of the present month. Although there has been some increase of smallpox since the beginning of colder weather, its anticipated epidemic spread has not taken place; on the contrary, there has been a decrease in the number of new cases in the two chief centers, Chicago and Milwaukee, as compared with November. On the 26th inst. there were 46 cases remaining in the Chicago Municipal Hospital, as against 64 on the corresponding date of the previous month; and for the same date there were 83 cases in Milwaukee—35 in hospital and 48 in homes—as against 106 in November. A similar decrease is noted in other localities. The reports also indicate a diminishing prevalence of diphtheria and typhoid fever toward the close of the month, but an increase of the death rate from pulmonary diseases, and especially from phthisis. This increase, however, does not swell the general death rate, and the closing days of 1894 show a condition of the public health which should be highly gratifying to the sanitarian, at least.

The Therapeutic Sensation of 1894.—There is nothing of scientific importance to be added to the record of the diphtheria antitoxin—the therapeutic sensation of the year now drawing to its close. Dr. Hausemann's threatened demolition of its claims proved to be a lame and impotent attack, whatever force it might have had being more than offset by Professor Virchow's own statements at a subsequent meeting of the Berlin Medical Society. Hausemann, it will be remembered, is Virchow's assistant, and it was generally believed in Berlin that the attack was made at the instigation of the Professor. But Virchow himself has now indorsed the results of the diphtheria antitoxin treatment begun last March in the Kaiser and Kaiserin Friedrich Hospital, the figures of which are as follows: In the whole space of time 533 cases were treated—303 with the serum, 230 without; the former had a death rate of 13.2 per cent., the latter of 47.8 per cent. After an analysis and summing up of the results, Virchow said he held it to be the duty of every doctor to use the serum in diphtheria. "All theoretical considerations," he added, "must give way to the brute force of these figures." He, nevertheless, pronounced the current theory of antitoxin therapeutics a fallacy, and, while recommending the serum, to which he emphatically attributes a high therapeutic value, he insists that its theoretical explanation must be left to the future.

Phenomenally Hot Years.—The recent mild winter weather in this country somewhat breaks the force for us of the contrast which the *Journal d'Hygiene* endeavors to make in furnishing a list of phenomenally hot years as "agreeable reading now that cold weather is at hand." Among the most remarkable of these torrid years, all of which had serious effects on the public health, may be mentioned A.D. 738 when the heat was so great throughout Europe and especially in France, that nearly all the springs dried up and thousands perished of thirst. In 879 reapers who staid in the field after midday fell dead in great numbers. In 990 nearly all fruits dried up, occasioning a great famine and an enormous mortality. In the year 1000, amidst panic fears about the end of the world, the river sources dried up and vast numbers of fish putrified, giving rise to a general epidemic; it was widely believed that the end of the world by fire was at hand. In 1132 rivers and springs again dried up and the bed of the Rhine became a dry sandy road. In 1182 the sand was so heated that eggs were cooked in it in a few minutes. The Seine, Loire, Rhine and Danube could be passed over dry-shod in 1303. All fruits withered and animals dropped dead from the excessive heat of 1393. Four years of great heat and continuous dryness, from 1538 to 1541, caused many rivers to disappear entirely, crops were failures and famine and sickness carried off large numbers. There were fifty-eight consecutive days of extraordinary heat in 1646. There was no rain from April to October in 1710; the Reaumur thermometer marked over 36 degrees; in gardens which could be irrigated fruit ripened twice. In 1818 the theaters of Paris were closed for a month on account of the heat; the thermometer marked over 38 degrees R. During June and July, 1830, the centigrade thermometers registered over 38 degrees in Paris in the afternoons.

Circular of Information Regarding Scarlet Fever.—The following is a portion of a circular of information recently published by the Brooklyn Department of Health:

"Scarlet fever, sometimes called scarlatina or scarlet rash is a highly contagious disease, and may spread rapidly from person to person through contact or by means of books, papers, toys and articles of clothing. A patient suffering from this disease should be placed apart from the rest of the family, in a sunny and well-ventilated room, free from all unnecessary furniture and hangings, and, as nearly as possible, should be nursed by one person. Members of the family should avoid mingling with other people, and visitors, especially children, should not be admitted to the infected house. The scales from the skin are dangerous sources of infection, and during the period of peeling, the person of the patient should be sponged daily with soap and warm water. Discharges from the nose and mouth should be received on pieces of cloth, which should be burned or disinfected before removal from the sick room.

"Bed linen and underclothing, before removal from the sick room, should be placed for an hour in a solution of carbolic acid, in proportion of one pint of acid to four gallons of water. This solution is poisonous. The clothes should then be boiled in water. In no case should infected clothing be sent to a laundry.

"After recovery or death, the sick room and its contents should be thoroughly disinfected by the Department of Health or under the direction of the family physician, in the following manner: The walls, ceiling and woodwork should be rubbed with dry cloths, which should be burned without being shaken. The floor should be scrubbed with soft soap and the above mentioned carbolic solution. The room should then be fumigated with burning sulphur, 3 pounds to 1,000 cubic feet of space, for eight hours, care being taken to close the room tightly, and freely expose all woolen clothing, car-

pets, mattresses, etc., and to have steam in the room before lighting the sulphur. Books, papers and toys should be destroyed by burning. The Department of Health is now prepared to disinfect according to the latest improved methods, free of cost."

SOCIETY NEWS.

Association of Erie Railway Surgeons.—The Association of Erie Railway Surgeons will hold their annual meeting in Youngstown, Ohio, Jan. 10, 1895, under the Presidency of E. Griswold, M.D. The following papers are on the program:

The use of Alcohol in Traumatic Surgery, by Clayton M. Daniels, M.D., Buffalo, N. Y., ex-President Association of Erie Railway Surgeons.

Immobilization vs. Passive Motion in the Treatment of Injuries to the Joints, by Prof. R. Harvey Reed, M.D., Cleveland, Ohio.

Potts' Fracture and its Treatment, by Prof. C. B. Parker, M.D., Cleveland, Ohio.

Traumatism of the Ear, by R. Sayre Harnden, M.D., ex-President Association of Erie Railway Surgeons, Waverly, N. Y.

Delayed Union and Pseudo Arthrosis, by Wm. H. Buechner, M.D., Cleveland, Ohio.

Relations of Railway Surgeons to Claim Department, by W. E. Talcott, Special Claim Agent, N. Y., P. & O. R. R., Cleveland, Ohio.

The Treatment of Injuries to Fingers, by Prof. Webb J. Kelly, M.D., Galion, Ohio.

After 20 Years' Experience with Ether and Chloroform, by Henry Flood, M.D., Elmira, N. Y.

A Case of Sphacelus of Leg and Gangrene of Thigh and Inguinal Region, with remarks by E. Griswold, M.D., Vice-President, Sharon, Pa.

Some Reasons why we should have, and some of the Objections met with in organizing a Hospital System, by Emery H. Leyman, M.D., Huntington, Ind.

Tension, by S. B. Hiner, M.D., Lima, Ohio.

Opportunities of the Railroad Surgeon, by F. D. Bain, M.D., Kenton, Ohio.

MISCELLANY.

The Hartford Hospital.—Under the will of the late Henry Keney, of Hartford, Conn., the hospital of that city will receive \$50,000, also a share in a contingent remainder.

Some Curious Statistics.—A writer in the Lyons *Medical Gazette* has calculated that a man at 50 years of age has worked 156,000 hours; has slept 144,000 hours; has amused himself 96,000 hours; and has been sick 12,000 hours. During this period he will have walked 19,000 kilometers and eaten 36,000 meals, including 7,000 kilos of meat, 1,800 kilos of fish, eggs and vegetables and 4,200 liters of different kinds of liquids. Apparently they don't eat three meals a day in France and 30,000 hours of an existence of 50 years are passed in a state of Nirvana.

Goutre in Asia.—In some parts of Central Asia, goitre is extraordinarily prevalent, it being estimated that over 75 per cent. of the men are thus affected, and the prevalence of the disease is attributed to the bad water. The natives account for its origin as follows: A holy man of Khotan, named Sala Paikhumber, once went to the village of Posgam on his camel; he slept there in a cave, and, on awaking one morning, found his camel gone. Upon inquiry he found some of the people of the village had killed and eaten it, whereupon he cursed them and prayed to Allah that all the inhabitants of Posgam should have huge lumpy throats like the camel they had eaten.

A Japanese Hospital.—An American officer, now on duty at the seat of war in the East, has written home an account of his visit to an Army hospital at Nagasaki. The following is part of his report, the whole going to show that the Japa-

nese have a remarkable faculty for the selection of "the best," when they go abroad to learn what Europe and America are doing:

"The hospital was the admiration of the French and English surgeons, as well as our own. The medical staff were all Japanese, who had graduated in medicine and surgery either in America or England, then taken a post-graduate surgical course in clinics at the Paris and Berlin hospitals. They had the best modern instruments and systems, the newest antiseptics—everything a hospital on modern lines should have. And all this is the work of a generation. Truly the Japanese is a wonderful man."

Abdominal Palpation of Obese Women.—Dr. Harris Slocum has written, in the *Philadelphia Polyclinic*, on a new method of examination of very stout females. He has found a narrow zone on the abdominal walls where the fat in the muscular layer is deposited to a less extent than at other points. He describes this as a depressed curved line running from one anterior spine to the other, with its convexity toward the mons veneris. Along and near this line little fat is lodged. By depressing the finger tips the pelvic organs may be felt, the fat about the navel and below the zone being pushed out of the way by the pressure of the hand. In this way, he says, an effective palpation may be obtained even in the most obese. He has had a satisfactory experience with it, personally, beyond that which had formerly been possible by palpation over the abdomen at large. The method can not be carried out when there is much gaseous distension of the intestines, or when the dress is tight.

Guaiaicol in the Treatment of Orchitis.—Balzer and Lacour have communicated to the Hospitals Medical Society of Paris the results of their treatment of orchitis with guaiacol (*Ann. de Derm. et Syph.*) Their attention was directed to this agent on account of its sedative and antithermic action. Pure guaiacol applied in the quantity of one gram, morning and evening, causes a somewhat marked smarting sensation which, in about ten minutes, becomes a simple sense of heat lasting for a couple of hours; the pain is first relieved and then disappears completely, sleep becomes possible and the temperature falls to normal. Pure guaiacol often gives rise to erythema and desquamation of the serotum; it is, therefore, advisable to use five or ten grams of the drug to thirty grams of vaselin. With this mixture the smarting is hardly noticeable, but the sensation of heat is the same as with the pure drug; the therapeutic effects, while somewhat less prompt, are equally satisfactory, pain is rapidly lessened, temperature lowered and sleep made possible. The ointment as a rule does not irritate the serotum. Theunctions are made with three to five grams of the mixture, repeated twice daily, the serotum being covered by a compress held by a T-bandage.

Nerve Supply of the Ovary.—Devosa, in order to ascertain the distribution of the nerve fibers up to their ends in the ovary, used Golgi's staining method and furnishes the results of his study in the proceedings of the Academy of Medicine of Belgium. He made use of several different animals—the dog, cat, rat, mouse, guinea pig, turtle and calf. He describes a network of nerves, which accompany the arteries, arterioles, veins and venules; but found no vasomotor system along the capillaries nor, in general, at points where there is no unstriped muscular fiber; neither did he find any ganglion cells. Besides the network just mentioned, there exists in the ovarian stroma, and especially in the cortical zone, a plexus very rich in trunks and fibers interlacing in every direction. This plexus penetrates into the albuginea and some parts reach the base of the germinal epithelium, outlining the young follicles and forming a compact network around the adult follicles. The author found fibrillae even in the granular layer, where they terminate in

cylindrical swellings, but he was not able to prove these to be end-organs.

Liability of Physicians for Want of Skill.—A physician, undertaking the care and treatment of a patient standing in need of his services and employing him, it has become a familiar and well-established principle of law, contracts that he possesses ordinary skill, that he will use ordinary care, and exercise his best judgment in the application of his skill to the case which he undertakes. Nor does this question of his liability depend upon the skill he possesses, but upon the fact whether he has applied that reasonable skill and diligence which is ordinarily used in his profession. Whether he has exercised that skill, or has been guilty of a lack of ordinary care, and want of ordinary skill and attention in any given case, is always a question of fact for the jury. This is the language of the Supreme Judicial Court of Maine in the late case of *Cayford v. Wilbur*, which was brought to recover damages sustained in consequence of the alleged careless, unskillful, and negligent manner in which a surgeon treated a patient in reducing a fracture of both bones of the latter's leg. A verdict was rendered for \$2,075 which this court refuses to set aside. It says that, with the evidence conflicting, it was the province of the jury to decide those controverted questions, and this it had done. Nor were these damages so excessive does the court think, as to justify it in disturbing the verdict on that ground. If the party suing was entitled to recover, then the damages in a case of this nature, and from all the evidence in the case upon that branch of it, it says, did not seem to be excessive. As a general rule, the parties are entitled to the judgment of the jury, and not of the court upon the question. There are cases, to be sure, where the court will intervene; but those cases will be governed by the evidence and circumstances of each particular case. The court will not, however, set verdicts aside on the ground that the damages are excessive or inadequate, unless it is apparent that the jury acted under some bias, prejudice, or improper influence, or have made some mistake of fact or law.

Liability for Sale of Poisons to Minors.—The Supreme Court of Mississippi rendered a decision Oct. 15, 1894, in the case of *Meyer v. King*, which contains several points of interest. This was an action brought by a father to recover damages from a druggist for the death of his minor son, caused by the latter's taking chloroform sold to him while intoxicated. The minor was one of years of discretion. Because it was not alleged of him that he was inexperienced in the use of chloroform, that there was anything in the character or disposition of the minor that rendered it dangerous to put the chloroform in his hands, or that he was ignorant of its use, it is held that there was no cause of action presented. The death could not, it is said, be connected with the sale, as cause with effect, but it was due to the new one of the minor intervening, and operating as an independent cause to produce it. Moreover, the court holds that a minor old enough to earn, as a clerk in a grocery store, a reasonable and substantial compensation and old enough to be about town drunk,—and that was the case made out here,—was old enough to be chargeable with contributory negligence arising from voluntary intoxication, and that, therefore, the very allegation intended to show a cause of action in this case showed, when taken advantage of, that there was none. The minor, if he had survived, could not, under such circumstances, have maintained a cause of action. The liability of the druggist depended upon the nature and quality of his act in making the sale, as characterized by the circumstances of the sale, as between him and the minor. This act took its quality and color, not only from what he did in making the sale, but from the presence or absence on the minor's part of such contributory negligence, in his conduct at the time as would bar him had he lived and sued. The presence of such contributory

negligence, if it existed, was an essential part of the legal quality of the act as imposing liability as between the minor and the druggist, and it was only where he, had he survived, could have sued, that the father, after his death, could. Finally, the court decides that he who violates Section 1,592 of the Code, which forbids the sale of poisons to minors, is punishable for such crime by fine and imprisonment under Section 1,454. Code 1892, and is civilly guilty of negligence. But whether such negligent act makes him liable for the special damage sustained depends upon whether it is the proximate cause of the injury.

Abandonment of Newport Barracks, Ky.—In looking over the available material for a few remarks in the way of good-bye to the now abandoned military post of Newport Barracks, Ky., one is struck by an amusing illustration of heredity in the army medical officer. The surgeon of the United States Army was so accustomed to be stationed on the outskirts of settlement and civilization that every remark made by him concerning the climate, fauna, flora, etc., of his station was accepted as an addition to our knowledge of the hitherto unknown. The army medical officer came, therefore, to feel that it was his bounden duty to report on these subjects wherever he was stationed. In this way we find an explanation of the fact that in an official report of the conditions at Newport Barracks, published in 1870, it is gravely announced in relation to two or three hundred men stationed at the post: That the climate may be classed among the temperate and that the seasons are tolerably well defined; the seasons change by quite a regular gradation, etc. . . . "The geologic formation at this post is that of the lowest silurian; the blue limestone containing the trilobite and other characteristic organic remains of this period is about sixty feet below the surface and is covered by alluvium, sand and gravel. The primitive forest growth in the neighboring country is beech, walnut, hickory, sugar tree, white oak," etc. All this while there are more than a quarter of a million people living in the cities surrounding and swamping the few soldiers in whose interest the report was written.

From the status of a military post for defensive and offensive warfare, Newport Barracks became at one time a depot for recruits and at another an arsenal. For some years past it has been garrisoned by only a few men, the post of Fort Thomas, Ky., having taken its place. A commodious and well appointed brick hospital was built in 1874; but on account of the probable abandonment of the post it has not been kept in repair, and indeed, of late it has practically been unoccupied. The barracks were three-story brick buildings, the lower floors occupied as kitchens and messrooms, the upper as dormitories. The officers' quarters were of brick, facing the Ohio River. Most of the buildings were old and in bad repair. Water was supplied by connection with the Newport waterworks. The prevailing diseases were intermittents, diarrheal and venereal diseases.

Drunkenness as an Excuse for Crime under the New York Penal Code.—At common law, drunkenness was not only an excuse for crime, but evidence of intoxication, while admissible, and to be considered in some cases, was yet generally of no avail. If a man made himself voluntarily drunk, it was no excuse for any crime he might commit while he was so, and he had to take the responsibility of his own voluntary act. If the assault were unprovoked, the fact of intoxication would not be allowed to affect the legal character of the crime. The fact of intoxication was not permitted to be even considered by the jury upon the question of premeditation.

The strict rule of the common law has, however, been slightly relaxed by the New York penal code, which provides that "No act committed by a person while in a state of voluntary intoxication shall be deemed less criminal by reason of his having been in such condition. But whenever the actual existence of any particular purpose, motive or intent is a necessary element to constitute a particular spe-

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